FINAL
ENVIRONMENTAL IMPACT STATEMENT

GRIZZLY BEAR RECOVERY IN THE BITTERROOT ECOSYSTEM

Scope of This Document

This document covers the actions of the U.S. Fish and Wildlife Service and cooperating agencies in evaluating alternatives to recover the grizzly bear in the BE of Idaho and Montana. The actions evaluated in this document involve the listed grizzly bear and relate to actions involving grizzly bears and the management of these grizzly bears. Actions involving allocation of public resources such as timber, mining, road building, or grazing on National Forest lands and State lands are not implementable through a Record of Decision signed by the U.S. Fish and Wildlife Service. Decision documents involving allocation of these resources on National Forest and State lands are the legal responsibility of the USDA Forest Service, and the states of Idaho and Montana, through appropriate Forest and State planning processes.

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ABSTRACT

The U.S. Fish and Wildlife Service has selected Alternative 1, as modified by public comment, as the preferred alternative and proposes to implement an experimental population rule and reintroduce grizzly bears into the Bitterroot Ecosystem in east central Idaho. The rule would allow liberal management of grizzly bears by government agencies and the public to minimize conflicts over uses of public lands, effects on domestic animals and livestock, and impacts on ungulate populations. A Citizen Management Committee would be tasked with management implementation responsibility for the experimental population and would be tasked with implementing the Bitterroot Chapter of the Grizzly Bear Recovery Plan. Reintroduction could result in grizzly bear recovery in the Bitterroot Ecosystem (achievement of the tentative recovery goal of approximately 280 grizzly bears occupying suitable habitat) in a minimum of 50 years (4 percent growth rate), but would likely take more than 110 years (2 percent growth rate) after bears were released.

The Bitterroot Ecosystem, as characterized by data from 10 counties in central Idaho and 4 counties in western Montana, is approximately 44,419 square miles and 76 percent Federal land. The area has a population of 240,928; a $4.6 billion local economy; 440,572 cattle and sheep (298,000 are grazed on national forests); about 274,359 ungulates; with a hunter harvest of 28,023; and receives approximately 13,268,395 recreational visits annually to national forests in the area.

A recovered grizzly bear population potentially could kill about 6 cattle (4-8) and 25 sheep (5-44), and up to 504 ungulates per year. This would not measurably impact ungulate populations or hunter harvest. Nuisance bear incidents could average 37 (0-74) per year. There would be no anticipated impacts to land use activities on public or private land, including timber harvest, mining, and public access/recreational use. Changes to hunting seasons could occur due to conflicts. Risk to human health and safety from a recovered grizzly bear population would be less than one injury per year and less than one human mortality every few decades. Economic analyses indicate grizzly bear recovery in the Bitterroot Ecosystem would lead to total net economic benefits of $40.4-$60.6 million per year and total costs of $195,720-$201,568 per year (costs during the initial 5-year reintroduction phase would be $436,352-$442,200 per year).

The following alternatives are examined in this Final Environmental Impact Statement:

Alternative 1--Restoration of Grizzly Bears as a Nonessential Experimental Population with Citizen Management (Preferred Alternative). Goal is to achieve grizzly bear recovery by reintroducing grizzly bears designated as a nonessential experimental population under Section 10(j) of the Endangered Species Act to central Idaho. A Citizen Management Committee would be tasked with management of this grizzly bear population.

Alternative 1A--Restoration of Grizzly Bear as a Nonessential Experimental Population with USFWS Management. Goal is to achieve grizzly bear recovery by reintroducing grizzly bears designated as a nonessential experimental population under Section 10(j) of the ESA to central Idaho. The U.S. Fish and Wildlife Service would manage the recovery of this grizzly bear population.

Alternative 2--The No Action Alternative - Natural Recovery. Goal is to allow grizzly bears to naturally expand their current range into central Idaho and the Bitterroot Ecosystem. Such grizzly bears would be listed as threatened.

Alternative 3--The No Grizzly Bear Alternative. Change current laws and prevent grizzly bear recovery in the Bitterroot Ecosystem.

Alternative 4--Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration. Achieve grizzly bear recovery through reintroduction and extensive habitat protection and enhancement to assist natural recovery. Bears would have full status as a threatened species under ESA provisions.

Alternative 4A--Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management. Goal is to achieve grizzly bear recovery through reintroduction and U.S. Fish and Wildlife Service management. Bears would have full status as a threatened species under the provisions of the ESA.

It is anticipated that a Notice of Availability will be published by the Environmental Protection Agency in the Federal Register on March 24, 2000. There will be a standard 30-day public review period under NEPA. Public comments on the FEIS are welcome and will be accepted from March 24, 2000, through April 24, 2000. Public comments will be reviewed, and a Record of Decision will be prepared and released to the public. Any decision regarding grizzly bear recovery in the Bitterroot Ecosystem as well as opportunities for future public involvement will be well publicized. Comments should be directed to Dr. Christopher Servheen, U.S. Fish and Wildlife Service, Project Leader, BITTERROOT GRIZZLY BEAR EIS, P.O. BOX 5127, MISSOULA, MONTANA 59806.

Ralph O. Morgenweck
Regional Director, Region 6
U.S. Fish and Wildlife Service

Approved Ralph O. Morgenweck

Date 2/22/00

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FINAL
ENVIRONMENTAL IMPACT STATEMENT

GRIZZLY BEAR RECOVERY IN THE BITTERROOT ECOSYSTEM

U. S. Fish and Wildlife Service
Bitterroot Grizzly Bear EIS
P.O. Box 5127
Missoula, Montana 59806

March 2000

SUMMARY

Introduction

This summary of the Final Environmental Impact Statement (FEIS) describes 6 alternatives that represent different approaches to grizzly bear recovery and management in the Bitterroot Ecosystem (BE) of central Idaho and western Montana. The process used to develop alternatives, and the environmental consequences of implementing each alternative are described. Four alternatives involve reintroducing grizzly bears from other areas in the United States and Canada to the BE: Alternative 1 - "Restoration of Grizzly Bears as a Nonessential Experimental Population with Citizen Management;" Alternative 1A - "Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Management;" Alternative 4 - "Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration;" and Alternative 4A - "Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management." Alternative 2 - "The No Action Alternative: Natural Recovery" allows natural recovery of grizzly bears in the BE through range expansion from existing populations. And Alternative 3 - "The No Grizzly Bear Alternative" prevents grizzly bear recovery in the BE. These alternatives were developed in response to public comments and represent a full range of alternatives for consideration. All issues and concerns identified by the public were considered and the most significant were analyzed in detail. The potential effects of each alternative on human health and safety, source grizzly bear populations, land-use activities, wildlife populations, public access and recreational use, social aspects, and regional economies are described.

Important

A 30-day public review period of the FEIS extends from March 24, 2000 to April 24, 2000. Public comments are welcome, and must be postmarked by April 24, 2000. Comments may be mailed or faxed to the address below, or sent via e-mail to: fw6_bitterroot@fws.gov. Public comments will be reviewed, and a Record of Decision will be prepared and released to the public. Copies of the FEIS have been sent to public libraries in Montana and Idaho. In addition, several hundred copies of the FEIS were sent to organizations or individuals who represent people who may be significantly impacted by any decision. The FEIS and FEIS Summary document are also available on the internet at: http://www.r6.fws.gov/endspp/grizzly. Those wishing to review the complete Final Environmental Impact Statement, or needing further information should contact:

Dr. Christopher Servheen, Grizzly Bear Recovery Coordinator / Bitterroot EIS Team Leader
U. S. Fish and Wildlife Service
P.O. Box 5127
Missoula, Montana 59806
Phone: (406) 243-4903, Fax: (406) 329-3212

Summary

PURPOSE OF AND NEED FOR THE ACTION

Purpose. Grizzly bears (*Ursus arctos horribilis*) are a part of America's rich wildlife heritage and once ranged throughout most of the western United States. However, distribution and population levels of this species have been diminished by excessive human-caused mortality and loss of habitat. Today, only 800 to 1000 grizzly bears remain in a few populations in Montana (Northern Continental Divide, Yellowstone, and Cabinet-Yaak Ecosystems), Idaho (Yellowstone, Cabinet-Yaak, and Selkirk Ecosystems), Wyoming (Yellowstone Ecosystem), and Washington (Selkirk and North Cascades Ecosystems). Wildlife species, like grizzly bear, are most vulnerable when confined to small portions of their historical range and limited to a few, small populations. Expansion of the range of the species will increase the number of bears within the lower 48 states and increase habitat size and extent, and further conservation of the species.

The Bitterroot Ecosystem (BE) is one of the largest contiguous blocks of federal land remaining in the lower 48 United States. The core of the ecosystem contains two wilderness areas which make up the largest block of wilderness habitat in the Rocky Mountains south of Canada. Of all remaining unoccupied grizzly bear habitat in the lower 48 States, this area in the Bitterroot Mountains has the best potential for grizzly bear recovery, primarily due to the large wilderness area. As such, the BE offers excellent potential to recover a healthy population of grizzly bears and to boost long-term survival and recovery prospects for this species in the contiguous United States.

The U. S. Fish and Wildlife Service (USFWS), with support of the Interagency Grizzly Bear Committee (IGBC is a group of high-level administrators that represent the federal and state agencies involved in grizzly bear recovery, and coordinate agency efforts in implementing the Grizzly Bear Recovery Plan), proposes to recover the grizzly bear and restore this component of the BE by reestablishing the species within this portion of its historical range. The USFWS has determined that there are no grizzly bears in the BE at this time, that recovery of grizzly bears in the BE would facilitate conservation and recovery of the species in the lower 48 States, and that recovery of grizzly bears in the BE would require reintroduction of bears from other areas (USFWS 1993, 1996, 1997). The action proposed in the FEIS (USFWS 2000) is to reintroduce a minimum of 25 grizzly bears over a 5-year period from which a population could grow over time.

Need. The grizzly bear was listed as a threatened species in the lower 48 States under the Endangered Species Act (ESA) in 1975 (Federal Register, V.40, No.145, Part IV-3173-4). As such, the U.S. Fish and Wildlife Service was mandated by Congress to conserve listed species and the ecosystems upon which they depend.

The USFWS is the primary agency responsible for recovery and conservation of threatened species, including grizzly bears in the U.S. The Revised Grizzly Bear Recovery Plan (USFWS 1993) and the Bitterroot Ecosystem Recovery Plan Chapter - Supplement to the Grizzly Bear Recovery Plan (USFWS 1996) identify actions necessary for conservation and recovery of the species. The ultimate goal of the plan is removal of the species from threatened status in the conterminous 48 States.

LOCATION OF THE PROPOSED ACTION

This project involves the area defined as the Bitterroot Ecosystem of central Idaho and western Montana in the northern Rocky Mountains. The analysis area considered in the Final EIS is referred to as the Bitterroot

Grizzly Bear Primary Analysis Area (PAA) and includes USDA Forest Service lands potentially affected by grizzly bear recovery in the BE of Idaho and Montana (Figure S-1). The heart of the PAA is centered around Wilderness Areas of central Idaho, while a small portion extends over the crest of the Bitterroot Mountains into western Montana.

The PAA includes about 16,686,596 acres (26,073 square miles) of contiguous national forest lands including all or parts of the Bitterroot, Boise, Challis, Clearwater, Lolo, Nez Perce, Payette, Sawtooth, Salmon, and Panhandle National Forests. The center of the area is characterized by 3 large wilderness areas covering a contiguous area of almost 4 million acres (6,250 mi^2). These include the Frank Church-River of No Return (2,361,767 acres; 3,690 mi^2), the Selway-Bitterroot (1,340,681 acres; 2,095 mi^2), and the Gospel Hump (200,464 acres; 313 mi^2) Wilderness Areas. The area contains 3 major mountain ranges; the Salmon River Mountains (south of the Salmon River), the Clearwater Mountains which extend from the Salmon River north to the upper Clearwater River drainage, and the Bitterroot Mountains which form the eastern border of the PAA along the Montana-Idaho state line.

Table S-1 presents the basic information about the Bitterroot Ecosystem PAA. It describes the area and may be useful in understanding potential impacts of grizzly bear recovery. This information represents the situation that currently exists without grizzly bears in the BE.

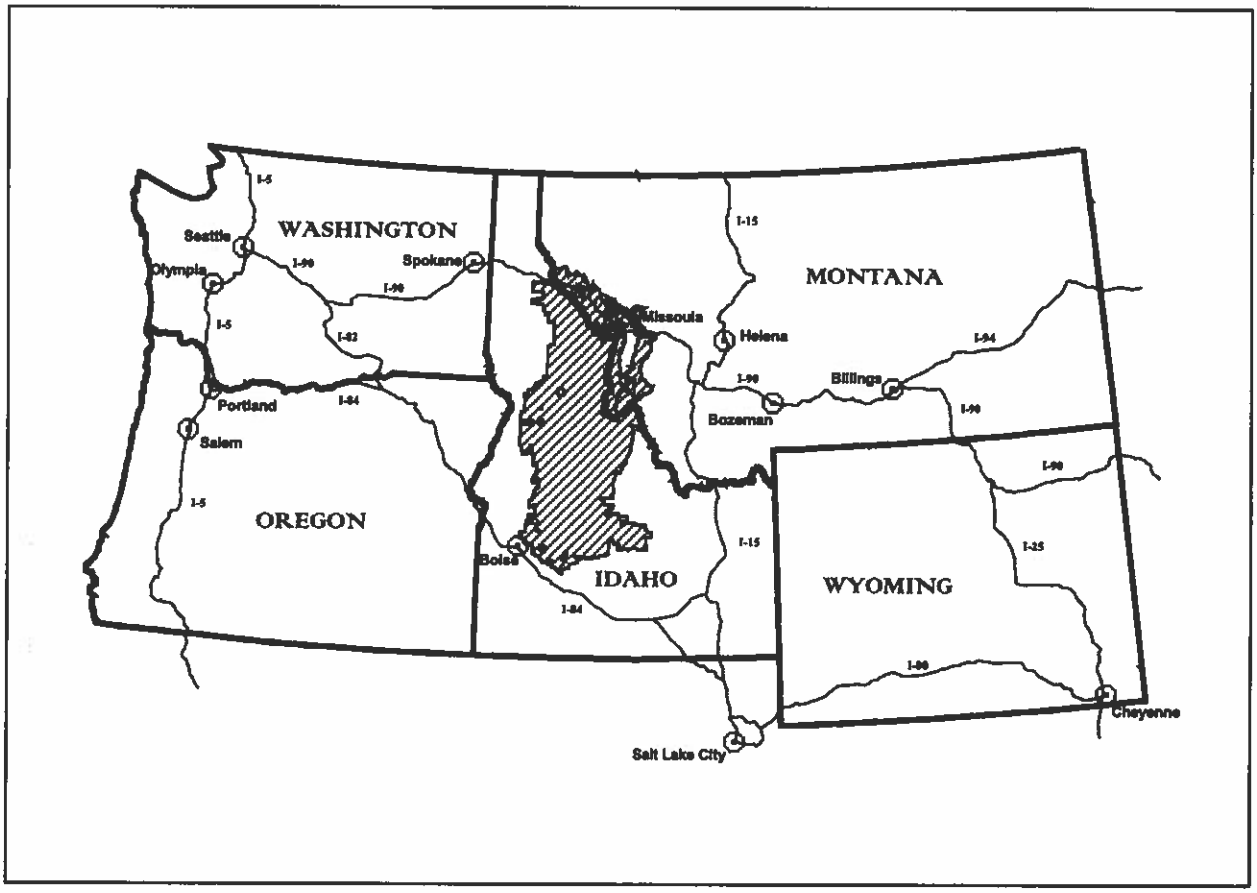


Figure S-1. Regional perspective showing the analysis area considered in the Final Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem.

Table S-1. A summary of the key characteristics of the Bitterroot Grizzly Bear Primary Analysis Area (PAA) which could potentially be affected by grizzly bear recovery.

Characteristic		Central Idaho	Western Montana
Land (in the 14-county area that encompasses the PAA)			
Acres		22,687,424	5,740,560
% Federal Ownership		80	59
% Private ownership		15	38
% National Park, Wilderness, or Wildlife Refuge		17	trace
Public land uses[a]			
Recreational visits/year to national forest lands in the PAA		8,576,995	4,691,400
Acres open to grazing on national forests included in the PAA		4,467,571	348,400
Acres suitable for timber harvest in national forests included in the PAA		4,387,831	1,602,331
Acres of timber projected for harvest annually on national forests included in the PAA		44,368	13,618
Total miles of system roads on national forest lands in the PAA		17,111	9,053
Miles of year-round open system roads on national forest lands in the PAA		7,448	4,114
Miles of closed or restricted access system roads on national forest lands in the PAA		9,664	4,939
Total miles of recreational trails on national forest lands in the PAA		12,439	2,350
Miles of recreational trails open to motorized vehicles in the PAA		6,073	1,474
People/Land Economy (in the 14-county area)			
Population (numbers)		105,234	135,694
Population (people/mi.^{2})		3.0	15.1
Total personal income for Idaho and Montana portions of the PAA (billions of dollars)		4.6	
Average per capita income for Idaho and Montana portions of the PAA ($)		17,465.00	
Farm income for Idaho and Montana combined (% of total personal income)		0.7 (72% of this comes from livestock)	
Local services income for Idaho and Montana combined (% of total personal income)		41.5	
Other Industry income for Idaho and Montana combined (% of total personal income)		21.4	
Other non-earned[b] income for Idaho and Montana combined (% of total personal income)		36.5	
Livestock			
Numbers of cattle in the 14-county area (spring) of the PAA		318,967	72,560
Number of sheep in the 14-county area (spring) of the PAA		41,687	7,358
Number of livestock on national forest allotments in the PAA (May through October)			
Adult cattle and calves		64,589	4,222
Adult sheep and lambs		229,188	0
Horses		95	9
Total livestock		294,732	4,231
Estimated current livestock mortality in the PAA and surrounding counties from all causes per year based upon spring cattle and sheep numbers[c]	cattle	12,314 3.3% loss (69% calf)	
	sheep	9,366 16.8% loss (~72% lambs)	
	horses	unknown, very low	

(Continued)

Characteristic	Central Idaho	Western Montana
Ungulate Populations (postharvest estimates)		
Elk	88,047	4,861
Deer (mule & white-tailed)	>160,337	21,750
Moose	1,700	-
Bighorn Sheep	1,330	280
Mountain goat	1,573	178
Total ungulate population	252,987	27,069
Ungulate Annual Harvest		
Elk	6,149	934
Deer (mule & white-tailed)	17,184	3,480
Moose	182	13
Bighorn sheep	33	9
Mountain goat	27	12
Total ungulate harvest	23,575	4,448
Percent of ungulate population harvested	9	16
Estimated ungulates dying/year (all causes)[d]	182,509	16,977
Percent of mortality attributable to hunting	13.0	26.0

[a] A wide variety of land-use restrictions (seasonal and permanent) are employed on public lands throughout the PAA for protection of natural resources and public safety including: on motorized vehicles, construction of structures, animal damage control activities, big game winter range, calving areas, security and migration habitat, raptor nest sites, endangered species, erosion control, wetland protection, to provide a variety of outdoor experiences (motorized or nonmotorized, wilderness or developed, etc.).

[b] Non-earned income represents investments, entitlements, and retirement income that often does not depend on where a person lives. The growth of this segment of the economy over the last 2 decades results from people with this type of income moving into central Idaho and western Montana because these areas are perceived to have a lifestyle that people want to participate in (wild spaces, abundant wildlife, less crowding, low crime, clean air, etc.).

[c] Source: U.S. Fish and Wildlife Service. 1994. The reintroduction of gray wolves to Yellowstone National Park and central Idaho. Final Environmental Impact Statement. U.S. Fish and Wildlife Service, Helena, MT.

[d] Including hunting, crippling loss, poaching, road kill, predation, disease, starvation, drowning, winter kill, accidents, fighting, etc.

THE PLANNING PROCESS

One of the first steps in the planning process was to develop a public participation and interagency coordination program to identify issues related to grizzly bear recovery in the BE and alternatives to be considered in the National Environmental Policy Act (NEPA) process. Natural resource and public use information was gathered. Previous plans and reports dealing with grizzly bear recovery were reviewed. The USFWS is solely responsible for the FEIS, although representatives from the USDA Forest Service, Idaho Department of Fish and Game, Montana Department of Fish, Wildlife, and Parks, and Nez Perce Tribe assisted in preparation. Participation and review by representatives of other agencies does not imply concurrence, endorsement, or agreement to any recommendations, conclusions, or statements in the FEIS.

Issue Scoping

Seven public scoping sessions, in the form of open houses were held in Grangeville, Orofino, and Boise in Idaho; Missoula, Helena, and Hamilton in Montana; and Salt Lake City, Utah; from July 5 to 11 with a 45-day public comment period on the proposal ending July 29, and extended to August 21, 1995. Written comments on preliminary issues and alternatives were received from more than 3,300 individuals, organizations and government agencies. About 80 percent of written responses were from residents of counties in Idaho and Montana adjacent to the proposed recovery areas. All issues were considered, organized into 46 separate headings, and addressed by the USFWS as follows. (Further explanation of the issues/impacts and how they were addressed is provided in Chapter 1 of the FEIS).

***Twenty-six issues and impacts were addressed / included as part of one or more alternatives*:**

Management Strategies
Strategies to Control Nuisance Bears
Illegal Killing of Grizzly Bears
Recovery Area (Boundaries, Size, & Range)
Recovery Time
Monitoring and Evaluation
Nonessential Experimental Population & Area
Private Property Rights
Endangered Species Act (ESA)
Ecosystem Management
Grizzly Bears as a Missing Component of the Ecosystem
Definition of Population Viability for Grizzly Bears
Travel Corridors & Linkages (Range of Grizzly Bears)
Habitat Protection Requirements
Laws, Restrictions, Rights, Authority
Federal, State, Local, and Tribal Authority
Compliance with Forest Plans
Are Grizzly Bears Native to the Bitterroot Ecosystem
Effects on Grizzly Bears from Human Incursions Outside Wilderness
Population Corridor Linkages
Effects "to" Grizzly Bears (Genetics, Disease, Colonization, etc.)
Habitat Security
Cost of Program to Taxpayer
Education
Political Influence
Enjoyment of Grizzly Bears (Viewing, etc.)

Eleven issues/impacts (consolidated into 7 areas) were analyzed in detail in the EIS because they could be potentially impacted by grizzly bear recovery strategies:

Effects of Grizzly Bear Recovery on Human Health and Safety
Effects of Grizzly Bear Recovery on Source Populations of Grizzly Bears
Effects of Grizzly Bear Recovery on Land-Use Activities - to include Timber Harvest, Minerals Extraction, and Livestock Grazing
Effects of Grizzly Bear Recovery on Wildlife
Effects of Grizzly Bear Recovery on Public Access and Recreational Use
Social Effects of Grizzly Bear Recovery
Economic Effects of Grizzly Bear Recovery

Nine issues/impacts were not evaluated further in the EIS because they were not significant to the decision being made: *(Although these issues, as identified by the public (see FEIS Chapter 1), were not used to formulate alternatives or analyze effects, most are addressed within the FEIS and Appendices).*

Consultation with Fish & Wildlife Service
Interagency Grizzly Bear Committee Guidelines
State or Private Bear Management Specialist
Wilderness Act
Effects of Grizzly Bear on Other Endangered Species
Effects of Grizzly Bear on Other Animals, Fish, Birds, etc.
Spiritual/Cultural
Visitor Use
Miscellaneous

Alternative Scoping

The USFWS used preliminary issues identified from public comments received during scoping meetings for the BE Grizzly Bear Recovery Plan Chapter, and the Notice of Intent to complete an EIS for Grizzly Bear Recovery in the BE, to formulate three preliminary alternatives. Prior to conducting formal scoping meetings and a comment period, the USFWS proposed these three preliminary alternatives for consideration and published them in a Scoping of Issues and Alternatives brochure that requested ideas and comments from the public. The alternatives were: Alternative 1 - No Action (Natural Recolonization); Alternative 2 - Reintroduction of an Experimental Population (Proposed Action); and Alternative 3 - Accelerated Reintroduction of a Standard (Fully Protected) Population.

Two new alternatives were suggested during the public scoping period. The first proposed alternative entitled The Citizen Management Committee Alternative was submitted by the National Wildlife Federation, Defenders of Wildlife, the Resource Organization on Timber Supply, and the Intermountain Forest Industry Association (USFWS 1995). The second alternative identified was the Alliance for the Wild Rockies Alternative, which was proposed by the Alliance (USFWS 1995).

Alternatives Identified During Scoping, not Evaluated in the DEIS, but Included in the FEIS. Alternative 2 - "Reintroduction of an Experimental Population (Proposed Action)" was proposed by the USFWS during initial scoping for issues and alternatives. In response to public comment received during scoping, the USFWS modified this alternative from USFWS management of the experimental population to management by a Citizen Management Committee (as proposed by a coalition of non-governmental organizations). This modified alternative became Alternative 1, the proposed action of the DEIS. Public comment received on the DEIS indicated a desire for the originally scoped Alternative 2 to be evaluated in the FEIS. In response to this request, the Service included this alternative as Alternative 1A - "Restoration of a Nonessential Experimental Population with USFWS Management" in the FEIS.

Alternatives Identified During Scoping, but not Evaluated Further. Alternative 3 - "Accelerated Reintroduction of a Standard Population" that was identified in the scoping document, was not evaluated in the DEIS or FEIS. Securing 10 non-nuisance grizzly bears per year from similar habitat in the lower 48 States or southern British Columbia is not feasible because of a lack of a suitable number of bears from existing source populations. For this reason the alternative was eliminated.

Public Review of the Draft EIS

The Draft Environmental Impact Statement (DEIS) was released for public review and comment on July 1, 1997. A Notice of Availability was published in the Federal Register, the DEIS was mailed to the entire mailing list, and copies of the DEIS and Summary of the DEIS were mailed to over 60 local libraries in Idaho and Montana. The DEIS and the Summary of the DEIS were also published on the Service web site at: http://www.r6/fws/gov/endspp/grizzly. A news release announcing the availability of the DEIS and requesting public comment was provided to local and national media contacts (newspaper, television, radio). Comments were to be received through September 30. The comment period was extended to November 1 based on numerous requests for more time to prepare responses. The comment period was extended a second time to December 1, 1997 following a request from a member of the Idaho Congressional delegation. A press release announced each extension.

To provide an opportunity for people to voice their concerns, public hearings/open houses were held during October 1997 to gather public comments on the DEIS. These were held in seven communities on the perimeter of the Bitterroot area. Approximately 1400 people attended these hearings and 293 individuals testified. The dates and locations for the public hearings were as follows: Challis, Idaho and Hamilton, Montana (October 1); Missoula, Montana and Lewiston, Idaho (October 2); Boise, Idaho and Helena, Montana (October 3); and Salmon, Idaho (October 8). Hearings were conducted from 4 p.m. to 8 p.m. and verbal testimony (treated the same as written comments) was recorded and any written comments were accepted. In addition, the Service held meetings with local community, state leaders, and interest groups in communities around the perimeter of the proposed Recovery Area.

Comments on the DEIS were received from over 24,000 individuals, organizations, and government agencies. These comments arrived in over 2,660 letters, DEIS summary forms, resolutions, and hearing testimonies. Ten petitions were received with over 21,000 signatures. Fifteen form letters were identified.

An analysis of the public comments on the DEIS was performed by an interagency team of 14 employees from the Service and the USDA Forest Service during December - January 1998. The system used to analyze comments was objective, reliable and traceable. Every comment was given an individual identification number and was coded according to the demographic nature of the response. Substantive comments (positive and negative) on issues or alternatives were coded and entered into a database. A respondent's exact words were used when entering responses into the database. A detailed summary report, "*Summary of Public Comments on the Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem*" and an executive summary report of 24,251 public comments were prepared and released to the public in April 1998 (U.S. Fish and Wildlife Service 1998). Issues raised during public comment on the DEIS were similar to the issues identified during public scoping.

All DEIS comments from federal, state, and local governments having regulatory authorities, and comments from Native American Tribes are printed in the FEIS. USFWS responses to those comment letters on the DEIS are also provided in Chapter 5 of the FEIS. Due to the volume of response, most letters from individuals and non-governmental agencies are not printed in the FEIS, but 18 letters from the most prominent or most vocal large private organizations, representing the diverse points of view about the proposal, are included and responded to in detail. Substantive issues identified through the analysis of public comments (USFWS 1998) and USFWS responses to these issues are also presented in FEIS Chapter 5.

ALTERNATIVES ANALYZED IN THE FEIS

Four alternatives that represent different approaches to grizzly bear recovery and management were developed for evaluation in the DEIS because they encompassed most of the concerns raised during scoping, and they represented a full range of alternatives. Issues raised in public comments on the DEIS were to a great extent repetitive of those raised during initial scoping. The USFWS revised the FEIS to incorporate and be responsive to new issues and specific suggestions raised by the public, to the maximum extent possible. Two additional alternatives (Alternatives 1A and 4A) were added to the FEIS in response to public comments received on the DEIS. Two alternatives (Alternatives 2 and 3) do not necessarily meet the purpose of and need for action, but were included in the DEIS and FEIS to be responsive to public comments, to provide a full range of alternatives for consideration, and to meet the requirements of NEPA. All six FEIS alternatives reflect public comments and suggestions identified through issue and alternative scoping, and public comments on the DEIS. These alternatives are discussed in detail in Chapter 2 of the FEIS.

After a final review of the FEIS by government agencies, tribes, tribal agencies, special interest groups and the general public, the USFWS will summarize final public comments and select an alternative. The USFWS will revise the selected alternative, if necessary, based on public comment, and publish a Record of Decision documenting the USFWS rationale for the decision. The alternative selected for implementation will become the management plan for grizzly bear recovery in the BE.

The six alternatives considered in the FEIS are:

Alternative 1. Restoration of Grizzly Bears as a Nonessential Experimental Population with Citizen Management (The Proposed Action and Preferred Alternative):
The goal is to accomplish grizzly bear recovery by reintroducing grizzly bears designated as a nonessential experimental population to central Idaho and by implementing provisions within Section 10(j) of the ESA, conduct grizzly bear management to address local concerns. A Citizen Management Committee (CMC), created under a special rule to be published in the Federal Register, would be tasked with management of this grizzly bear population.

Alternative 1A. Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Management :
The goal is to accomplish grizzly bear recovery by reintroducing grizzly bears designated as a nonessential experimental population to central Idaho and by implementing provisions within Section 10(j) of the ESA, conduct grizzly bear management to address local concerns. The U.S. Fish and Wildlife Service would manage this grizzly bear population.

Alternative 2. The No Action Alternative - Natural Recovery:
The goal is to allow grizzly bears to expand from their current range in north Idaho and northwestern Montana southward into central Idaho and western Montana, and to recolonize the BE. The ultimate goal is natural recovery of grizzly bears in the BE.

Alternative 3. The No Grizzly Bear:
This alternative would prevent grizzly bear recovery in the BE.

Alternative 4. Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration:
The goal is to achieve recovery through reintroduction and extensive habitat protection and enhancement to promote natural recovery. A ten member Scientific Committee would be established to define needs for additional research, develop strategies for reintroduction of bears, and monitor results of the program. The grizzly bear would have full status as a threatened species under the provisions of the ESA.

Alternative 4A. Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management:
The goal is to achieve recovery through reintroduction with the USFWS managing for recovery of the population. Other federal and state agencies and the Nez Perce Tribe would assist the USFWS with management activities. The grizzly bear would have full status as a threatened species under the provisions of the ESA.

Description and Impacts of the Proposed Action and Alternatives

Alternative 1. Restoration of a Grizzly Bears as a Nonessential Experimental Population with Citizen Management (Proposed Action and Preferred Alternative):

Summary.-- The purpose of this alternative is to accomplish grizzly bear recovery by restoring grizzly bears designated as a nonessential experimental population to central Idaho and implementing provisions within Section 10(j) of the ESA to conduct special management to address local concerns. A Citizen Management Committee (CMC) would be authorized management implementation responsibility for the Bitterroot grizzly bear experimental population.

"Experimental population" designation gives the USFWS more flexibility because such populations can be treated as "a species proposed to be listed" or "threatened" rather than "endangered." If a reintroduced population of grizzly bears is designated "experimental" and "nonessential" (refers to an experimental population whose loss would not likely reduce the survival of the species in the wild) under the ESA 10(j) amendment, other federal agencies are required only to confer with USFWS on federal activities that are likely to jeopardize the species. Management of a nonessential experimental population can thus be tailored to specific areas and specific local conditions, including meeting concerns of those opposed to reintroduction. Because reintroduced grizzly bears would be classified as a nonessential experimental population, the USFWS management practices can reduce local concerns about excessive government regulation on private lands, uncontrolled livestock depredation, excessive big game predation, and lack of State government and local citizen involvement in the program.

The Bitterroot Grizzly Bear Experimental Population Area (experimental population area), which includes most of central Idaho and part of western Montana (Figure S-2), would be established by the USFWS under authority of Section 10(j) of the ESA. This would include the area bounded by U.S. Highway 93 from its junction with the Bitterroot River near Missoula, Montana, to Challis, Idaho; Idaho Highway 75 from Challis to Stanley, Idaho; Idaho Highway 21 from Stanley to Lowman, Idaho; Idaho Highway 17 from Lowman to Banks, Idaho; Idaho Highway 55 from Banks to New Meadows, Idaho; U.S. Highway 95 from New Meadows to Coeur d'Alene, Idaho; and Interstate 90 from Coeur d'Alene, Idaho, to its junction with the Clark Fork River near St. Regis, Montana; and the Clark Fork River from its junction with Interstate 90 near St. Regis, to its confluence with the Bitterroot River near Missoula, Montana; and the Bitterroot River from its confluence with the Clark Fork River to its junction with U.S. Highway 93, near Missoula, Montana. The experimental population area encompasses approximately 25,140 square miles.

The best scientific evidence available indicates there are no grizzly bears in the experimental population area at this time (USFWS 1996). Ongoing grizzly bear monitoring efforts would continue. The USFWS would designate the Bitterroot Grizzly Bear Recovery Area (recovery area) to consist of the Selway-Bitterroot Wilderness and the Frank Church-River of No Return Wilderness (Figure S-2). The recovery area contains approximately 5,785 square miles.

The USFWS has developed an expected time line to commence implementation of this alternative and the associated sanitation efforts to minimize conflicts. The first year of implementation would be a "phase-in" year during which sanitation equipment would be installed in key areas, and information and education outreach programs would be initiated. The FEIS includes an independent report that lists sites within the BE where sanitation problems exist, and these wildlife attractant sites would be targeted for clean-up.

During the first few months of implementation, a Citizen Management Committee (CMC) would be formed. The CMC would be authorized management implementation responsibility by the Secretary of Interior (in consultation with the governors of Idaho and Montana) for the Bitterroot grizzly bear nonessential experimental population. The CMC would be comprised of local citizens and agency representatives from

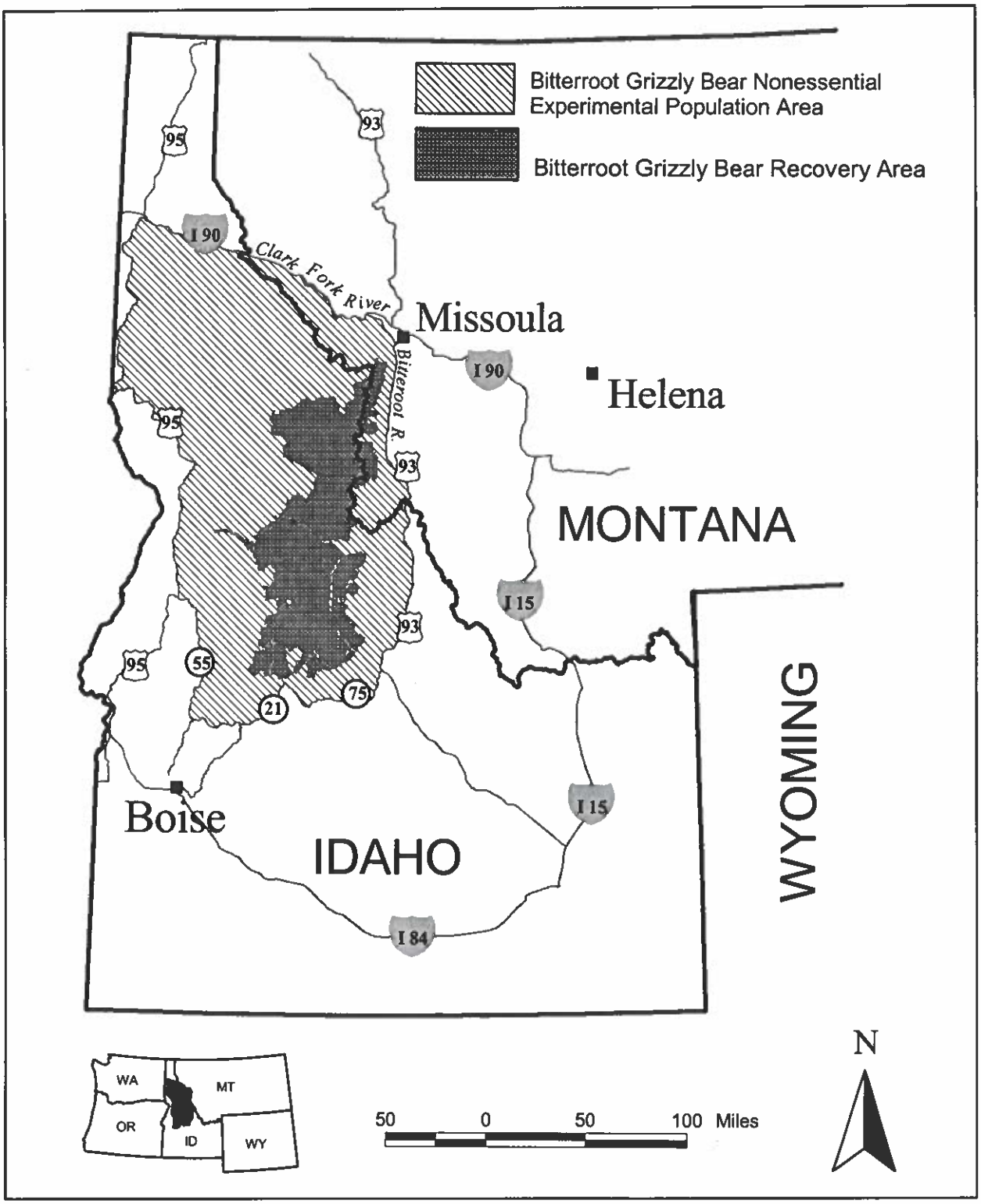


Figure S-2. Bitterroot Grizzly Bear Experimental Population Area and Recovery Area for Alternative 1 - *Restoration of Grizzly Bears as a Nonessential Experimental Population with Citizen Management.*

federal and state agencies and the Nez Perce Tribe. Two scientific advisors would be appointed by the Secretary to the CMC as non-voting members, to attend all meetings and provide scientific expertise in support of CMC management recommendations. Grizzly bear management would allow for resource extraction activities to continue without formal Section 7 consultation under Section 7(a)(2) of the ESA. The CMC would be responsible for recommending changes in land-use standards and guidelines as necessary for grizzly bear management. Recommendations made by the CMC to land and wildlife management agencies would be subject to review and final decisions on implementation would be made by the responsible agency. All decisions of the CMC including components of its management plans must lead toward recovery of the grizzly bear and minimize social and economic impacts to the extent practicable within the context of the existing recovery goals for the species.

Grizzly bears would be reintroduced into the Selway-Bitterroot Wilderness portion of the recovery area during the second year of implementation. Specific reintroduction sites would be recommended by the management agencies to the CMC. The recovery area would be identified as the area of recovery emphasis. This means grizzly bear management decisions in the recovery area would favor bear recovery, allowing this area to serve as core habitat for survival, reproduction, and dispersal of the recovering population. Bears moving outside the recovery area would be accommodated through management provisions in a Final Special Rule and through management plans and policies developed by the Citizen Management Committee, unless potential conflicts were significant and could not be corrected. The term "accommodate" means grizzly bears that move outside the recovery area onto public land in the experimental population area would not be disturbed unless they demonstrate a real and imminent threat to human safety or livestock.

People could continue to kill grizzly bears in self-defense or in defense of others, provided that such taking is reported within 24 hours to appropriate authorities. Grizzly bears would be managed according to grizzly bear guidelines except in the case of grizzly bears on private land who are killing livestock and could not be captured by management authorities. In such cases, landowners would be issued a permit by USFWS. Following issuance of a permit by the USFWS, the public would be allowed to harass, through non-injurious means, a grizzly bear attacking livestock (cattle, sheep, horses, and mules) or bees. A livestock owner may be issued a permit to kill a grizzly bear killing or pursuing livestock on private lands if it has not been possible to capture such a bear or deter depredations through agency efforts. If significant conflicts occurred between grizzly bears and livestock within the experimental population area, these could be resolved in favor of the livestock by agencies capturing or eliminating the bear depending on the circumstances.

There would be no federal compensation program, but compensation from existing private funding sources would be encouraged. Animal control toxicants lethal to bears are not used on public lands within the recovery and experimental population areas. It is anticipated that ongoing animal damage control activities would not be affected by grizzly bear recovery. Any conflicts or mortalities associated with these activities would result in a review by the CMC, and any necessary changes would be recommended by the CMC.

Implementation of Alternative 1 would involve.-- The following summary highlights the actions that would be implemented if Alternative 1 (preferred alternative) is selected:

- If this alternative is selected the *"ESA Final Special Rule for Establishment of a Nonessential Experimental Population of Grizzly Bears in the Bitterroot Area of Idaho and Montana"* would be finalized and published in the Federal Register. Implementation of actions described in the FEIS would not occur until after the Special Rule is published in the Federal Register.
- The USFWS would designate much of central Idaho and part of western Montana (see description above) as the Bitterroot Grizzly Bear Experimental Population Area for grizzly bear recovery (Figure S-2).

- The USFWS would designate the Bitterroot Grizzly Bear Recovery Area for recovery emphasis to consist of the Selway-Bitterroot Wilderness and the Frank Church-River of No Return Wilderness (Figure S-2). If in the future, new wilderness areas are designated adjacent to the recovery area, the Citizen Management Committee could recommend their addition to the recovery area. This is the area where recovery would be emphasized. The term *recovery emphasis* means grizzly bear management decisions in the recovery area would favor bear recovery so that this area could serve as core habitat for survival, reproduction, and dispersal of the recovering population. Grizzly bears would only be released in the Selway-Bitterroot Wilderness, unless the CMC determines that reintroduction in the Frank Church-River of No Return Wilderness is appropriate. Specific relocation sites would be recommended by the management agencies to the CMC.

- The USFWS would authorize a 15-member Citizen Management Committee (CMC) to be appointed by the Secretary of Interior in consultation with the governors of Idaho and Montana, and the Nez Perce Tribe. This committee would be authorized management implementation responsibility by the Secretary of Interior, in consultation with the governors of Idaho and Montana, for the Bitterroot grizzly bear nonessential experimental population. All decisions of the CMC must lead to recovery of the grizzly bear in the BE. The Committee must consult with scientists to ensure that scientific information is considered in its decision making.

- CMC members would serve six-year terms and would consist of seven individuals appointed by the Secretary of Interior based on the recommendations of the governor of Idaho, five members appointed by the Secretary of Interior based on recommendations of the Governor of Montana, one member appointed by the Secretary based on the recommendation of the Nez Perce Tribe, one member representing the USDA Forest Service appointed by the Secretary of Agriculture or his/her designee, and one member representing the USFWS appointed by the Secretary of Interior or his/her designee. Members recommended by the Governors of Idaho and Montana would be based on recommendations of interested parties and would include at least one representative each from the appropriate state fish and wildlife agencies. If either governor failed to make recommendations, the Secretary would accept recommendations from interested parties. In their recommendations to the Secretary, the Governors of Idaho and Montana would attach written documentation of the qualifications of those nominated relating to their knowledge of and experience in a variety of natural resource issues and relating to their commitment to collaborative decision making.

- The CMC would consist of a cross-section of interests reflecting a balance of viewpoints, be selected for their diversity of knowledge and experience in natural resource issues, and for their commitment to collaborative decision making. Except for representatives from federal agencies, the CMC would be selected from communities within and adjacent to the recovery and experimental population areas. The CMC would continue until the recovery objectives were met and the Secretary of Interior completed delisting. Management authority would then revert to the state wildlife agencies. The specific duties and responsibilities of the CMC would be described in the Final Special Rule. Specific details on how the CMC would make decisions are not included in the FEIS so as to maintain flexibility for the CMC to establish operational and decision-making processes after they are established.

- The Secretary of Interior would appoint two scientific advisors as non-voting members to attend all meetings of the CMC and to provide scientific expertise in support of CMC management recommendations. The Secretary would contact the Wildlife Society Chapters in Idaho and Montana and

the Universities of Idaho and Montana for nominations of one wildlife scientist from each state, and would appoint them as advisors to the CMC.

- The mission of the CMC would be to facilitate recovery of the grizzly bear in the Bitterroot Ecosystem by assisting in implementing the Bitterroot Chapter of the Recovery Plan. Regarding the land and wildlife management agencies, the role of the CMC would be to make recommendations to them that the CMC thinks would lead to recovery of the grizzly bear. Decisions on, and implementation of these recommendations is the responsibility of the land and wildlife management agencies.

- The CMC would meet a minimum of two times per year and meetings would be open to the public. Additionally, the committee would provide reasonable public notice of meetings, produce and provide written minutes of meetings to interested persons, and involve the public in its decision-making process. This public participation process would allow members of the public and/or special interest groups to have input to CMC decisions and management actions.

- The CMC would be directed to implement the Bitterroot Chapter of the Grizzly Bear Recovery Plan (USFWS 1996) as consistent with the *"ESA Final Rule 10(j) Establishment of a Nonessential Experimental Population of Grizzly Bears in the Bitterroot Area of Idaho and Montana."* The CMC would develop recommendations on existing management plans and policies of land and wildlife management agencies, as necessary, for the management of grizzly bears in the experimental population area. The CMC could make recommendations to land and wildlife management agencies regarding changes to plans and policies, but the final decision on implementation of those recommendations would be made by those agencies. If the CMC recommendations require significant changes to existing plans and policy, then the requirements of NEPA may apply. All decisions of the CMC must lead to recovery of the grizzly bear in the BE and minimize social and economic impacts to the extent practicable within the context of the existing recovery goals for the species.

- The CMC would base its decisions on the best scientific and commercial data available. The CMC would develop a process for obtaining the best biological, social, and economic data, which would include an explicit mechanism for peer-reviewed, scientific articles to be submitted to and considered by the CMC, as well as periodic public meetings in which qualified scientists could submit comments to and be questioned by the CMC. The two Scientific Advisors would lead this process. To increase public participation and input in their decision-making process, the CMC could consider holding periodic public hearings, or sponsor public surveys to gather public comments and opinions on management issues and concerns regarding the Bitterroot grizzly bear population.

- The Secretary of Interior or the USFWS representative on the CMC would be directed to review the plans and efforts of the CMC. If the Secretary determines, through the USFWS representative on the CMC, that the decisions of the CMC, the management plans, or the implementation of those plans are not leading to the recovery of the grizzly bear within the experimental population area or are not in compliance with the Special Rule, the USFWS representative on the CMC would solicit from the CMC a determination whether the decision, the plan, or implementation of components of the plan are leading to recovery or why the CMC believes it is in compliance with the Special Rule. Notwithstanding a determination by the CMC that a decision, plan, or implementation of a plan is leading to recovery of the grizzly bear within the experimental population area or is in compliance with the Special Rule, the Secretary, who necessarily retains final responsibility and authority for implementation of the Act, may find that the decision, plan,

or implementation of a plan is inadequate for recovery or is not in compliance with the rule, and may resume management responsibility.

- The Secretary of Interior may resume lead management implementation responsibility from the CMC if he/she determines their decisions are not leading to recovery, through the following procedure. The USFWS representative would consider CMC input before making any determination that CMC actions are not leading to recovery. If the USFWS representative on the CMC determines the actions of the CMC are not leading to recovery of the Bitterroot population, the USFWS representative would recommend alternative or corrective actions and provide six months for the CMC to accomplish them. If the CMC rejects those alternatives, the USFWS representative would convene a Scientific Review Panel of three. The USFWS representative would submit for peer review to the panel those CMC actions or decisions upon which the USFWS representative based his/her decision that CMC actions or decisions are not leading to recovery or are at variance with the Special Rule. The USFWS representative would consider the views of all CMC members prior to making a recommendation on initiating a Scientific Review Panel. Members of the panel would be professional scientists who have had no involvement with the CMC and would not be employed by Federal agencies responsible for grizzly bear recovery efforts. The Secretary would select one member of the panel, and the Governors of Idaho and Montana in consultation with the Universities of Idaho and Montana (respectively) would select one panel member each.

  The Scientific Review Panel would review issues and make timely recommendations to the CMC as to whether CMC actions are in compliance with the Special Rule. Examples of CMC actions or lack of actions, decisions, and/or processes that may be evaluated by the Scientific Review Panel include, but are not limited to: sufficiency of public involvement in CMC activities; specific decisions involving sanitation and outreach activities; management of nuisance bears; adequacy of recommendations to land and game management agencies; and adequacy of CMC actions in addressing issues such as excessive human-caused grizzly bear mortality, and other actions that are important in leading to recovery of the grizzly bear in the BE. The basis for their recommendations would be adherence of the CMC to the Special Rule.

  If, after timely review, the CMC rejects the recommendations of the Scientific Review Panel, and the USFWS representative determines the CMC actions are not leading to recovery of the Bitterroot population, he/she would notify the Secretary. The Secretary would consider the panel's recommendations, and if he/she decides to resume lead management responsibility, he/she would seek consultation with the Governors of Idaho and Montana to review with them the reasons for his/her decision, and further attempt to resolve the discrepancies between his/her suggested alternatives and the actions or decisions of the CMC.

  If the Secretary resumes lead management responsibility, he/she would take appropriate actions to assure there is an adequate regulatory process relating to Department of Interior management of grizzly bears, and would publish a Notice in the Federal Register explaining the rationale for the determination and notify the Governors of Idaho and Montana. The CMC would disband and all requirements identified in the Special Rule regarding the CMC would be nullified. If the Secretary does not resume lead management responsibility, the CMC would continue until the recovery objectives have been met and the Secretary has completed delisting

- Grizzly bear recovery would be emphasized in the recovery area, but bears moving outside the recovery area would be accommodated through management provisions in the Special Rule and through management plans and policies developed by the CMC, unless potential conflicts were significant and

could not be corrected. In this case, the CMC would develop strategies to discourage grizzly bear occupancy in those portions of the experimental population area. The term *accommodate* means grizzly bears that move outside the recovery area onto public land in the experimental population area would not be disturbed unless they demonstrate a real and imminent threat to human safety or livestock.

- Unless the CMC would determine otherwise, private lands outside the national forest boundary in the Bitterroot Valley (lands outside the Bitterroot Forest boundary south of U.S. Highway 12 to Lost Trail pass) would be an area where any human/grizzly conflicts would be considered significant. Grizzly bear occupancy would be discouraged in these areas and grizzly bears would be captured and returned to the recovery area or destroyed depending on the history of each bear. If a grizzly bear enters this exclusion area, state and federal wildlife management agencies would attempt to capture it and notify the public immediately of its presence. The public would be updated until the bear is caught. Further, any grizzly bear that occupies inhabited human settlement areas on private land within the experimental population area that in the judgement of the management agencies/CMC presents a clear threat to human safety or where there is indication that it may become habituated to humans, may be relocated by management agencies. This is to prevent conflicts and possible bear-human injury or the death of bears, and to promote and enhance public safety.

- Grizzly bear management in the experimental population area would allow for resource extraction activities to continue without formal ESA Section 7 consultation. This is because under ESA Section 10(j)(c) nonessential experimental populations are treated under ESA Section 7(a)(2) as "proposed" species, and thus federal agencies are not required to formally consult with USFWS on management actions. Federal agencies are only required to confer with USFWS on activities the agencies believe might jeopardize the existence of the species. The CMC would be responsible for recommending changes in land-use standards and guidelines in the BE as necessary for grizzly bear management.

- All ESA Section 9 "takings" provisions under the ESA for the nonessential experimental population of grizzly bears in the BE would be included in the Final Special Rule. People would continue to be allowed to take a grizzly bear in self-defense or defense of others, provided that such taking is reported within 24 hours to appropriate authorities. Livestock owners would be allowed to take a grizzly bear on private lands in the experimental population area to protect livestock actually pursued or being killed on private property, once a permit has been obtained, the response protocol established by the CMC has been satisfied, and efforts by the wildlife agency personnel to capture the depredating bear(s) have been unsuccessful.

- The USFWS would establish a tentative recovery goal of approximately 280 grizzly bears (bears distributed over approximately 5,785 mi^2 of designated wilderness and adjacent lands) occupying suitable habitat within the wilderness and adjacent lands (USFWS 1996). The CMC could recommend refined interim recovery goals and a final recovery goal for the Bitterroot Chapter of the Recovery Plan, based on the best available science, after grizzly bears were reintroduced and additional information was obtained on their use of the habitat. The recovery goal for the Bitterroot grizzly bear population would be consistent with habitat available within the recovery area. Additional adjacent areas of public land could be considered when setting the recovery goal if it is shown to be necessary by the best scientific and commercial data available. Any revised recovery goals developed by the CMC would require public review and USFWS formal approval as appropriate for any revision of any recovery plan. Grizzly bears outside the recovery area and within the experimental population area would contribute to meeting the

recovery goal if there were reasonable certainty of their long-term occupancy in such habitats outside the recovery area.

- A minimum of 25 grizzly bears would be reintroduced into the recovery area over a period of 5 years, until a colony of bears is established. Using the best scientific evidence available, and standards and criteria developed by the agencies and the CMC, the CMC would determine if bear reintroduction was successful after a period of at least 10 years. If based on these criteria and recommendations by the CMC, the Secretary after consultation with the CMC, states of Idaho and Montana and their fish and wildlife agencies, and the Nez Perce Tribe, concludes reintroduction has failed to produce a self-sustaining population, no more bears would be reintroduced. Any remaining bears would retain their experimental status.

- Idaho Department of Fish and Game (IDFG) and/or the Nez Perce Tribe, Montana Department of Fish, Wildlife, and Parks (MDFWP), and the USDA Forest Service (USFS), in coordination with the USFWS, would exercise day-to-day management responsibility within the experimental population area while implementing the BE Grizzly Bear Recovery Plan Chapter, the Special Rule, and the policies and plans of the CMC. Day-to-day management responsibility involves handling of nuisance bears, answering questions from the public, managing human foods and garbage to minimize their availability to bears, and other such activities. The USFWS and these cooperating agencies would share management responsibility as per agreements with, and in consideration of, recommendations from the CMC.

The USFWS, USFS, states of Idaho and Montana, and Nez Perce Tribe in cooperation with the CMC would release a minimum of 25 grizzly bears into the recovery area over a period of 5 years. Procedures would include:

- The first "phase-in" year of implementation before grizzly bears are reintroduced would include an intense sanitation and public education campaign. The sanitation program would include efforts by the USFS, permittees, and private landowners in and around the recovery area. Public education efforts would include: presentations at schools in and around the recovery area to teach children about grizzly bears and how to recreate safely in grizzly bear country; presentations to all civic clubs and interested organizations about grizzly bears and how to recreate safely in grizzly bear country; and placing of informative signs at all trail heads in and around the recovery area.

- Necessary federal permits, agreements, and archeological site clearances would be obtained and activities conducted for a scientifically based grizzly bear recovery program.

- Subadult grizzly bears of both sexes would be trapped each year for 5 years, from areas in Canada (in cooperation with Canadian authorities) and the United States that presently have healthy populations of grizzly bears living in habitats that are similar to those found in the Bitterroot Ecosystem. Three sources of grizzly bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population in northwest Montana, and the Yellowstone Ecosystem (YE) population. Under ESA Section 10(j), the Secretary of Interior may authorize the release of any population of an endangered or threatened species outside the current range of such species if the Secretary determines that the release will further the conservation of the species, and the population is wholly separate geographically from nonexperimental populations of the same species. Specific numbers of bears that could be obtained yearly from potential source populations is unknown at this time, and

would be predicated on the yearly achievement of recovery (YE and NCDE) and management (British Columbia) objectives.

- Grizzly bears would be captured and reintroduced at the best time of year to optimize their survival. This would likely occur when grizzly bear food supplies in the BE are optimum. Each individual grizzly bear reintroduced would be radio collared and monitored to determine their movements and how they use their habitat, and to keep the public informed of general bear locations and recovery efforts.

Expected actions and effects of Alternative 1.-- See Tables S-2 and S-3 for a comparison of expected actions and effects of this alternative. The tentative recovery goal of this alternative is approximately 280 grizzly bears (USFWS 1996). Realistically, grizzly bear recovery in the BE could take a minimum of 50 years (4% growth rate), and given potential conflicts, could likely take more than 110 years (2% growth rate). Total annual implementation cost during the 5-year reintroduction period would be approximately $433,632/year, and the total 5-year implementation cost would be approximately $2,168,160. Annual costs for monitoring and citizen management would be approximately $193,000 for each year beyond the 5-year reintroduction period.

A brief summary of effects: A recovered grizzly bear population would kill about 6 cattle (4-8) and 25 sheep (5-44) and up to 504 ungulates per year. This would not measurably impact ungulate populations or hunter harvest. Nuisance bear incidents could average 37 (0-74) per year. There would be no anticipated impacts to land use activities on public or private land to include timber harvest, mining, and public access/recreational use. Changes to hunting seasons could occur due to conflicts. Risk to human health and safety from a recovered grizzly bear population would be less than 1 injury per year and less than 1 human mortality every few decades. Economic analyses indicate grizzly bear recovery in the BE would lead to total net economic benefits of 40.4-60.6 million dollars per year. Total annual cost would include an implementation cost of $193,000 and livestock loss value of $2,720-$8,568, for a total cost of $195,720-$201,568 per year (total annual cost during the initial 5-year reintroduction phase would be $436,352-$442,200 per year).

Alternative 1A. Restoration of a Grizzly Bears as a Nonessential Experimental Population with USFWS Management:

Summary.--The purpose of this alternative is to accomplish grizzly bear recovery by restoring grizzly bears designated as a nonessential experimental population to central Idaho and implementing provisions within Section 10(j) of the ESA to conduct special management to address local concerns. The USFWS would have management of the Bitterroot grizzly bear experimental population. The states and tribes would be encouraged to implement the Special Rules for grizzly bear management under cooperative agreement with the USFWS.

The Bitterroot Grizzly Bear Experimental Population Area (experimental population area), which includes most of central Idaho and part of western Montana (Figure S-3), would be established by the USFWS under authority of Section 10(j) of the ESA. This would include the area bounded by U.S. Highway 93 from its junction with the Bitterroot River near Missoula, Montana, to Challis, Idaho; Idaho Highway 75 from Challis to Stanley, Idaho; Idaho Highway 21 from Stanley to Lowman, Idaho; Idaho Highway 17 from Lowman to Banks, Idaho; Idaho Highway 55 from Banks to New Meadows, Idaho; U.S. Highway 95 from New Meadows to Coeur d'Alene, Idaho; and Interstate 90 from Coeur d'Alene, Idaho, to its junction with the Clark Fork River near St. Regis, Montana; and the Clark Fork River from its junction with Interstate 90 near St. Regis, to its confluence with the Bitterroot River near Missoula, Montana; and the Bitterroot River from its confluence with the Clark Fork River to its junction with U.S. Highway 93, near Missoula, Montana. The experimental

population area encompasses approximately 25,140 square miles. The USFWS would not designate a recovery area.

The best scientific evidence available indicates there are no grizzly bears in the experimental population area at this time (USFWS 1996). Ongoing grizzly bear monitoring efforts would continue. The first year of implementation would be a "phase-in" year where sanitation equipment would be installed in key areas, and information and education outreach programs would be initiated. Grizzly bears would be restored into the Selway-Bitterroot Wilderness portion of the experimental population area during the second year of implementation. Specific reintroduction sites would be recommended by the management agencies to the USFWS. Experimental grizzly bears moving outside the experimental population area would be captured and placed back inside the experimental area.

Grizzly bear management would allow for resource extraction activities to continue without formal Section 7 consultation under Section 7(a)(2) of the ESA. The USFWS would be responsible for recommending changes in land-use standards and guidelines as necessary for grizzly bear management. People could continue to kill grizzly bears in self-defense or in defense of others, provided that such taking is reported within 24 hours to appropriate authorities. Following issuance of a permit by the USFWS, the public would be allowed to harass, through non-injurious means, a grizzly bear attacking livestock (cattle, sheep, horses, and mules) or bees. A livestock owner may be issued a permit to kill a grizzly bear killing or pursuing livestock on private lands if it has not been possible to capture such a bear or deter depredations through agency efforts. If significant conflicts occurred between grizzly bears and livestock within the experimental population area, these could be resolved in favor of the livestock by agencies capturing or eliminating the bear depending on the circumstances. There would be no federal compensation program, but compensation from existing private funding sources would be encouraged. Animal control toxicants lethal to bears are not used on public lands within the recovery and experimental population areas. It is anticipated that ongoing animal damage control activities would not be affected by grizzly bear recovery. Any conflicts or mortalities associated with these activities would result in review by the USFWS and any necessary changes would be recommended by the USFWS.

Implementation of Alternative 1A would involve.-- The following summary highlights the actions that would be implemented if Alternative 1A is selected:

- If this alternative is selected the USFWS would develop and publish a nonessential experimental population rule (Special Rule), under Section 10(j) of the ESA.
- The USFWS would designate much of central Idaho and part of western Montana (see description above) as the Bitterroot Grizzly Bear Experimental Population Area for grizzly bear restoration (Figure S-3). Bears would only be released in the Selway-Bitterroot Wilderness, unless the USFWS determines that release in the River of No Return Wilderness is appropriate. Specific relocation sites would be recommended by the management agencies to the USFWS.
- The USFWS would implement the Bitterroot Chapter of the Grizzly Bear Recovery Plan (USFWS 1996). The USFWS would develop management plans and policies, as necessary, for management of grizzly bears in the experimental population area.
- The IDFG and/or the Nez Perce Tribe, MDFWP, and the USFS, in cooperation with the USFWS, would exercise day-to-day management responsibility within the experimental population area while implementing the BE Grizzly Bear Recovery Plan Chapter.

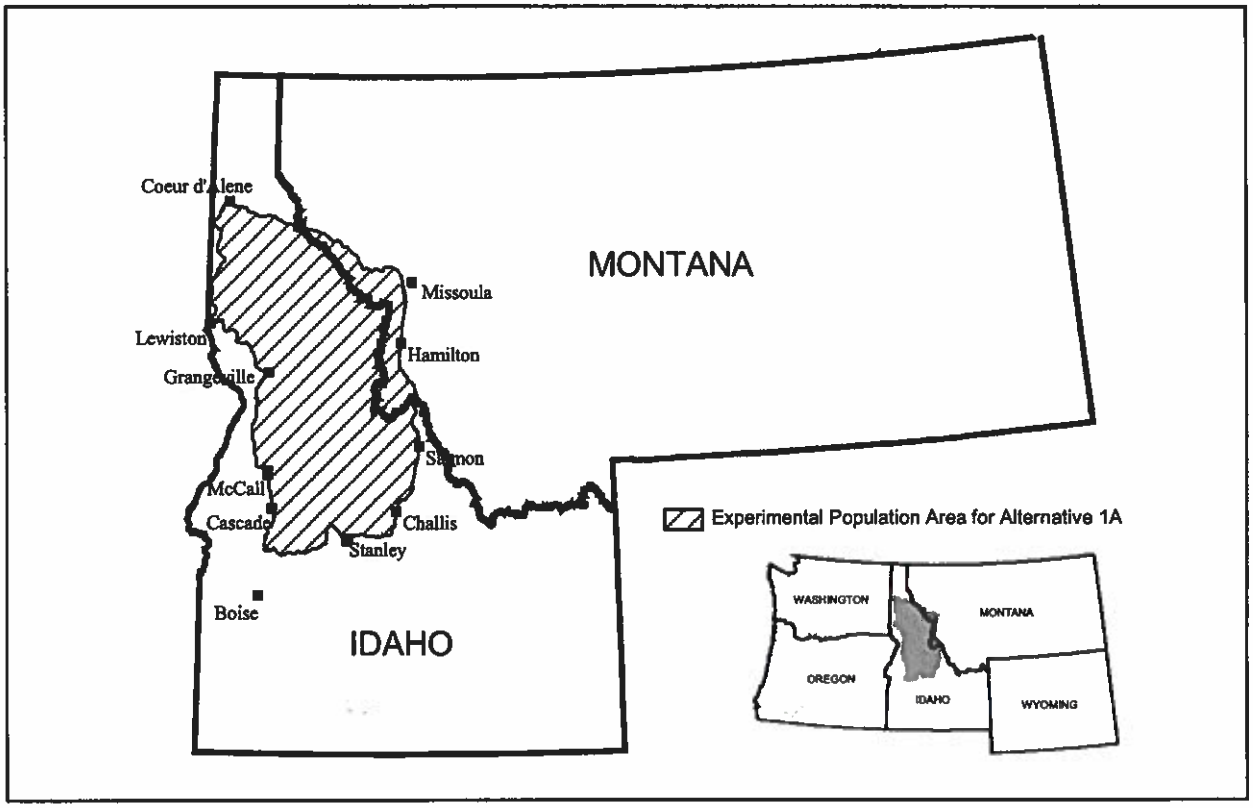


Figure S-3. Bitterroot Grizzly Bear Experimental Population Area for Alternative 1A - *Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Management.*

- Grizzly bear recovery would be emphasized in designated wilderness areas, but bears moving outside wilderness areas into the experimental population area would be managed through provisions in a Special Rule and through management plans and policies developed by the USFWS, unless potential conflicts were significant and could not be corrected, in which case the USFWS would develop strategies to discourage grizzly bear occupancy in portions of the experimental population area.

- Private lands outside the national forest boundary in the Bitterroot Valley (lands outside the Bitterroot Forest boundary south of U.S. Highway 12 to Lost Trail pass) are an area where any human/grizzly conflicts would be considered significant. Grizzly bear occupancy would be discouraged in these areas and grizzly bears would be captured and returned to the experimental population area or destroyed depending on the history of each individual bear. If a grizzly bear enters this exclusion area, state and federal wildlife management agencies would attempt to capture it and notify the public immediately of its presence. The public would be updated until the bear is caught. Further, any grizzly bear that occupies inhabited human settlement areas on private land within the experimental population area that in the judgement of the management agencies presents a clear threat to human safety or where there is indication that it may become habituated to humans, may be relocated by management agencies. This is to prevent conflicts and possible bear-human injury or the death of bears, and to promote and enhance public safety.

- Grizzly bear management would allow for resource extraction activities to continue without formal Section 7 consultation, because under ESA Section 10(j)(c) nonessential experimental populations are treated under Section 7(a)(2) as "proposed" species, and thus federal agencies are not required to formally consult with USFWS on management actions. Federal agencies are only required to confer with USFWS on activities the agencies believe might jeopardize the existence of the species (see Appendix 12).

- All Section 9 "takings" provisions under the ESA for the nonessential experimental population of grizzly bears in the BE would be included a the Special Rule. The USFWS would be responsible for recommending changes in land-use standards and guidelines in the BE as necessary for grizzly bear management. People would continue to be allowed to take a grizzly bear in self-defense or defense of others, provided that such taking is reported within 24 hours to appropriate authorities. Livestock owners would be allowed to take a grizzly bear once a permit has been obtained, the response protocol established by the USFWS has been satisfied, and efforts by the wildlife agency personnel to capture depredating bears have been unsuccessful.

- The USFWS would establish a tentative recovery goal of approximately 280 grizzly bears occupying suitable habitat within the wilderness and adjacent lands (USFWS 1996). The USFWS could recommend a refined recovery goal based on scientific information once grizzly bears were reintroduced and additional information was obtained on their use of the habitat. The recovery goal for the Bitterroot grizzly bear population would be consistent with habitat available within the wilderness and adjacent lands within the experimental population area and the best scientific and commercial data available. Any revised recovery goals developed by the USFWS would require public review appropriate for the revision of a recovery plan.

- A minimum of 25 grizzly bears would be reintroduced into the Selway-Bitterroot Wilderness portion of the experimental population area over a period of 5 years, until a colony of bears is established.

The USFWS, USFS, states of Idaho and Montana, and Nez Perce Tribe would release a minimum of 25 grizzly bears into the experimental population area over a period of 5 years. Procedures would include:

- The first "phase-in" year of implementation before grizzly bears are reintroduced would include an intense sanitation and public education campaign. The sanitation program would include efforts by the USFS, permittees, and private landowners in and around the experimental population area. Public education efforts would include: presentations at schools in and around the experimental population area to teach children about grizzly bears and how to recreate safely in grizzly bear country; presentations to all civic clubs and interested organizations about grizzly bears and how to recreate safely in grizzly bear country; and placing of informative signs at all trail heads in and around the experimental population area.

- Necessary federal permits, agreements, and archeological site clearances would be obtained and activities conducted for a scientifically based grizzly bear reintroduction program.

- Subadult grizzly bears of both sexes would be trapped each year for 5 years, from areas in Canada (in cooperation with Canadian authorities) and the United States that presently have healthy populations of grizzly bears living in habitats that are similar to those found in the Bitterroot Ecosystem. Three sources of grizzly bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population in northwest Montana, and the Yellowstone Ecosystem (YE) population. Under ESA Section 10(j), the Secretary of Interior may authorize the release of any

population of an endangered or threatened species outside the current range of such species if the Secretary determines that the release will further the conservation of the species, and the population is wholly separate geographically from nonexperimental populations of the same species. Specific numbers of bears that could be obtained yearly from potential source populations is unknown at this time, and would be predicated on the yearly achievement of recovery (YE and NCDE) and management (British Columbia) objectives.

- Grizzly bears would be captured and reintroduced at the best time of year to optimize their survival. This would likely occur when grizzly bear food supplies in the BE are optimum. Each individual grizzly bear reintroduced would be radio collared and monitored to determine their movements and how they use their habitat, and to keep the public informed of general bear locations and recovery efforts.

Expected actions and effects of Alternative 1A.-- See Tables S-2 and S-3 for a comparison of expected actions and effects of this alternative. The tentative recovery goal of this alternative is approximately 280 grizzly bears (USFWS 1996). Realistically, grizzly bear recovery in the BE could take a minimum of 50 years (4% growth rate), and given potential conflicts, could likely take more than 110 years (2% growth rate). Total annual implementation cost during the 5-year reintroduction period would be approximately $413,632/year, and the total 5-year implementation cost would be approximately $2,068,160. Annual costs for monitoring and citizen management would be approximately $173,000 for each year beyond the 5-year reintroduction period.

A brief summary of effects: A recovered grizzly bear population would kill about 6 cattle (4-8) and 25 sheep (5-44) and up to 504 ungulates per year. This would not measurably impact ungulate populations or hunter harvest. Nuisance bear incidents could average 37 (0-74) per year. There would be no anticipated impacts to land use activities on public or private land to include timber harvest, mining, and public access/recreational use. Changes to hunting seasons could occur due to conflicts. Risk to human health and safety from a recovered grizzly bear population would be less than 1 injury per year and less than 1 human mortality every few decades. Economic analyses indicate grizzly bear recovery in the BE would lead to total net economic benefits of 40.4-60.6 million dollars per year. Total annual cost would include an implementation cost of $173,000 and livestock loss value of $2,720-$8,568, for a total cost of $175,720-$181,568 per year (total annual cost during the initial 5-year reintroduction phase would be $416,352-$422,200 per year).

Alternative 2. The No Action Alternative - Natural Recovery:

Summary.-- The purpose of this alternative is to allow grizzly bears to expand from their current range in north Idaho and northwestern Montana southward into central Idaho and western Montana, and to recolonize the BE. The ultimate goal is natural recovery of grizzly bears in the BE. Grizzly bears would be allowed to expand their current range in north Idaho and northwestern Montana southward into central Idaho and western Montana. The likelihood of recovery of grizzly bears in the BE through natural recolonization appears remote because grizzly bears do not move far to colonize distant, disjunct areas. The nearest grizzly bear population to the BE is approximately 40 miles away in the Cabinet Mountains of northwest Montana. Data from more than 550 different radio-collared grizzly bears since 1975 shows no movement by grizzly bears between any ecosystems. Given existing information, it is unlikely that such movement would occur into the BE from an area currently occupied by grizzly bears. If grizzly bears did disperse, they would be protected as a threatened species under the Endangered Species Act wherever they occurred.

Because grizzly bears would be fully protected as threatened under the ESA, Section 7(a)(2) would apply upon documentation of the presence of a grizzly bear in the BE, and all federal actions within the recovery zone would be subject to Section 7 consultation with the USFWS. The IGBC nuisance grizzly bear management guidelines (IGBC 1986) would be implemented to address conflicts that occur between grizzly bears and humans. The USFWS would manage all aspects of grizzly bear recovery. It is unknown (but not likely) whether this alternative would result in recovery of grizzly bears in the BE. It was the opinion of the Bitterroot Ecosystem Technical Committee that recovery of grizzly bears in the BE through recolonization is considered a remote possibility because of lack of movement or dispersal by grizzly bears in the northern Rocky Mountains (USFWS 1996). If recovery was achieved, grizzly bears would be removed from ESA protection and the states of Idaho and Montana would continue to manage bears.

Implementation of Alternative 2 would involve.-- The following summary highlights the actions that would be implemented if Alternative 2 is selected:

- The USFWS would designate the Bitterroot Grizzly Bear Recovery Zone as delineated in Figure S-4, and consistent with the 5,500 square mile Bitterroot Grizzly Bear Evaluation Area (BEA) as defined in the Bitterroot Ecosystem Recovery Plan Chapter - Supplement to the Grizzly Bear Recovery Plan (USFWS 1993, 1996).
- The USFWS would establish a tentative long-term recovery goal of approximately 280 grizzly bears (bears distributed over 5,500 mi^2 of designated wilderness and adjacent lands) within the recovery zone (USFWS 1996) (Figure S-4).
- Primary grizzly bear management responsibility would reside with the USFWS and include active participation by federal land management agencies, the states of Idaho and Montana, and the Nez Perce Tribe.
- Upon documentation of grizzly bear(s) in the BE, the USFWS would conduct an extensive and objective public education and information program to inform the public about grizzly bears and their management under the ESA.
- The USFWS would continue to evaluate reported sightings of grizzly bears in the BE to determine their presence. The USFWS would also coordinate a monitoring program within the recovery zone to determine the status of recolonization.
- The national forests within the recovery zone would continue to manage habitat to meet or exceed their existing Forest Plan standards for big game habitat management. ESA Section 7(a)(2) would apply upon documentation of grizzly bear presence in the BE, and all federal actions within the recovery zone would be subject to Section 7 consultation with the USFWS.
- Upon documentation of grizzly bear(s) in the BE, the USFWS would evaluate the adequacy of land-use restrictions to protect suitable grizzly bear habitat within the Bitterroot recovery zone and within potential linkage zones to other occupied recovery zones. The USFWS would use the existing evaluation of adjacent wilderness areas to consider them as additions to the recovery zone (to include the portion of the Frank Church-River of No Return Wilderness south of the Salmon River).

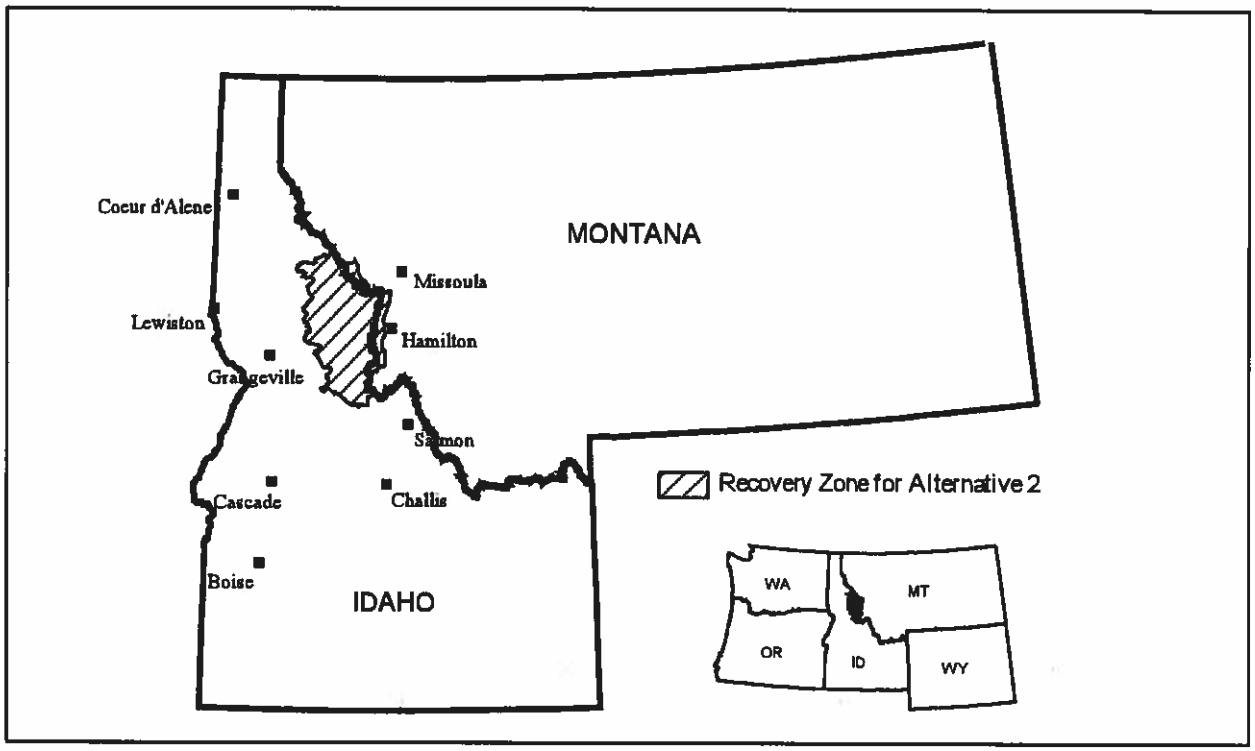


Figure S-4. The Bitterroot Grizzly Bear Recovery Zone for Alternative 2 - *the No Action Alternative - Natural Recovery.*

- The USFWS, in cooperation with IDFG and MDFWP would apply the IGBC nuisance grizzly bear management guidelines to grizzly bears in conflict with humans or domestic animals.
- Land-use restrictions could be implemented when necessary if illegal killing threatens grizzly bear recovery.

Expected actions and effects of Alternative 2.-- See Tables S-2 and S-3 for a comparison of the expected actions and effects of this alternative. The tentative recovery goal of this alternative is approximately 280 grizzly bears (USFWS 1996). Optimistically, it could take at least 50 years for reproducing populations of bears from the Cabinet-Yaak Ecosystem (80 miles distance) to reach the BE. If this occurred, it would conservatively take an additional 50-110+ years to population recovery. Thus, estimated time to recover grizzly bears in the BE under this alternative is at least 100-160 years. Since this alternative relies on natural recolonization to recover grizzly bears in the BE, there would be no cost associated with reintroduction of bears. Costs for ongoing monitoring and management activities would be approximately $140,000 per year.

A brief summary of effects: If population recovery occurred, a recovered grizzly bear population would kill about 2 cattle (1-3) and 4 sheep (1-6) and up to 504 ungulates per year. This would not measurably impact ungulate populations or hunter harvest. Nuisance bear incidents could average 37 (0-74) per year. Section 7 (a)(2) consultation requirements would be triggered upon grizzly bear presence. Ongoing land-use activities (including timber harvest, minerals extraction, and public access and recreation) could be altered solely for

grizzly bears if grizzly bear presence was documented in the BE, and research indicates that current habitat management is not adequate to maintain suitable grizzly bear habitat, or that linkage zone restrictions are necessary to promote grizzly bear recolonization. If grizzly bears recolonize, it is estimated that reductions in timber harvest on affected currently roaded national forest lands would be between 8.3 and 39.7 million board feet per year over the next decade. Changes to hunting seasons could occur due to conflicts. Risk to human health and safety from a recovered grizzly bear population would be less than 1 injury per year and less than 1 human mortality every few decades. Economic analyses indicate that there is no net economic benefit from this alternative because it is essentially a continuation of the status quo for the foreseeable future. Total costs would be $140,000 for implementation, and the potential net loss of 55-264 jobs from reduced timber harvest.

Alternative 3. The No Grizzly Bear Alternative:

Summary.-- The purpose of this alternative is to prevent grizzly bears from naturally re-establishing in Bitterroot Ecosystem. Changes to the ESA proposed under this alternative would require intensive lobbying, changes in public attitudes, and years to implement. Actions of this magnitude would cost millions of dollars. Congress would need to pass legislation to remove grizzly bears in central Idaho and portions of western Montana from the list of threatened species. The USFWS would stop all funding and management activity toward bear research, education, and management in central Idaho. Furthermore, the states of Idaho and Montana would remove grizzly bears from the protection of state law within the BE (central Idaho and west-central Montana). Unregulated killing by the public and extirpation or removal by agencies would likely prevent any possible grizzly bear recovery in this area.

Implementation of Alternative 3 would involve.-- The following summary highlights the actions that would be implemented if Alternative 3 is selected:

- Federal legislation would be passed to remove grizzly bears from the list of threatened species in the BE.
- State legislation would be passed to remove grizzly bears from protection of Idaho and Montana state law in the BE.
- Agencies and the public would be allowed to kill grizzly bears at any time without restriction. This would prevent any natural recovery of bears.

Expected actions and effects of Alternative 3.-- See Tables S-2 and S-3 for a comparison of the expected actions and effects of this alternative. The only estimated costs of this alternative are management costs necessary to develop required legislation to change existing laws and regulations. Total cost is estimated at a minimum of $2,000,000 spread over several years. No measurable benefits have been associated with this alternative. There would be no other measurable impacts from this alternative.

Alternative 4. Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration:

Summary.-- Of importance is the fact that the principal laws that govern land management on federal lands will have to be changed for the USFWS to implement this alternative. The purpose of this alternative is to use reintroduction and extensive habitat protection and enhancement to promote natural recovery of grizzly bears in the BE. Primary grizzly bear management responsibility would reside with the USFWS and include active

participation by the states and the Nez Perce Tribe. A ten member Scientific Committee would be appointed by the Secretary of the Interior in cooperation with the National Academy of Sciences to define needs for additional research, develop strategies for reintroduction of bears, and monitor results of the program. Grizzly bears would be reintroduced into the Selway-Bitterroot Wilderness and roadless areas north of the Lochsa River through methods determined by the Scientific Committee. They would be fully listed as threatened with all the protections under the ESA (including Section 7(a)(2)), and all federal actions within the recovery zone would be subject to ESA Section 7 consultation with the USFWS. Management Situation designation would reflect a high priority for recovery on all federal lands within a 21,645 square mile recovery zone.

Grizzly bear populations would take a minimum of 65 years, and likely more than 125 years to recover to a population of 300-500 individuals (bears distributed over 21,645 mi^2 of wilderness, non-wilderness, and private land). No logging or road building would be permitted on roadless lands within the recovery zone. The Magruder Road would be reclaimed and converted to a pack trail from Magruder crossing 23 miles west to Sabe Saddle. The Hells Half Acre Mountain Road would be reclaimed over the entire eight mile length. The Lolo Restoration Area (219 square miles) and a Corridor Special Management Area (1,380 square miles) would be designated for road density reduction through reclamation. Road densities on roaded lands within the Restoration Area and the Corridor Special Management Area would be reduced to an average of no more than 0.25 miles per square mile.

Interagency Grizzly Bear Committee nuisance grizzly bear management guidelines (IGBC 1986) would be applied to bears killing livestock. The Scientific Committee would review and modify these guidelines if necessary. If losses occurred on nearby private lands, bears would be moved. Agency response to reported livestock losses from grizzly bears must occur rapidly. Grizzly bears could be killed in defense of life, but not in defense of property. Use of toxicants lethal to bears on public lands within the recovery zone and areas used by bears would be subject to Section 7 consultation and could be prohibited by existing ADC policy and EPA labeling instructions.

Backcountry users would be required to make food, garbage, and livestock feed unavailable to grizzly bears. Front country campgrounds would install bear resistant garbage containers as soon as possible. An intensive education campaign regarding food storage and garbage handling would be instituted for all residents and visitors. A request for elimination of hunting of black bears with dogs and bait within the wilderness areas designated for reintroduction of grizzly bears would be made to the State of Idaho. The Scientific Committee would recommend whether this ban would need to be extended if conditions warrant. Intensive hunter education efforts regarding bear identification and recreation in grizzly bear habitat would be undertaken.

Implementation of Alternative 4 would involve.-- The following summary highlights the actions that would be implemented if Alternative 4 is selected:

- Of importance is the fact that the principal laws that govern land management on federal lands will have to be changed for the USFWS to implement this alternative.

- The USFWS would designate the Bitterroot Grizzly Bear Recovery Zone along boundaries described in Figure S-5. The Recovery Zone would include all of the Selway-Bitterroot, Frank Church-River of No Return, Sawtooth, and Gospel Hump Wilderness Areas, surrounding inventoried roadless lands, and other National Forest lands comprising approximately 21,645 square miles. The area is located on portions of the Clearwater, Bitterroot, Lolo, Panhandle, Payette, Boise, Sawtooth,Challis, and Salmon National Forests. Specifically, the northern boundary of the recovery zone would be the northern boundary of the Mallard-Larkins inventoried roadless area on the Clearwater and Panhandle National Forests and the northern boundary of the Sheep Mountain inventoried roadless area on the Lolo National Forest. The

western boundary of the recovery zone would be the western boundary of the Clearwater National Forest; the westernmost boundaries of the Nez Perce and Payette National Forests west of U.S. Highway 95 and Idaho Highway 55; the westernmost boundaries of the Boise National Forest east of Idaho Highway 55. The southern boundary of the recovery zone would be the southern boundaries of the Boise, Sawtooth, and Challis National Forests north of U.S. Highway 20. The eastern boundary of the recovery zone would be the eastern boundaries of the Challis and Salmon National Forests west of U.S. Highway 93; the Bitterroot National Forest west of Lost Trail Pass northwest to Trapper Peak; the eastern boundary of the Selway-Bitterroot Wilderness Area to Lolo Peak and to include Lost Horse and Blodgett Canyons out to the mouth; the Lolo National Forest from Lolo Peak northwest to Garden Point; from Garden Point northwest to Rivulet Peak; from Rivulet Peak northwest to Sunrise Point; from Sunrise Point northwest to Blacktail Mountain.

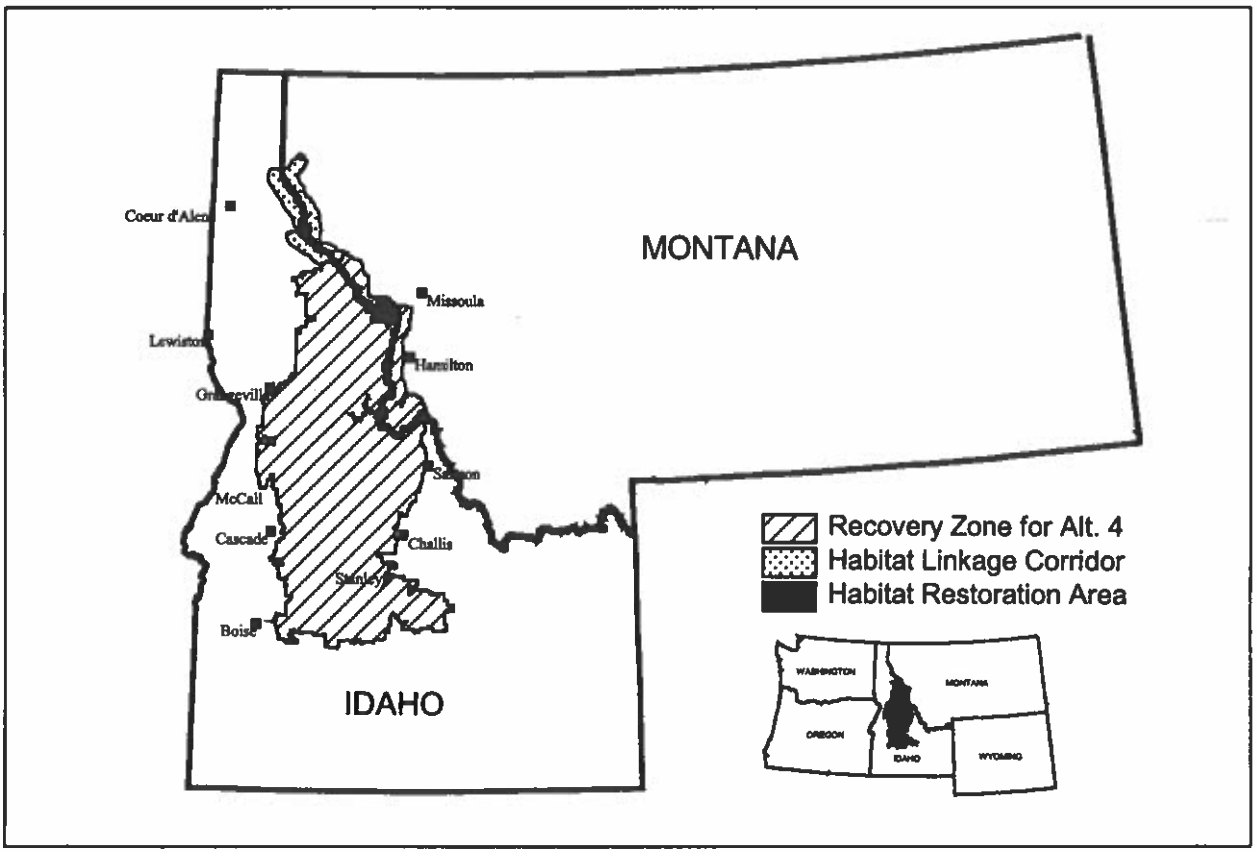


Figure S-5. Bitterroot Grizzly Bear Recovery Zone and Linkage Corridor for Alternative 4 - *Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration.*

- The USFWS would establish proactive interagency grizzly bear recovery programs in the BE (similar to those existing in other ecosystems) to conduct monitoring, research, education, and information programs.
- A Scientific Committee would be established to define needs for additional research, develop strategies for reintroduction of bears, and monitor results of the program.

Summary

- A recovery goal of between 300-500 (average of 400) grizzly bears (bears distributed over 21,645 mi^2 of wilderness, non-wilderness and private land) would be established within the recovery zone. The Scientific Committee would recommend a refined recovery goal once grizzly bears are reintroduced and information is obtained on their use of the habitat.

- The USFWS would reintroduce a minimum of 25 bears over a period of 5 years into the Selway-Bitterroot Wilderness and roadless areas north of the Lochsa River following recommendations of the Scientific Committee. Subadult grizzly bears of both sexes would be trapped, each year for 5 years, from areas in Canada (in cooperation with Canadian authorities) and the United States that presently have healthy populations of grizzly bears living in habitats that are similar to those found in the Bitterroot Ecosystem. Three sources of grizzly bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population in northwest Montana, and the Yellowstone Ecosystem (YE) population. The specific number of bears that could be obtained yearly from the potential source populations is unknown at this time. Bears would be reintroduced at the best time of year to optimize their survival. Reintroduced bears would be radio collared and monitored to determine their movements and how they use their habitat, and to keep the public informed of general bear locations and recovery efforts.

- Within the recovery zone (Figure S-5), the USFS and Bureau of Land Management (BLM) in cooperation with USFWS would: not approve logging or road building within roadless areas; use road closures and road reclamation to reduce road densities to no more than 0.25 miles per square mile within the recovery zone, habitat restoration areas and habitat linkage corridors; designate management situations as per the Interagency Grizzly Bear Guidelines (IGBC 1986); and implement sanitation programs to assist recovery of grizzly bears.

- USFWS, in cooperation with other federal agencies, the states, the Nez Perce Tribe, and private groups would use federal funding to enhance grizzly bear habitat through acquisitions or easements.

- USFWS, in cooperation with IDFG and MDFWP would apply the IGBC nuisance grizzly bear management guidelines (IGBC 1986) to grizzly bears in conflict with humans or domestic animals.

- IDFG in cooperation with the USFWS would be requested to eliminate the use of dogs and bait for black bear hunting within the area designated for release of reintroduced bears.

Expected actions and effects of Alternative 4.-- See Tables S-2 and S-3 for a comparison of expected actions and effects of this alternative. The tentative recovery goal of this alternative is approximately 400 (300-500) grizzly bears. Under this alternative, grizzly bear recovery in the BE could take a minimum of 65-70 years (4% growth rate), and given potential conflicts, would likely take more than 125 years (2% growth rate). Total annual implementation cost during the 5-year reintroduction period would be approximately $433,632/year, and total 5-year implementation cost would be approximately $2,143,160. Annual costs for monitoring and citizen management would be approximately $188,000 for each year beyond the 5-year reintroduction period.

A brief summary of effects: A recovered grizzly bear population would kill about 20 cattle (12-27) and 198 sheep (41-355) and up to 720 ungulates per year. This would not measurably impact ungulate populations or hunter harvest. Nuisance bear incidents could average 58 (0-105) per year. Because grizzly bears would be listed as a fully protected threatened species, all federal actions within the recovery zone would be subject to ESA Section 7 consultation with the USFWS. Road building and timber harvest would not be allowed on

federal lands within the recovery zone that are presently roadless. Grizzly bear habitat management would also likely restrict to some degree timber harvests on currently roaded areas within the recovery zone. It is estimated that reductions in timber harvest on national forest lands would be between 40 and 194 million board feet per year over the next decade. Minerals extraction activities could be altered due to grizzly bear concerns in and by themselves. Public access could be negatively impacted due to proposed road closures, however, backcountry recreation opportunities could be enhanced by the road closures. Changes to black bear hunting seasons (elimination of baiting and hound hunting) could occur. Risk to human health and safety from a recovered grizzly bear population would be less than 1 injury per year and less than 1 human mortality every few decades. Economic analyses indicate grizzly bear recovery in the BE would lead to total net economic benefits of 40.4-60.6 million dollars per year. Annual cost associated with grizzly bear recovery would be: $288,700 for the value of hunting losses; $10,552-$47,915 for the value of livestock losses; and $188,000 annual cost for monitoring and management after the reintroduction phase ($428,632 annual implementation cost for the first 5-year reintroduction phase). Thus, the total cost would be $487,252-$524,615 per year (costs during the initial 5-year reintroduction phase would be $727,884-$765,247 per year). In addition, there would potentially be a net job loss of 117-1,136 jobs from reductions in timber harvest due to implementation of this alternative.

Alternative 4A. Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management:

Summary.-- The purpose of this alternative is to achieve recovery through reintroduction, with the USFWS managing all aspects of recovery of the population. Other federal and state agencies and the Nez Perce Tribe would assist the USFWS with management activities. The grizzly bear would have full status as a threatened species under the provisions of the ESA.

Primary grizzly bear management responsibility would reside with the USFWS and include active participation by the states and the Nez Perce Tribe. A ten member Scientific Advisory Committee would be appointed by the Secretary of Interior in cooperation with the National Academy of Sciences to make recommendations regarding research needs and strategies for reintroduction of bears, and to monitor results of the program. Grizzly bears would be reintroduced into the Selway-Bitterroot Wilderness through methods developed in cooperation with the Scientific Advisory Committee and the USFWS.

Reintroduced bears would be fully listed as threatened with all the protections under the ESA (including Section 7(a)(2)), and all federal actions within the recovery zone would be subject to ESA Section 7 consultation with the USFWS. Management Situation designation would reflect a high priority for recovery on all federal lands within the 21,645 square mile recovery zone. Grizzly bear populations would take a minimum of 65 years, and likely more than 125 years to recover to a population of 300-500 individuals.

Interagency Grizzly Bear Committee (IGBC) nuisance grizzly bear management guidelines (IGBC 1986) would be applied to bears killing livestock. If losses occurred on nearby private lands, bears would be moved. Agency response to reported livestock losses from grizzly bears must occur rapidly. Grizzly bears could be killed in defense of life, but not in defense of property. Use of toxicants lethal to bears on public lands within the recovery zone and areas used by bears would be subject to Section 7 consultation and could be prohibited by existing ADC policy and EPA labeling instructions. Backcountry users would be required to make food, garbage, and livestock feed unavailable to grizzly bears. Front country campgrounds would install bear resistant garbage containers as soon as possible. An intensive education campaign regarding food storage and garbage handling would be instituted for all residents and visitors. A request for elimination of hunting of black

bears with dogs and bait within the wilderness areas designated for reintroduction of grizzly bears would be made to the State of Idaho. The Scientific Advisory Committee would evaluate whether this ban would need to be extended if conditions warrant. Intensive hunter education efforts regarding bear identification and recreation in grizzly bear habitat would be undertaken.

Implementation of Alternative 4A would involve.-- The following summary highlights the actions that would be implemented if Alternative 4A is selected:

- The USFWS would designate the Bitterroot Grizzly Bear Recovery Zone along boundaries described in Figure S-6. The Recovery Zone would include all of the Selway-Bitterroot, Frank Church-River of No Return, Sawtooth, and Gospel Hump Wilderness Areas, surrounding inventoried roadless lands, and other National Forest lands comprising approximately 21,645 square miles. The area is located on portions of the Clearwater, Bitterroot, Lolo, Panhandle, Payette, Boise, Sawtooth,Challis, and Salmon National Forests. Specifically, the northern boundary of the recovery zone would be the northern boundary of the Mallard-Larkins inventoried roadless area on the Clearwater and Panhandle National Forests and the northern boundary of the Sheep Mountain inventoried roadless area on the Lolo National Forest. The western boundary of the recovery zone would be the western boundary of the Clearwater National Forest; the westernmost boundaries of the Nez Perce and Payette National Forests west of U.S. Highway 95 and Idaho Highway 55; the westernmost boundaries of the Boise National Forest east of Idaho Highway 55. The southern boundary of the recovery zone would be the southern boundaries of the Boise, Sawtooth, and Challis National Forests north of U.S. Highway 20. The eastern boundary of the recovery zone would be the eastern boundaries of the Challis and Salmon National Forests west of U.S. Highway 93; the Bitterroot National Forest west of Lost Trail Pass northwest to Trapper Peak; the eastern boundary of the Selway-Bitterroot Wilderness Area to Lolo Peak and to include Lost Horse and Blodgett Canyons out to the mouth; the Lolo National Forest from Lolo Peak northwest to Garden Point; from Garden Point northwest to Rivulet Peak; from Rivulet Peak northwest to Sunrise Point; from Sunrise Point northwest to Blacktail Mountain.

- The USFWS would establish proactive interagency grizzly bear recovery programs in the BE (similar to those in other ecosystems) to conduct monitoring, research, education, and information programs.

- A Scientific Advisory Committee would be established to provide input on research needs, strategies for reintroduction of bears, and monitoring program results.

- A recovery goal of between 300-500 (average of 400) grizzly bears (bears distributed over 21,645 square miles of designated wilderness, non-wilderness, and private land) would be established within the recovery zone. The Scientific Advisory Committee could recommend a refined recovery goal once grizzly bears are reintroduced and information is obtained on their use of the habitat.

- The USFWS would reintroduce a minimum of 25 bears over a period of five years into the Selway-Bitterroot Wilderness following procedures established from recommendations of the Scientific Advisory Committee. Subadult grizzly bears of both sexes would be trapped, each year for 5 years, from areas in Canada (in cooperation with Canadian authorities) and the United States that presently have healthy populations of grizzly bears living in habitats that are similar to those found in the Bitterroot Ecosystem. Three sources of grizzly bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population in northwest Montana, and the Yellowstone Ecosystem (YE) population. The specific number of bears that could be obtained yearly from the

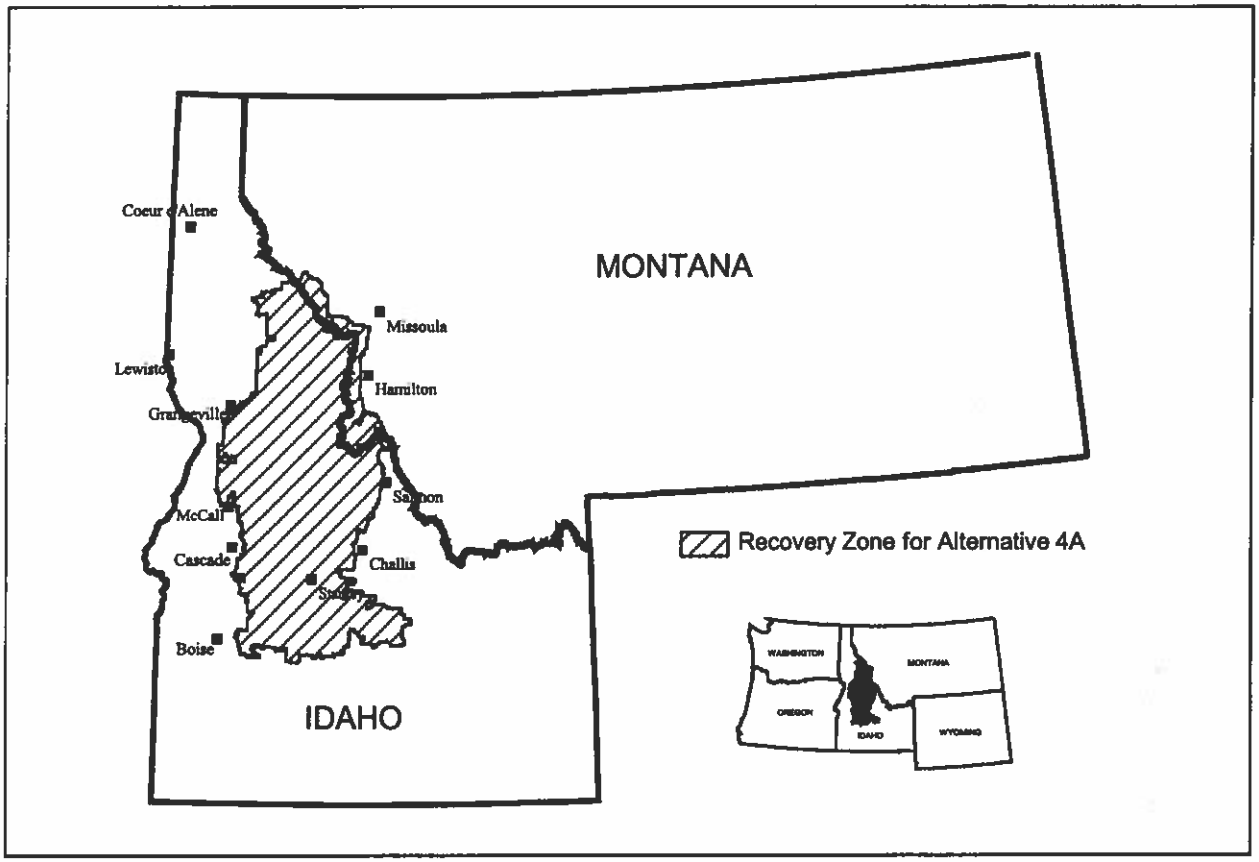


Figure S-6. Bitterroot Grizzly Bear Recovery Zone for Alternative 4A - the Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management.

potential source populations is unknown at this time. Bears would be reintroduced at the best time of year to optimize their survival. Reintroduced bears would be radio collared and monitored to determine their movements and how they use their habitat, and to keep the public informed of general bear locations and recovery efforts.

- Within the recovery zone (Figure S-6), the USFS and Bureau of Land Management (BLM) in cooperation with USFWS would designate management situations as per the Interagency Grizzly Bear Guidelines (IGBC 1986), and implement sanitation programs to assist recovery of grizzly bears.
- USFWS, in cooperation with other federal agencies, the states, the Nez Perce Tribe, and private groups would use federal funding to enhance grizzly bear habitat through acquisitions or easements.
- USFWS, in cooperation with IDFG and MDFWP would apply the IGBC (1986) nuisance grizzly bear management guidelines to grizzly bears in conflict with humans or domestic animals.
- USFWS could evaluate the need to eliminate the use of dogs and bait for black bear hunting within the area designated for release of reintroduced bears. These hunting techniques could be eliminated if authorized by the IDFG and Idaho Fish and Game Commission.

Expected actions and effects of Alternative 4A.-- See Tables S-2 and S-3 for a comparison of expected actions and effects of this alternative. The tentative recovery goal of this alternative is approximately 400 (300-500) grizzly bears. Under this alternative, grizzly bear recovery in the BE could take a minimum of 65-70 years (4% growth rate), and given potential conflicts, would likely take more than 125 years (2% growth rate). Total annual implementation cost during the 5-year reintroduction period would be approximately $433,632/year, and total 5-year implementation cost would be approximately $2,143,160. Annual costs for monitoring and citizen management would be approximately $188,000 for each year beyond the 5-year reintroduction period.

A brief summary of effects: A recovered grizzly bear population would kill about 20 cattle (12-27) and 198 sheep (41-355) and up to 720 ungulates per year. This would not measurably impact ungulate populations or hunter harvest. Nuisance bear incidents could average 58 (0-105) per year. Because grizzly bears would be listed as a fully protected threatened species, all federal actions within the recovery zone would be subject to ESA Section 7 consultation with the USFWS. Grizzly bear habitat management would also likely restrict to some degree timber harvests on currently roaded areas within the recovery zone. It is estimated that reductions in timber harvest on national forest lands would be between 32 and 76 million board feet per year over the next decade. Minerals extraction activities could be altered due to grizzly bear concerns in and by themselves. Changes to black bear hunting seasons (elimination of baiting and hound hunting) could occur. Risk to human health and safety from a recovered grizzly bear population would be less than 1 injury per year and less than 1 human mortality every few decades. Economic analyses indicate grizzly bear recovery in the BE would lead to total net economic benefits of 40.4-60.6 million dollars per year. Annual cost associated with grizzly bear recovery would be: $10,552-$47,915 for the value of livestock losses; and $188,000 annual cost for monitoring and management after the reintroduction phase ($428,632 annual implementation cost for the first 5-year reintroduction phase). Thus, the total annual cost would be $198,552-$235,915 per year (costs during the initial 5-year reintroduction phase would be $439,184-$476,547 per year). In addition, there would potentially be a net job loss of 215-504 jobs from reductions in timber harvest due to implementation of this alternative.

A SUMMARY AND COMPARISON OF THE IMPACTS OF THESE ALTERNATIVES AND IDENTIFICATION OF THE FISH AND WILDLIFE SERVICE PREFERRED ALTERNATIVE

This section briefly describes the six alternatives that were considered in detail and compares them in terms of how well each one meets the recovery goal of the USFWS and the public concerns that were identified during scoping. Table S-2 summarizes the six alternatives and the expected actions associated with them. Figure S-7 compares the proposed Bitterroot Grizzly Bear Recovery Area for Alternative 1 with the proposed Bitterroot Grizzly Bear Recovery Zones for Alternatives 1A, 2, 4, and 4A. Table S-3 summarizes the general impact of implementation of each alternative on big game resources, hunter harvest, domestic animals, land-use restrictions, visitor use, and economics.

Alternative 1, Restoration of a Grizzly Bears as a Nonessential Experimental Population with Citizen Management (the proposed action) has been identified as the preferred alternative by the USFWS because it best meets the purpose and need, and the criteria used to evaluate and compare the alternatives. The USFWS believes that this alternative would be the most efficient and likely to result in the recovery of grizzly bears in the Bitterroot Ecosystem.

Alternative 1A, Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Management was not selected as the preferred alternative because the USFWS chooses to maximize the probability of success by involving citizens in the management of the restored population. Alternative 2, The No Action Alternative - Natural Recovery was not selected as the preferred alternative because it is very unlikely that grizzly bears could be restored in the Bitterroot Ecosystem through natural recovery as prescribed under this alternative. Alternative 3, the No Grizzly Bear Alternative was not selected as the preferred alternative because it does not fulfill the purpose of the FEIS. Alternative 4, Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration, was not selected as the preferred alternative because the management actions proposed by Alternative 4 are beyond what is necessary to fulfill the purpose of the FEIS. The road management plan to obliterate a large number of roads to achieve a road density of 0.25 mi./sq.mi., and the elimination of timber harvest in all roadless areas under this alternative are not necessary actions to achieve grizzly bear recovery, and thus decrease the efficiency with which this alternative could achieve recovery in the Bitterroot Ecosystem. Alternative 4A, Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management, was not selected as the preferred alternative because it is unlikely that grizzly bear restoration in the Bitterroot Ecosystem would succeed without local citizen involvement in grizzly bear management.

Literature Cited:

Interagency Grizzly Bear Committee. 1986. Interagency grizzly bear guidelines. U.S. For. Serv., Washington, D.C. 100 pp.

U.S. Fish and Wildlife Service. 1993. Grizzly bear recovery plan. U.S. Fish and Wildlife Service, Missoula, Montana. 181 pp.

_____. 1994. Final environmental impact statement on the reintroduction of gray wolves to Yellowstone National Park and central Idaho. U. S. Fish and Wildl. Serv., Helena, Mont.

_____. 1995. Summary of public comments on the scoping of issues and alternatives for grizzly bear recovery in the Bitterroot Ecosystem. U. S. Fish and Wildl. Serv., Missoula, Mont.

_____. 1996. Bitterroot Ecosystem recovery plan chapter - supplement to the grizzly bear recovery plan. U.S. Fish and Wildlife Service, Missoula, Montana. 27 pp.

_____. 1997. Grizzly bear recovery in the Bitterroot Ecosystem, Draft Environmental Impact Statement. U.S. Fish and Wildlife Service, Missoula, Montana. 464 pp.

_____. 1998. Summary of public comments on the draft environmental impact statement for grizzly bear recovery in the Bitterroot Ecosystem. U. S. Fish and Wildl. Serv., Missoula, Mont.

_____. 2000. Grizzly bear recovery in the Bitterroot Ecosystem, Final Environmental Impact Statement. U.S. Fish and Wildlife Service, Missoula, Montana.

Notice on Public Comments: All comments received from individuals on USFWS environmental impact statements become part of the official public record. Requests for such comments will be handled in accordance with the Freedom of Information Act and the Council on Environmental Quality's NEPA regulations [40 CFR 1506.6(f)]. When requested, comment letters with the names and addresses of the individuals who wrote the comments will generally be provided. However, the telephone number of the commenting individual will not be provided in response to such requests to the extent permissible by law. Individual respondents may request that USFWS withhold their home address from the record, which we will honor to the extent allowable by law. If you wish to withhold your name and or address, you must state this prominently at the beginning of your comments.

Table S-2. Alternatives and Expected Actions Associated with Them.

Expected Actions	What is the risk to human safety?	Land-uses altered solely for grizzly bears?	Cost estimate for implementation?[a]	How are linkage zones addressed?	Are habitat quality/size sufficient for recovery?	How would grizzly bears and their habitat be managed?	Where would grizzly bears be obtained and recovered?	Legislation needed to implement?
Alternatives								
Alternative 1 - Restoration of Grizzly Bears as a Nonessential Experimental Population with Citizen Management (Proposed Action)	Minimal before recovery. At recovered grizzly popn. levels, less than 1 injury per year and less than 1 human mortality every few decades.	None expected. To be determined by the Citizen Management Committee (CMC), if need for land-use restrictions arises.	Reintroduction phase (first 5 years) = $2,168,160 Annual monitoring and management thereafter = $193,000 per year.	No linkage zones designated.	Yes	IDFG/MDFWP in consultation with USFWS and the Nez Perce Tribe would manage and implement rules, policies, plans of CMC. Current land management agencies would continue to manage habitat.	Bitterroot Grizzly Bear Recovery Area (Figure 2-1) = 5,785 square miles. Bears likely moved from existing popns. in U.S. and Canada and released into Selway-Bitterroot Wilderness.	Publish Special Rule in Federal Register to establish nonessential experimental population.
Alternative 1A - Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Managemt.	Minimal before recovery. At recovered grizzly popn. levels, less than 1 injury per year and less than 1 human mortality every few decades.	None expected. To be determined by the USFWS if need for land-use restrictions arises.	Reintroduction phase (first 5 years) = $2,068,160 Annual monitoring and management thereafter = $173,000 per year.	No linkage zones designated.	Yes	Federal (USFWS) with active participation by IDFG, MDFWP and the Nez Perce Tribe. Current land management agencies would continue to manage habitat.	Bitterroot Grizzly Bear Experimental Area (Figure 2-4) = 25,140 square miles. Bears likely moved from existing popns. in U.S. and Canada and released into Selway-Bitterroot Wilderness.	Publish Special Rule in Federal Register to establish nonessential experimental population.
Alternative 2 - The No Action Alternative - Natural Recovery	No risk unless bears move from other ecosystems to occupy the BE. Minimal risk until recovery, then same as Alt. 1.	Few expected. To be determined by USFWS, if illegal killing, research, or ESA Section 7 consultation warrants. Triggered on grizzly bear presence in BE.	Annual cost of monitoring and management for natural recovery = $140,000 per year.	No linkage zones designated.	Yes	Federal (USFWS) would have authority for grizzly bear recovery. Current land management agencies would continue to manage habitat.	Bitterroot Grizzly Bear Recovery Zone (Figure 2-6) = 5,500 square miles. No bears would be moved or released. Bears allowed to naturally recolonize from other existing populations.	None
Alternative 3 - No Grizzly Bear	Nonexistent.	None for grizzly bears.	Minimum total cost to develop legislation = $2,000,000.	No linkage zones designated.	N/A	No agency management for recovery of grizzly bears.	Nowhere	Modify state (MT & ID) and federal laws. Change ESA.
Alternative 4 - Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration	Minimal before recovery. At recovered grizzly bear population levels, less than 1 injury per year and less than 1 human mortality every few decades.	No timber harvest or road constructn. in roadless areas of recovery zone. Road densities reduced to <0.25 mi/sq.mi. in recovery zone. Other restrictions per Science Committee recommendation, and ESA Section 7 consultation.	Reintroduction phase (first 5 years) = $2,143,160 Annual monitoring and management thereafter = $188,000 per year.	Linkage zone designated between Bitterroot Ecosystem and Cabinet-Yaak Ecosystem.	Yes	Federal (USFWS) with active participation by IDFG, MDFWP and the Nez Perce Tribe, and in consultation with Scientific Committee. Current land management agencies would continue to manage habitat.	Bitterroot Grizzly Bear Recovery Zone (Figure 2-7) = 21,645 square miles. Bears likely moved from existing populations in U.S. and Canada and released into Selway-Bitterroot Wilderness or roadless areas north of Lochsa River.	Laws that govern land managemt agencies on federal lands will have to be changed for USFWS to implement this alternative.
Alternative 4A - Restoration of Grizzly Bears as a Threatened Popn, with Full Protection of the ESA and USFWS Managemt.	Minimal before recovery. At recovered grizzly bear population levels, less than 1 injury per year and less than 1 human mortality every few decades.	To be determined by USFWS, if illegal killing, research, or ESA Section 7 consultation warrants.	Reintroduction phase (first 5 years) = $2,143,160 Annual monitoring and management thereafter = $188,000 per year.	No linkage zones designated.	Yes	Federal (USFWS) with active participation by IDFG, MDFWP and the Nez Perce Tribe. Current land management agencies would continue to manage habitat.	Bitterroot Grizzly Bear Recovery Zone (Figure 2-9) = 21,645 square miles. Bears likely moved from existing populations in U.S. and Canada and released into Selway-Bitterroot Wilderness.	None

[a] See Appendix 7 for further explanation of cost estimates.

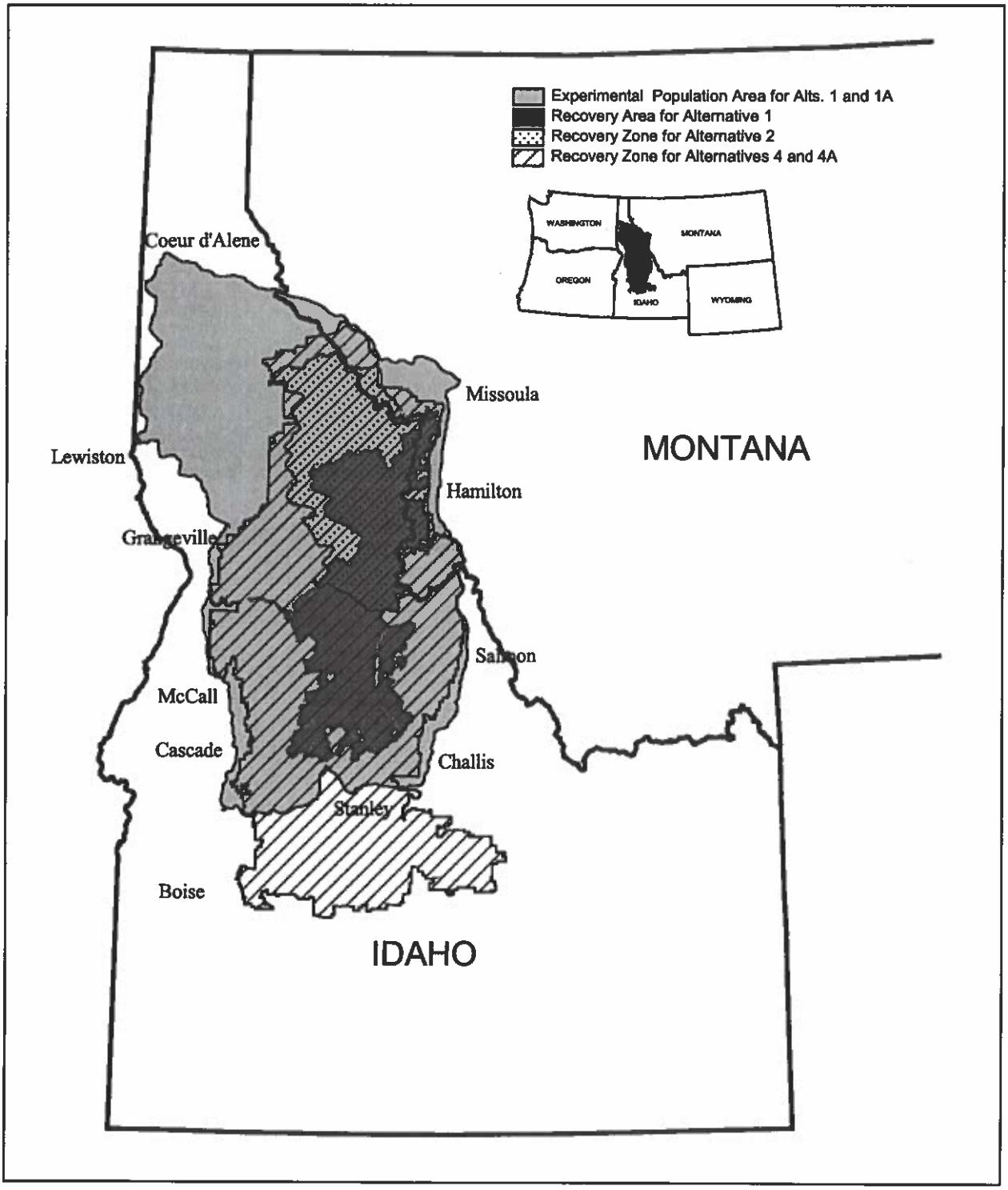


Figure S-7. Comparison of the Bitterroot Grizzly Bear Recovery Area for Alternative 1, Experimental Area for 1A, and Bitterroot Grizzly Bear Recovery Zones for Alternatives 2, 4, and 4A.

Table S-3. Expected Impacts of a Recovered Grizzly Bear Population by Alternative.

IMPACT	Impact on human health and safety	Impact on source grizzly bear populations	Impact on land-use activities to include: timber harvest, domestic livestock, and minerals extraction	Impact on wildlife populations	Impact on public access and recreational use	Social Impacts	Economic Impacts[a]
ALTERNATIVES							
Alternative 1 - Restoration of Grizzly Bears as a Nonessential Experimental Population with Citizen Management	Minimal risk of injury before recovery (50-110+ years). At recovery (280 bears) less than 1 injury per year, and less than 1 mortality every few decades.	Removal of bears from source populations would adhere to all management guides to protect source popn. health. Thus no impact to source popn. health.	No expected impacts to timber harvest or mining. At recovered population level (280 bears), 4-8 cattle and 5-44 sheep lost per year. Nuisance incidents = 0-74 per year.	Minimal impacts to wildlife. At recovered population levels, 280 bears would kill approximately 504 ungulates per year.	No road/trail closures expected. Changes to hunting seasons could occur due to possible conflicts.	Hardship due to nuisance incidents and sanitation requirements. Mixed impact due to knowledge of grizzly presence. Positive impact to Native American culture by recovering grizzlies.	Livestock loss: $2,720-$8,568/yr. Grizzly existence value: $40.5-$60.6 million per year. Reintroduction cost: $433,632/year for first 5 yrs. Management cost: $193,000 per year after first 5 yrs.
Alternative 1A - Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Managemt.	Minimal risk of injury before recovery (50-110+ years). At recovery (280 bears) less than 1 injury per year, and less than 1 mortality every few decades.	Removal of bears from source populations would adhere to all management guides to protect source popn. health. Thus no impact to source popn. health.	No expected impacts to timber harvest or mining. At recovered population level (280 bears), 4-8 cattle and 5-44 sheep lost per year. Nuisance incidents = 0-74 per year.	Minimal impacts to wildlife. At recovered population levels, 280 bears would kill approximately 504 ungulates per year.	No road/trail closures expected. Changes to hunting seasons could occur due to possible conflicts.	Hardship due to nuisance incidents and sanitation requirements. Mixed impact due to knowledge of grizzly presence. Positive impact to Native American culture by recovering grizzlies.	Livestock loss: $2,720-$8,568/yr. Grizzly existence value: $40.5-$60.6 million per year. Reintroduction cost: $413,632/year for first 5 yrs. Management cost: $173,000 per year after first 5 yrs.
Alternative 2 - The No Action Alternative - Natural Recovery	If bears recolonize, risk minimal until recovery (150+ years), then same as Alternative 1.	Bears would not be relocated under Alternative 2. No impact.	If bears recolonize, Section 7 consultation could reduce timber harvest and mining. At recovery (280) bears, 1-3 cattle & 1-6 sheep lost per yr. Nuisance incidents = 0-74/yr.	If recolonization occurs, minimal impact until recovery, then same as Alternative 1.	If bears recolonize, possible road/trail closures due to Section 7. Hunting season changes could occur also.	If recolonization occurs, then same as Alternative 1. Also negative impact of jobs lost to local communities.	If bears recolonize, possible loss of 55-264 timber jobs. No existence value. Management cost until recovery = $140,000/ year.
Alternative 3 - No Grizzly Bear	No impact.	Bears would not be relocated under Alt. 3. No impact.	No impact.	No impact.	No impact.	No impact to local communities. Negative impact to Native Americans	Total cost of $2 million over several years to change federal and state laws.
Alternative 4 - Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration	Same as Alternative 1, except time to recovery is minimum 65-70 years, and likely more than 125 years.	Same as Alternative 1. Thus no impact to source population health.	ESA Section 7 consultation required. No road building or timber harvest on USFS roadless areas. Timber harvest & mining reduced. At 400 bears, 12-27 cattle & 41-355 sheep lost / yr. Nuisance incidents = 0-105 per year.	Minimal impacts to wildlife. At recovered population levels, 400 bears would kill approximately 720 ungulates per year.	Closure and reclamation of 3500 miles of roads. Other closures likely due to Sectn. 7. Hunting season changes, especially black bear.	Same as Alternative 1. Additional negative impact of lost jobs to local communities.	Hunting loss: $288,700/yr. Livestock loss: $10,552-$47,915/year. Jobs lost: 117-1,136. Existence value: $40.5- $60.6 million/year. Reintrod. cost: $428,632/yr. for first 5 years. Mgmt. cost: $188,000/year after first 5 yrs
Alternative 4A - Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management	Same as Alternative 1, except time to recovery is minimum 65-70 years, and likely more than 125 years.	Same as Alternative 1. Thus no impact to source population health.	Sectn. 7 consultation could reduce timber harvest and mining. At population of 400 bears, 12-27 cattle & 41-355 sheep lost per year. Nuisance incidents = 0-105 per year.	Minimal impacts to wildlife. At recovered population levels, 400 bears would kill approximately 720 ungulates per year.	Possible road/trail closures due to Section 7. Hunting season changes could occur also.	Hardship due to nuisance incidents and sanitation reqs. Mixed impact due to knowledge of grizzly presence. Positive impact to Native American culture by recovering grizzlies.	Livestock loss: $10,552-$47,915/year. Jobs lost: 215-504. Existence value: $40.5-$60.6 million/year. Reintroduction cost: $428,632/year for first 5 years. Management cost: $188,000/year after first 5 years.

[a] See Appendix 7 for further explanation of cost estimates.

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INTRODUCTION

Grizzly bears historically ranged throughout most of the western United States. Habitat loss and excessive human-caused mortality have reduced numbers of this species from estimates of 50,000 prior to European settlement, to 800-1,000 grizzly bears that currently exist on approximately 2 percent of their historic range in the lower 48 States. Grizzly bears were widespread inhabitants of the Bitterroot Mountains in central Idaho and western Montana. The last verified death of a grizzly bear in the Bitterroot Ecosystem (BE) occurred in 1932 and the last tracks were observed in 1946. No verified tracks or sightings have been documented in more than 50 years, and the best scientific evidence available indicates there are no grizzly bears in the BE at this time.

Grizzly bears were listed as a threatened species in the 48 contiguous States in 1975. At that time the Bitterroot Ecosystem was listed as one of three areas where grizzly bears were known or thought to exist and where recovery should be emphasized. In 1982 a grizzly bear recovery plan called for the evaluation of the BE as a potential recovery area. Ensuing studies indicated sufficient habitat existed in the BE to support 200-400 grizzly bears. In 1991, the Interagency Grizzly Bear Committee endorsed the BE as a recovery area and recommended the U. S. Fish and Wildlife Service (USFWS) pursue grizzly bear recovery in the BE. The Revised Grizzly Bear Recovery Plan (USFWS 1993) and the Bitterroot Ecosystem Recovery Plan Chapter - Supplement to the Grizzly Bear Recovery Plan (USFWS 1996) identify actions necessary for conservation and recovery of the species. The ultimate goal of the plan is removal of the grizzly bear from threatened status in the conterminous 48 States. The BE Recovery Chapter calls for the preparation of an Environmental Impact Statement to evaluate a range of alternatives to recover the grizzly bear in the BE.

This document describes 6 alternatives that represent different approaches to grizzly bear recovery and management in the Bitterroot Ecosystem of central Idaho and western Montana. Two additional alternatives have been added to this Final Environmental Impact Statement (EIS) in response to public comments received on the Draft EIS. Four alternatives (including the preferred alternative) involve reintroducing grizzly bears from other areas in the United States and Canada to the BE. One alternative (No Action) simply assumes natural recovery of grizzly bears could occur in the BE through range expansion from existing populations. And one alternative prevents grizzly bear recovery in the BE. These alternatives were developed in response to public comments throughout the NEPA (National Environmental Policy Act) process and represent a range of alternatives for consideration. All issues and concerns identified by the public were considered and the most significant analyzed in detail. The potential effects of each alternative on human health and safety, source grizzly bear populations, land-use activities, wildlife populations, public access and recreational use, social aspects, and regional economies are described.

The Draft EIS was released for public review and comment on July 1, 1997. The comment period was extended two times and closed on December 1, 1997. All comments from federal, state, and local government agencies having regulatory authorities, and native American tribes are printed in this FEIS. Responses to those comments are presented in this document (see Chapter 5). A representative sample of comment letters from non-governmental organizations are also printed in Chapter 5 with USFWS responses. Due to the volume of response, specific letters from individuals and most non-governmental organizations were not printed in this FEIS. However, issues identified through the analysis of public comments on the DEIS with USFWS responses are presented in Chapter 5.

CHAPTER I

INTRODUCTION

INTRODUCTION

This section of the final Environmental Impact Statement (FEIS) discusses the purpose and need for the action, background of why the FEIS is being developed, project location, legal constraints of any decision, how the planning process was developed, scoping of the draft Environmental Impact Statement (DEIS), and major issues and concerns that were considered in detail in the Environmental Impact Statement.

This FEIS relies on the U. S. Fish and Wildlife Service (USFWS) Grizzly Bear Recovery Plan and the Bitterroot Ecosystem Recovery Plan Chapter (USFWS 1982, 1993, 1996); the Endangered Species Act, Proposed Rule 10(j), Establishment of a Nonessential Experimental Population of Grizzly Bears in the Bitterroot Area of Idaho and Montana (USFWS 1997); and the Summaries of Public Comments on the Scoping of Issues and Alternatives, and the draft Environmental Impact Statement (USFWS 1995, 1998). The Bitterroot Ecosystem Recovery Plan Chapter (USFWS 1996) is included as Appendix 14.

PURPOSE OF THE ACTION

Grizzly bears (*Ursus arctos horribilis*) are a part of America's rich wildlife heritage and once ranged throughout most of the western United States. However, distribution and population levels of this species have been diminished by excessive human-caused mortality and loss of habitat. Today, only 800 to 1000 grizzly bears remain in a few populations in Montana (Northern Continental Divide, Yellowstone, and Cabinet/Yaak Ecosystems), Idaho (Yellowstone and Selkirk Ecosystems), Wyoming (Yellowstone Ecosystem), and Washington (Selkirk and North Cascades Ecosystems). Wildlife species, like the grizzly bear, are most vulnerable when confined to small portions of their historical range and limited to a few, small populations. Expansion of the range of the species will increase the number of bears within the lower 48 states and increase habitat size and extent, and further conservation of the species.

The Grizzly Bear Recovery Plan (USFWS 1982) called for evaluation of the Bitterroot Ecosystem (BE) as a potential recovery area. The best scientific evidence available indicates there are no grizzly bears in the BE at this time (USFWS 1996). Based on the results of a 5-year study (Davis and Butterfield 1991) of the BE, bear scientists estimate that the area could eventually support more than 200 grizzly bears (Servheen et al. 1991). The Interagency Grizzly Bear Committee (IGBC) endorses the BE as a grizzly bear recovery area. The IGBC is a group of high-level administrators that represent the federal and state agencies involved in grizzly bear recovery, and coordinate agency efforts in implementing the Grizzly Bear Recovery Plan.

The USFWS, with support of the IGBC, proposes to recover the grizzly bear and restore this component of the BE by reestablishing the species within this portion of its historical range. The recovery of grizzly bears in the BE will allow the return of this prominent native omnivore now

missing from this large block of Rocky Mountain wilderness habitat. The USFWS has determined that there are no grizzly bears in the BE at this time, that recovery of grizzly bears in the BE would facilitate conservation and recovery of the species in the lower 48 States, and that recovery of grizzly bears in the BE would require reintroduction of bears from other areas (USFWS 1993, 1996, 1997a). The action proposed in this FEIS is to reintroduce a minimum of 25 grizzly bears over a 5-year period from which a population could grow over time.

A public survey conducted in 1995 (Duda and Young 1995) indicated that 64% of local, 74% of regional, and 77% of national respondents were supportive of reintroducing grizzly bears into the BE. The two most popular reasons given by respondents for supporting reintroduction were the desire to save the grizzly bear from extinction, and to return this species as a missing component of the ecosystem.

The BE is one of the largest contiguous blocks of federal land remaining in the lower 48 United States. The core of the ecosystem contains the Selway-Bitterroot and Frank Church-River of No Return Wilderness Areas. Together these two wilderness areas make up the largest block of wilderness habitat in the Rocky Mountains south of Canada. Of all remaining unoccupied grizzly bear habitat in the lower 48 States, this area in the Bitterroot Mountains has the best potential for grizzly bear recovery, primarily due to the large wilderness area. As such, the BE offers excellent potential to recover a healthy population of grizzly bears and to boost long-term survival and recovery prospects for this species in the contiguous U. S. The potential for grizzly bear recovery will be enhanced in the lower 48 States by inclusion of the BE because habitat will be increased by almost 10,000 square miles or almost 25% (including the wilderness area and outside buffer zones). In addition, any new or additional populations of grizzly bears will add to the known populations and therefore provide for a higher recovery potential for the species as a whole, decreasing the amount of time the species is on the Endangered Species List and the regulatory burden placed on the public. Other outcomes of recovery of the grizzly bear in the BE include its potential delisting and eventual return to state management where human uses could include hunting. The recovery of the grizzly bear in the BE would also aid in restoration of Nez Perce Tribe cultural and spiritual values related to the grizzly.

NEED FOR THE ACTION

Legal. The grizzly bear was listed as a threatened species in the lower 48 States under the Endangered Species Act (ESA) in 1975 (Federal Register, V.40, No.145, Part IV-3173-4). As such, the U.S. Fish and Wildlife Service was mandated by Congress to conserve listed species and the ecosystems upon which they depend.

The USFWS is the primary agency responsible for recovery and conservation of threatened species, including grizzly bears in the U.S. The Revised Grizzly Bear Recovery Plan (USFWS 1993) and the Bitterroot Ecosystem Recovery Plan Chapter - Supplement to the Grizzly Bear Recovery Plan

(USFWS 1996) identify actions necessary for conservation and recovery of the species. The ultimate goal of the plan is removal of the species from threatened status in the conterminous 48 States. The BE Recovery Chapter calls for the preparation of an Environmental Impact Statement (EIS) to evaluate the proposed action and a range of alternatives to recover the grizzly bear in the BE. This action is supported by the IGBC.

Biological. A metapopulation can be defined as a set of spatially disjunct populations, among which there is some potential immigration (Wells and Richmond 1995). Given understanding of population biology and metapopulation dynamics, the chances of survival of grizzly bears south of Canada increase as more populations are added to a grizzly bear metapopulation. Each additional population decreases the overall total number of grizzly bears that are necessary for long-term survival of the metapopulation. Also, each additional population reduces the number of bears that are necessary in each individual population within the metapopulation. This suggests that for grizzly bears to survive in the lower 48 States, each additional population with potential connection to other populations increases the probability of survival. Therefore, one way to achieve recovery of grizzly bears in the lower 48 States and assure survival is to establish several smaller populations of grizzly bears. The ability of the Yellowstone population to contribute to a metapopulation has been questioned because of geographic distance to other populations and habitat fragmentation, although evaluation of this possibility is continuing (USFWS 1993). The addition of the BE to the grizzly bear recovery effort will increase long-term survival probabilities and conservation of grizzly bears within the lower 48 States.

BACKGROUND

For thousands of years, grizzly bears lived in a variety of habitats throughout most of western North America. An estimated 50,000 grizzly bears roamed the American West prior to European settlement (USFWS 1993). Due to loss of habitat and excessive and intentional killing by people, grizzly bears have been eliminated from all but approximately 2 percent of their historic range in the lower 48 States (USFWS 1993).

Historically, the grizzly bear was a widespread inhabitant of the Bitterroot Mountains in central Idaho and western Montana. When Lewis and Clark traveled through the Bitterroot country in 1806, grizzly bears were abundant. They killed at least 7 grizzly bears including 1 female and 2 cubs while camped near present-day Kamiah, Idaho (Thwaites 1959). Grizzly bears were common in central Idaho until the early 1900's (Wright 1909, Merriam 1922, Burroughs 1961). Wright (1909) wrote of killing dozens of grizzly bears over several years in the Bitterroot Mountains. A major influx of hunters, trappers, and settlers at the turn of the century, and later sheepherders were responsible for direct mortality and elimination of grizzly bears from the BE. Conservative estimates indicate trappers and hunters killed 25 to 40 grizzly bears annually in the Bitterroot Mountains during the early 1900's (Moore 1984, 1996). The last verified death of a grizzly bear in the BE occurred in 1932 and the last tracks were observed in 1946 (Moore 1984, 1996). Although occasional unverified

reports of grizzly sightings persist in the BE (Melquist 1985), no verified tracks or sightings have been documented in more than 50 years.

In 1975, the grizzly bear was listed as a threatened species in the 48 contiguous States under the U.S. Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). At that time the BE, along with the Northern Continental Divide and Yellowstone Ecosystems were listed as areas where grizzly bears were known or thought to exist and where recovery should be emphasized. The BE was initially described as the Selway-Bitterroot Wilderness and surrounding National Forest Land. As enacted by Congress, the purposes of the ESA are "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species, threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth..." The ESA "further declared to be the policy of Congress that all Federal Departments and agencies shall seek to conserve endangered species and threatened species and shall use their authorities in furtherance of this Act." The ESA also states, "The Secretary shall develop and implement plans (herein referred to as 'recovery plans') for the conservation and survival of endangered species and threatened species..."

A Grizzly Bear Recovery Plan, finalized in 1982, called for the evaluation of the Selway-Bitterroot country as a potential recovery area. At that time the BE was classified as an Evaluation Area because it was in need of more research to determine habitat quality and whether grizzly bears still occurred there. The Bitterroot Evaluation Area (BEA) encompassed about 5,500 square miles. The boundary ranged from the St. Joe River Watershed divide in the north, to the Salmon River in the south, the transition of roaded and unroaded National Forest land in the west, to the Selway-Bitterroot Wilderness boundary and Fish Creek road in Montana in the east.

Attempts to verify presence of grizzly bears continued through the 1980's and are ongoing. Numerous studies have failed to verify the presence of grizzly bears in the BE (Melquist 1985, Groves 1987, Servheen et al. 1990, Kunkel et al. 1991). Three different habitat studies were conducted from 1979 through 1991 to investigate habitat suitability of the BE for grizzly bears (Scaggs 1979, Butterfield and Almack 1985, Davis and Butterfield 1991). The authors suggested that using an established set of criteria (Craighead et al., 1982), habitat in the BEA was sufficient to support grizzly bears. An interagency group of grizzly bear scientists reviewed the information and concurred, suggesting the BEA could support between 200 and 400 bears (Servheen et al. 1991). Following these efforts in 1991, the IGBC endorsed the BE as a recovery area and recommended the USFWS to pursue grizzly bear recovery in the BE.

In 1992, with the endorsement of the IGBC, the USFWS organized a Technical Working Group to develop a Bitterroot Ecosystem Chapter to append to the Grizzly Bear Recovery Plan. This group was comprised of biologists from the USFWS, USDA Forest Service (USFS), Idaho Department of Fish and Game (IDFG), and the Montana Department of Fish, Wildlife and Parks (MDFWP). During the development process a Citizen's Involvement Group was organized, and several public scoping

meetings were conducted in local communities of central Idaho and western Montana to gather public comments. Public involvement guided preparation of the BE Grizzly Bear Recovery Plan Chapter.

The IGBC authorized creation of the Selway-Bitterroot Ecosystem Subcommittee (SBES) in 1993. The SBES is comprised of officials that are responsible for management decisions within the recovery zone boundaries, to include; a USFWS regional field office supervisor, IDFG and MDFWP Regional Supervisors, and USFS Forest Supervisors. In addition, the Idaho State Legislature passed House Bill 317, which established a grizzly bear Oversight Committee for the purpose of guiding the development of conservation plans for each recovery area in Idaho. Committee members include chairmen of both Idaho house and senate resource subcommittees, IDFG, USDA Wildlife Services (formerly Animal Damage Control), and representatives from timber, mining, livestock, wildlife, and recreation industries. The Oversight Committee integrated public comments received during scoping meetings, with recommendations of the Technical Working Group, and a review of pertinent information, and proposed the following for inclusion into the BE Grizzly Bear Recovery Plan Chapter:

1) If grizzly bears must be reintroduced, one alternative should include the designation of an experimental population under Sect. 10(j) of the ESA.
2) Grizzly bears should only be introduced within the boundaries of the Selway-Bitterroot Wilderness, and bears that move outside the wilderness should be captured and returned.
3) A communications program should be established to keep the public informed of the recovery program.
4) The boundaries of the recovery "zone"[1] should be adjusted.
5) No special land management accommodations for grizzly bears should occur outside the wilderness boundary.

The Oversight Committee recommendations for the BE Grizzly Bear Recovery Plan Chapter were similar to those made by the Citizen's Involvement Group. These proposals received close scrutiny by the USFWS and the Technical Working Group biologists and were discussed and reviewed by the SBES. The USFWS integrated these proposals into the BE Recovery Plan Chapter (USFWS 1996). This chapter developed for the Grizzly Bear Recovery Plan calls for the preparation of an EIS to evaluate a full range of grizzly bear recovery alternatives, including the reintroduction of a small number of grizzly bears into the BE as a nonessential experimental population under section 10(j) of the ESA.

[1] Recovery zone currently called recovery area.

PROJECT LOCATION AND DESCRIPTION

This project involves the area defined as the Bitterroot Ecosystem of central Idaho and western Montana in the northern Rocky Mountains. The analysis area considered in this FEIS is referred to as the Bitterroot Grizzly Bear Primary Analysis Area (PAA) and includes USDA Forest Service lands potentially affected by grizzly bear recovery in the BE of Idaho and Montana (Figure 1-1). The heart of the PAA is centered around Wilderness Areas of central Idaho, while a small portion extends over the crest of the Bitterroot Mountains into western Montana.

The PAA includes about 16,686,596 acres (26,073 square miles) of contiguous national forest lands in central Idaho and western Montana (see Figure 3-2 in Chapter 3). These include all or parts of the Bitterroot, Boise, Challis, Clearwater, Nez Perce, Payette, Sawtooth, Salmon, and Panhandle National Forests in Idaho, and the Bitterroot and Lolo National Forests in western Montana. A few

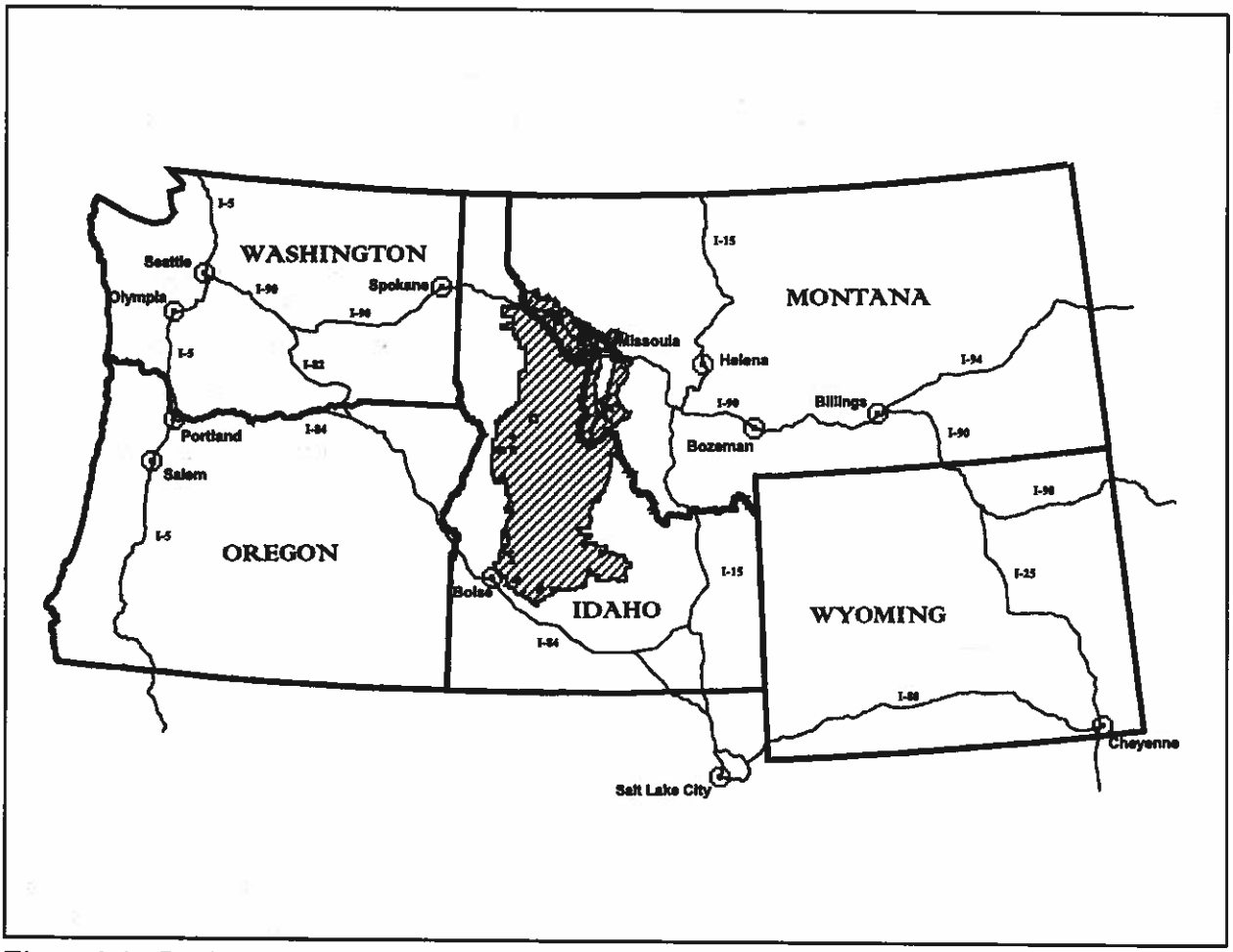


Figure 1-1. Regional perspective showing the analysis area considered in the Final Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem.

scattered parcels of private and state land are interspersed throughout this area, but total acreage is minor.

The center of the PAA is characterized by 3 large wilderness areas covering a contiguous area of almost 4 million acres (6,250 mi^2). These include the Frank Church-River of No Return (2,361,767 acres; 3,690 mi^2), the Selway-Bitterroot (1,340,681 acres; 2,095 mi^2) and the Gospel Hump (200,464 acres; 313 mi^2) Wilderness Areas (Figure 3-3).

The PAA contains 3 major mountain ranges; the Salmon River Mountains (south of the Salmon River), the Clearwater Mountains which extend from the Salmon River north to the upper Clearwater River drainage, and the Bitterroot Mountains which form the eastern border of the PAA along the Montana-Idaho state line.

LEGAL CONTEXT

Endangered Species Act

Purposes of the ESA (16 USC 1531, et seq.) are "to provide a means whereby ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of the treaties and conventions set forth in subsection (a) of this section." Conserve, conserving, and conservation are defined within the Act as to use and the use of all methods and procedures that are necessary to bring any endangered or threatened species to a point at which the measures pursuant to the Act are no longer necessary. "Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking."

USFWS Policy

"The mission of the U.S. Fish and Wildlife Service is to conserve, protect, and enhance fish and wildlife and their habitats for the continuing benefit of the American people" (USFWS National Policy Issuance #94-11, Aug. 18, 1994).

USDA Forest Service Creative Act of 1891

National forests are established under the Creative Act of March 3, 1891, which allows the President to set aside and reserve national forests from the public domain (16 USC 471). Management of national forests by the USFS was established under the Organic Act of June 4, 1897, stating "No National Forest shall be established, except to improve and protect the Forest within the boundaries, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the U.S." (16 USC 473).

USDA Forest Service Policy

The National Forest Management Act of 1976 (16 USC 472a et seq.) directs the management of national forests. Plans are prepared for each Forest as required by the Forest and Rangeland Renewable Resources Planning Act of 1974 (16 USC 1600-1614). These forest plans guide natural resource management activities on national forests and, along with the associated laws and regulations, are the basis for management of national forests for diversity, production of outputs, use by the public, and protection of not only natural and cultural resources located there but protection of millions of people visiting national forests.

Animal Damage Control Act of 1931

The USDA, Animal and Plant Health Inspection Service, Wildlife Services (formerly Animal Damage Control (ADC)) program is conducted pursuant to the Animal Damage Control Act of March 2, 1931 (7 USC 426-426b), as amended, which states, in part:

> "The Secretary...is authorized and directed to conduct such investigations, experiments, and tests as he may deem necessary...on public domain...State, ...privately owned lands of...animals injurious to agriculture, ...forestry, ...wild game animals,...and for the protection of stock...and to conduct...control...of such animals...and may cooperate with States, individuals and public and private agencies, organizations and institutions."

The overall mission of the Wildlife Services Program is to: "Assist in protecting the wildlife resource by providing national leadership in the control of conflicts between wildlife and man."

Wilderness Act of 1964

This act provides the framework for designation by Congress of units of the National Wilderness Preservation System and prescribes policy for their management. A wilderness is recognized as an area where the earth and its community of life are untrammeled by man. Wilderness areas shall be administered for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness and the preservation of their wilderness character (16 USC 1131 et seq.).

National Environmental Policy Act of 1969 (NEPA)

This act requires that the responsible official submit a detailed report on major federal actions significantly affecting the quality of the human environment prior to taking major federal actions (42 USC 4321 et seq.). Implementation of any one of the alternative plans for restoration of grizzly bears into the BE of central Idaho and western Montana is considered such a major action and this planning effort is, therefore, subject to NEPA requirements.

Treaty with the Nez Perce, 1855

The Nez Perce Treaty of 1855 (12 Stat. 957), signed by Territorial Governor Isaac I. Stevens, ceded to the U.S., title to lands occupied or claimed by the Nez Perce Tribe. Treaty rights reserved by the Nez Perce Tribe in the ceded lands as described in the 1855 Treaty include "the right of taking fish at all usual and accustomed places in common with the citizens of the Territory," "together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land."

Indian Self Determination Act

"The Congress declares its commitment to the maintenance of the Federal Government's unique and continuing relationship with and responsibility to the Indian people through the establishment of a meaningful Indian self-determination policy which will permit an orderly transition from Federal domination of programs for and services to Indians to effective and meaningful participation by the Indian people in the planning, conduct, and administration of those programs and services" (P.L. 93-638).

Montana State Law

Montana statute (87-5-301) mandates the preservation, protection and management of the grizzly bear as a rare species. Under the Nongame and Endangered Species Conservation Act (87-5-109), taking of grizzly bears is authorized for scientific, zoological, or education purposes, for propagation in captivity, or for other special purposes by permit issued by the Director, Montana Department of Fish, Wildlife, and Parks. Where necessary to alleviate property damage, state endangered species may be taken under a permit issued by the Director of MDFWP, and where possible under the supervision of Department personnel. Grizzly bears may also be taken without a permit in emergency situations involving an immediate threat to human life. In 1923, the state of Montana declared the grizzly bear a game animal.

Idaho State Law

The grizzly bear is listed as a state threatened species in Idaho. State statutes and regulations allow taking of wildlife, including grizzly bears, to protect human life and property. Reporting the taking of animals under these situations is required. The Idaho Legislature has authorized the Idaho Legislative Oversight Committee to be actively involved in the process and development of the EIS and to oversee all activities regarding grizzly bear recovery in Idaho.

International Treaties

Several treaties affect how the federal government manages federal land and wildlife (including endangered species) under federal authorities, including the Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere and Convention on International Trade in Endangered Species (CITES). These treaties differ in emphasis and species of primary concern, but collectively provide clear mandates for identifying and protecting important habitats and ecosystems, and protecting and managing individual species.

PLANNING AND EIS PROCESS

The process used to develop alternatives for grizzly bear recovery into the Bitterroot Ecosystem was designed to fulfill legal mandates cited above. Four alternatives in this FEIS represent long-range strategies to achieve grizzly bear recovery. One alternative is a no action alternative and could result in natural recovery over an extended period of time. One alternative prevents grizzly bear recovery. When alternatives require changes in existing law to be implemented, those changes are clearly identified.

Scope of This Document

This document covers the actions of the U.S. Fish and Wildlife Service and cooperating agencies in evaluating alternatives to recover the grizzly bear in the BE of Idaho and Montana. The actions evaluated in this document involve the listed grizzly bear and relate to actions involving grizzly bears and the management of these grizzly bears. Actions involving allocation of public resources such as timber, mining, road building, or grazing on National Forest lands and State lands are not implementable through a Record of Decision signed by the USFWS. Decision documents involving allocation of these resources on National Forest and State lands are the legal responsibility of the USDA Forest Service, and the states of Idaho and Montana, through appropriate Forest and State planning processes.

Scoping Process and Public Participation

A public participation and interagency coordination program was developed to identify issues related to grizzly bear recovery in the BE and alternatives to be considered, as required by the NEPA process. Seven public scoping sessions, in the form of open houses were held in Grangeville, Orofino, and Boise, Idaho; in Missoula, Helena, and Hamilton, Montana; and Salt Lake City, Utah, from July 5 to 11 with a 45-day public comment period on the proposal (see Appendix 16) ending July 29, and extended to August 21, 1995. Written comments on preliminary issues and alternatives were received from more than 3,300 individuals, organizations and government agencies. About 80 percent of written responses were from residents of counties in Montana and Idaho adjacent to the proposed recovery areas. The USFWS also met with federal, state, and tribal agencies to provide information and discuss issues throughout the scoping process. Results of the public scoping process were summarized in the document, "Summary of Public Comments on the Scoping of Issues and Alternatives for Grizzly Bear Recovery in the Bitterroot Ecosystem" (USFWS 1995). The introduction and summary of issues chapters from this document are included in Appendix 19.

In addition, a survey was conducted for the Interagency Grizzly Bear Committee to assess public attitudes on grizzly bear recovery. The survey was performed as part of the initial public involvement process to prepare an Environmental Impact Statement for proposed recovery of grizzly bears to the BE of central Idaho. Several drafts of the survey were developed by Responsive Management, a

private company specializing in surveys. Several pretests of the questionnaire were conducted during the week of June 5, 1995. A total of 919 telephone surveys was completed between June 9 and June 24, 1995: 311 locally, 306 regionally, and 302 nationally.

The Draft EIS was released for public review and comment on July 1, 1997. The DEIS and the Summary of the DEIS were published on the USFWS web site at: http://www.r6/fws/gov/endspp/grizzly. The comment period was extended two times and closed on December 1, 1997. During October 1997, public hearings/open houses to gather public comments on the DEIS were held in seven communities on the perimeter of the Bitterroot area. Approximately 1400 people attended these hearings and 293 individuals testified. The dates and locations for the public hearings were as follows: Challis, Idaho and Hamilton, Montana (October 1); Missoula, Montana and Lewiston, Idaho (October 2); Boise, Idaho and Helena, Montana (October 3); and Salmon, Idaho (October 8). In addition, the USFWS held meetings with local community and state leaders, federal, state, and tribal agencies, and private interest groups in communities around the perimeter of the proposed Recovery Area to provide information and gather comments.

Comments were received from 24,251 individuals, organizations, and government agencies. These comments arrived in over 2,660 letters, DEIS summary forms, resolutions, and hearing testimonies. Ten petitions were received with over 21,000 signatures. Fifteen form letters were identified. This degree of interest from the public indicates the strong feelings people have in the possibility of grizzly bear recovery into the Bitterroot Ecosystem. An analysis of the public comments on the DEIS was performed by an interagency team of 14 employees from the Service and the USDA Forest Service in December - January 1998. The system used to analyze comments was objective, reliable and traceable. A detailed summary report, "*Summary of Public Comments on the Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem*" and an executive summary report were prepared and released to the public in April 1998 (U.S. Fish and Wildlife Service 1998). Appendix 20 contains the "Introduction" chapter of this report. Issues raised during public comment on the DEIS were similar to the issues identified during public scoping. A summary of DEIS issues with USFWS responses is included in Chapter 5.

The EIS Team identified significant issues, and through the NEPA process, discussed and decided on necessary revisions to the DEIS to be responsive to public comment. Public comment resulted in modifications to the DEIS proposed action (Alternative 1), and the addition of two alternatives to the FEIS. All comments from federal, state, and local government agencies having regulatory authorities, and native American tribes are printed in the FEIS. Responses to those comments are presented in this document (see Chapter 5, "Consultation and Coordination" for more information). A representative sample of comment letters from non-governmental organizations are also printed in Chapter 5 with USFWS responses. Due to the volume of response, specific letters from individuals and most non-governmental organizations were not printed in the FEIS. However, issues identified through analysis of all public comments (U. S. Fish and Wildlife Service 1998), and the responses are presented in Chapter 5.

SCOPING OF ISSUES

Introduction

The public identified 46 grizzly bear recovery issues during the scoping process. These issues were either, addressed / included in one or more alternatives (26 issues), analyzed in detail as an issue or potential impact of grizzly bear recovery (11 issues), or not analyzed further with the reason explained (9 issues). The determination to classify an issue as a major issue or concern to be analyzed in detail in the EIS is made solely on its relevance to the decision being made, or based on the best scientific judgement that the issue is significant to the decision being made. For instance, some people were concerned about the impact of grizzly bears on invertebrates. Because grizzly bears are not documented to have impacts on populations of these types of animals, the issue is not significantly impacted by grizzly bear recovery and therefore not analyzed further. In contrast, the decision about how grizzly bears are recovered and managed will have impacts on the extent of land-use restrictions. Consequently, this issue was classified under a major issue and concern heading, "What kind of land-uses will be altered solely for grizzly bears?" and is addressed as an impact of grizzly bear recovery in the EIS. All issues raised by the public were considered, but not all were analyzed because some were not significant, as explained later.

The issues and alternatives identified and their resulting impacts were divided into two categories: those analyzed in detail and those not considered in detail. Issues and alternatives analyzed in the EIS are divided into two additional categories: those incorporated into alternatives, and those evaluated as impact topics. The following list represents issues evaluated in the EIS. Descriptions of the reasons for evaluating or eliminating issues and alternatives and their impacts from consideration follow each list. No Environmental Justice issues were identified as significant through the scoping process, therefore further consideration of this issue in development of alternatives, mitigation, and effects analysis was determined to not be necessary.

Issues and Impacts Evaluated in the EIS

Issues Addressed as Part of Alternatives *-- these 26 issues and impacts are addressed / included as part of one or more alternatives in the EIS (see Chapter 2 for a description of Alternatives).*

Management Strategies
Strategies to Control Nuisance Bears
Illegal Killing of Grizzly Bears
Recovery Area (Geographic Boundaries, Size & Range)
Recovery Time
Monitoring and Evaluation
Experimental, Nonessential Population & Area
Private Property Rights
Endangered Species Act (ESA)
Ecosystem Management
Grizzly Bears as a Missing Component of the Ecosystem

Definition of Population Viability for Grizzly Bears
Travel Corridors & Linkages (Range of Grizzly Bears)
Habitat Protection Requirements
Laws, Restrictions, Rights, Authority
Federal, State, Local, and Tribal Authority
Compliance with Forest Plans
Are Grizzly Bears Native to the Bitterroot Ecosystem
Effects on Grizzly Bears from Human Incursions Outside Wilderness
Population Corridor Linkages
Effects "to" Grizzly Bears (Genetics, Disease, Colonization, etc.)
Habitat Security
Cost of Program to Taxpayer
Education
Political Influence
Enjoyment of Grizzly Bears (Viewing, etc.)

Management Strategies.-- Proposed management strategies were outlined briefly in the description of alternatives provided in the scoping brochure (Appendix 16) and the question & answer pamphlet for the proposal to recover grizzly bears in the Bitterroot Ecosystem. Most respondents saw a "gap" in "how-to" manage the reintroduction as presented. Some new alternatives were generated from various coalitions with numerous individuals rallying to support the inclusion of a particular alternative for analysis in the EIS. Overall, there was more support for these new alternatives and their management strategies than for the proposed alternatives described in the scoping brochure and pamphlet.

Strategies to control nuisance bears.-- Bears that frequent areas of high human use, act aggressively toward humans, or kill livestock would be dealt with under protocol already established for other grizzly bear recovery areas by the Interagency Grizzly Bear Committee. Nuisance grizzly bears would be relocated rapidly to remote areas or killed by authorized personnel of state, tribal, or federal agencies (see Appendix 15, IGBC Nuisance Grizzly Bear Management Guidelines (IGBC 1986)). Many respondents didn't want bears that wander out of the wilderness boundary to automatically be considered problem bears. They feel the bears will move where there is an adequate food source and question whether the proposed site has adequate habitat to keep the grizzly bear contained in the recovery area. There were other people, mostly local residents, who support the concept of relocation or disposing of problem bears.

Illegal Killing of Grizzly Bears.-- It is legal to kill a grizzly bear in self-defense or defense of others. The kill must be reported within 24 hours, and an investigation will take place to determine whether it was indeed a case of self-defense. Grizzly bears cannot be killed by members of the public in defense of property. Several people felt that enforcement should be severe and surveillance increased. Others felt that killing grizzly bears in self-defense is acceptable as is killing grizzly bears by mistake

during the spring black bear season. Some respondents were unclear about the provisions of the ESA for killing a grizzly in self-defense.

Recovery Area (Geographic Boundaries/Size/Range).-- An experimental population must be identified by a geographic boundary, a visible mark of identification as a member of a released group of animals, or other means specified in the special rule. Bears that occur outside of a designated experimental population area would receive full protection as a threatened species under the ESA unless they were otherwise identifiable. Most people who commented on this particular issue provided their own interpretation of recovery area boundaries. A popular comment was to, "allow bear recovery on all of our public lands, not just designated wilderness areas." Other comments pertained to buffer zones of adjacent roadless areas needing to be included in the recovery area boundary. Conversely, others felt the boundary needs to be restricted to only wilderness area boundaries particularly around the Bitterroot Valley. Other people needed more information and wanted clarification in the EIS.

Recovery Time.-- Due to their inherent low productivity, grizzly bear populations grow slowly, even under the most favorable conditions. Realistically, grizzly recovery in the BE could take a minimum of 50 years, and likely more than 110 years. In an uncertain world, there may be occasional setbacks. A few people commented on the length of time recovery would take. Those in favor of reintroduction preferred accelerated recovery and those opposed to reintroduction favored the "no action alternative." While several people supported grizzly bear recovery, they felt bears should come into an area naturally rather than being reintroduced.

Monitoring and Evaluation.-- All released bears would be fitted with radio transmitters and their movements monitored frequently. The most popular comment on this issue was to solicit peer review, from the independent scientific community, during all aspects of reintroduction. The process for verification of sighting reports was questioned.

Experimental/Nonessential Population and Area.-- In 1982, Congress amended the Endangered Species Act to permit greater management flexibility for species that are reintroduced to their historic range. The purpose of added flexibility was to garner more local support for recovery efforts. Such populations may be designated as "experimental" and managed within a delineated area according to special rule designed to balance needs of both people and listed species. Support and opposition were split evenly for this designation. Supporters maintained that flexibility in management would win local support. Opponents said the designation is contrary to the purpose of the ESA and reduces the level of protection for the grizzly bear.

Private Property Rights.-- Grizzly bears cannot be killed by members of the public in defense of property. A few respondents expressed concern about not having the right to protect their private property from the grizzly bear. They felt they should have the legal option to kill a bear in defense of life or property. They point out that the burden of regulations on property owners would be "oppressive."

Endangered Species Act (ESA).-- The grizzly bear in the conterminous 48 States was listed as a threatened species under the Endangered Species Act (ESA) in 1975. A threatened species is one that is "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." An endangered species is further defined as one "in danger of extinction throughout all or a significant portion of its range..." The grizzly bear is also listed as a threatened species under Idaho state regulations and as a game species under Montana state regulations. A great number of respondents believe the bear must be reintroduced as fully protected under the ESA and feel any attempt to do otherwise is against the law. They believe the experimental nonessential designation would not ensure the safety of reintroduced bears or the safety of bears that might already be there. However, a few respondents felt experimental nonessential designation would give needed flexibility. Many respondents feel the grizzly bear is not a threatened species due to the numbers that already exist in other areas. Some people feel the ESA should be abolished, particularly those who favor the "no action" alternative.

Ecosystem Management.-- A majority of respondents who favor recovery feel the grizzly bear is a necessary component of the ecosystem that is now missing. However, some people feel the ecosystem has evolved with the absence of the grizzly bear, and that its return would upset the existing ecology. Quite a few people mention there is a lack of food supply particularly grasses and forbs, berries, pine nuts, and that anadromous fish are lacking.

Grizzly Bear as a Missing Component of the Ecosystem.-- Many people feel the grizzly bear embodies the 'wild' in wilderness. Several people stated that survival of the grizzly indicated a healthy ecosystem for all species, including humans. One person felt bears are necessary for human health research because of the unique bone and kidney function they display during hibernation. Several people felt that humans should leave nature alone, and not reintroduce bears to the BE. Others thought the habitat needs improving before reintroducing bears. They suggest returning anadromous fish runs and fire to the ecosystem to improve food availability.

What is a Viable Grizzly Bear Population? Number of Bears?-- Ecological conditions in the Bitterroot Mountains appear comparable to other grizzly bear ecosystems in the Rocky Mountains. Bear biologists estimate that the food resources in the BE could eventually provide for an average density of about 1 bear for each 20-30 square miles of public land. Similar densities of grizzly bears occur in portions of the Northern Continental Divide Ecosystem (NCDE) and Yellowstone Ecosystem (YE) (USFWS 1993). Monitoring the movements and diets of reintroduced bears would provide a more definitive answer. Many people favoring recovery felt that the rate of reintroduction should be increased and that the population recovery goal is too low. Others feel the goals of recovery should be set before reintroducing bears. A few people stated that bears are a nuisance on the Rocky Mountain Front and "no one is doing anything about it." Some said it is not necessary to reintroduce bears in the BE to recover a population. A few people stated that a lack of grizzly bear sightings in the BE could indicate that bears don't want to live in that area.

Travel Corridors & Linkages (Range of Grizzly Bears).-- This issue relates to the relatively large areas that grizzly bears require, and the fact that, by their nature the bears will not be confined to a specific area. This issue is addressed by identifying management strategies for grizzly bears in specific areas in the various alternatives. Certain types of management will restrict the range of grizzly bear populations. Many people felt that travel corridors between ecosystems must be identified, established and maintained. Comments indicated corridors are essential to link isolated populations of grizzly bears for dispersal and genetic interchange, and are thus critical for long-term survival of the grizzly bear.

Population Corridor Linkages.-- Because grizzly bears do not readily colonize distant areas, most bear biologists consider recovery by natural recolonization unlikely. Corridors between grizzly bear habitats would have to be created because remaining areas of suitable grizzly bear habitat are fragmented by human development. Linkage zones between ecosystems are currently being studied by the USFWS for their necessity and feasibility. Many people responded that recovery of the grizzly bear is dependent on habitat corridors connecting bear populations. Many believe current populations are not adequate to sustain the species due to isolation and limited numbers. Several people believe that restoring bears to the BE could begin to link existing isolated bear populations in northwest Montana and Yellowstone National Park. One person stated that "to isolate Bitterroot Recovery...is politics, not science." Another stated that the Bitterroot is no longer an intact ecosystem.

Habitat Protection Requirements.-- Extensive access into occupied grizzly bear habitat can increase the risk of human-caused mortality and reduce effective use of habitat by grizzly bears and other wildlife including elk and fish populations. Existing standards and guidelines for elk, fish and riparian habitat management appear adequate for grizzly bear security. Direct human-caused mortality of grizzly bears is the major impediment to population recovery. Most people who commented on habitat protection requirements felt it should be protected either throughout the entire recovery area or only inside wilderness boundaries. Those who support restoration efforts prefer protection throughout the entire recovery area. Those who oppose recovery prefer no protection requirements, or protection only in the wilderness. This latter group sees requirements for habitat protection as interfering with other consumptive uses of the forest, i.e., logging, building roads, access, etc.

Laws, Restrictions, Rights, Authority.-- A large number of comments addressed the need for a local citizen's management committee or local advisory committee. Several stated that management should remain with the USFWS, States, and Tribes. A Citizen's Management Committee will be evaluated in one or more alternatives.

Federal, State, Local & Tribal Authority.-- Existence of a nonessential experimental grizzly bear population in the Bitterroot Ecosystem will not change the authority of local, state, tribal, or federal government except as specified in the special rule establishing the Bitterroot grizzly bear population. However, the various alternatives do place different emphasis on the level of state or tribal involvement in implementing various recovery strategies. Public comment during issue and alternative scoping indicated that people believed that a citizen management committee would be a

fair way to implement management of grizzly bear recovery. This concern is reflected in one or more alternatives. There were numerous comments regarding who should have jurisdiction over management of the grizzly bear. While several respondents support local citizen involvement, they also stated that overall day-to-day bear management responsibilities should reside with the USFWS.

Compliance With Forest Plans.-- Two respondents commented on compliance. One was critical of Forest Plans and questioned their adequacy in terms of protecting and maintaining suitable grizzly bear habitat. The other comment stated that current wildlife management will be deemed adequate unless the Citizen Management Committee decides otherwise. This issue is examined in more than one alternative.

Are Grizzly Bears Native to Bitterroot Ecosystem.-- Historical evidence indicates that grizzly bears were common in the Bitterroot Mountains. Members of the Lewis and Clark expedition killed 7 grizzly bears in 1806 near present-day Kamiah, Idaho. During the late 1800s, the Bitterroot area was well-known for grizzly hunting. For example, a hunter named Wright killed 5 grizzly bears in one episode on the Clearwater River, and over several years killed dozens of grizzly bears in the Bitterroot region. One report estimated that trappers killed 25 to 40 grizzly bears in the Bitterroot Mountains every year around the turn of the century. Some people feel that a few grizzly bears still exist. Many people questioned that this species was ever in the Selway-Bitterroot Wilderness Area because the habitat is "questionable" and "historical records don't support the existence of grizzly bears there."

Effects on Grizzly Bears from Human Incursions Outside Wilderness (Logging, Road Building, Mining & Off-Road-Vehicles).-- This would vary by land designation and by grizzly bear recovery alternative. More than one-half of the Bitterroot Primary Analysis Area (Figure 3-1) lies in designated wilderness (Figure 3-3) where no timber harvest or mining can occur by law. On National Forest lands outside Wilderness, Forest Plans determine areas suitable for timber harvest, mining, vehicle access, etc. Many people stated the necessity to keep the recovery area off-limits to road building and logging. Many respondents provided suggestions for restructuring logging and logging practices. Several respondents feel the area won't support bears because of indirect incursions, i.e. the Columbia Dams have blocked salmon migration and fire suppression has altered the habitat/vegetation.

Genetics, Disease, Colonization Effects on Grizzly Bears.-- Numerous people responded that recovery of the threatened grizzly bear is dependent on habitat corridors connecting bear populations. Corridor linkage is critical and necessary for genetic viability. Several comments indicated there was inadequate food for bears in the area.

Habitat Security.-- The 5,500-square mile Bitterroot Evaluation Area (BEA) extends from the Salmon River north to, and including, the North Fork of the Clearwater River. Approximately 97% of the area is public land, managed by the USFS; the remaining area is private or state owned. About 50% of the area is in the Selway-Bitterroot and Frank Church-River of No Return Wilderness Areas.

One partially paved highway bisects this area. Minimal cattle or sheep grazing occurs within the area at present. Thus there is a large core of remote country. Other portions of the River of No Return Wilderness south of the current evaluation area might also be suitable. A great number of people commented on the importance and necessity of roadless areas for adequate grizzly bear habitat. Many feel road density standards need to be enforced. Several people stated the importance of closing roads to all motor vehicles to curtail use. Several commented on the critical need for low elevation bear habitat in the spring.

Cost of Program to Taxpayer.-- Cost of grizzly bear recovery will vary between alternatives and is displayed for each alternative (Appendix 7). This issue was of concern to many of the respondents. Many felt that grizzly bear recovery is a waste of taxpayer's money. Several stated that they would like the money spent on other programs, while others said that the money should be used for the national deficit. Questions were raised about the validity of actual costs. Some felt it would be higher than predicted.

Education.-- This issue addresses public education about camping, hiking precautions, food storage, bear identification, etc. Several people commented on the importance of having an education program to teach humans how to coexist with grizzly bears. They stressed the need to teach people about proper disposal of garbage, how to handle food, and how to hike and camp safely in grizzly bear country. A few people that were against grizzly bear recovery commented that education wouldn't help.

Political Influence.-- Several people commented about how they think political influence will affect the recovery of grizzly bears. Many respondents conveyed their exasperation with the political system and the role they believe it plays in determining the outcome of the proposed restoration. Some believe that politics instead of science is the guiding force in recovery efforts. Many respondents against recovery reiterated their view that the political process has not worked to their advantage. Some see a "hidden agenda" by pro-grizzly advocates to "lock up the land." Many respondents also resent people or groups outside the local community or state as having undue influence on recovery efforts into the area in which they live. Some also say they think the Endangered Species Act is being misinterpreted for political means.

Enjoyment of Grizzly Bear (Watching, etc.).-- The ability of people to enjoy either the presence or absence of grizzly bears is reflected in the various alternatives. Several people mentioned that they would like nothing more than to see a grizzly bear in the wild. Several commented that they would appreciate being able to see a grizzly bear in the wilderness rather than behind bars in a zoo. One said there is a need to restore the top carnivore on earth.

Issues/Impacts Analyzed in the EIS. *-- The 11 issues / impacts identified by public scoping (and briefly explained below) will be addressed/analyzed for each alternative. They have been consolidated into the following 7 major areas, and will be presented as such in Chapter 4.*

Effects of Grizzly Bear Recovery on Human Health and Safety
Effects of Grizzly Bear Recovery on Source Populations of Grizzly Bears
Effects of Grizzly Bear Recovery on Land-Use Activities - to include Timber Harvest, Minerals Extraction, and Livestock Grazing
Effects of Grizzly Bear Recovery on Wildlife
Effects of Grizzly Bear Recovery on Public Access and Recreational Use
Social Effects of Grizzly Bear Recovery
Economic Effects of Grizzly Bear Recovery

Human Health and Safety (Effects of Grizzly Bear Recovery on Human Health & Safety).-- Numerous people responded that they feel the grizzly bear poses problems with human safety. Safety is a very volatile issue with many respondents speaking from the heart with anger and emotional pleas concerning the danger they see for themselves and their family. Several say to "put human safety first." Many people speak of the negative effect grizzly bears would have on relaxing enjoyable trips to the backcountry. Some refer to the problems with grizzly bears in other areas such as Glacier National Park and the Bob Marshall Wilderness. Only a few people stated that human safety was not a concern; most of those promoted public education and commented that the issue of safety is exaggerated.

Capturing and Release Methods (Effects of Grizzly Bear Recovery on Source Populations of Grizzly Bears).-- Many people wanted grizzly bears removed from healthy donor populations that are not listed as threatened, and wanted scientific studies to verify and document the impacts. People are concerned about humane handling of bears, and duration of their contact with humans during transportation. There were requests to limit media to trained professionals. Comments also indicated concern about removal of bears from British Columbia.

Restrictions on Use of Public Lands (Effects of Grizzly Bear Recovery on Land-Use Activities).-- Grizzly bear recovery can have an impact on types of land-use restrictions implemented on public lands. Restrictions affecting open road density, motor vehicle use, hunting, and hiking have been used in some limited areas to enhance recovery where illegal killing or disturbance by humans was a major factor affecting grizzly bear survival. In some areas, habitat manipulation (logging or fire) was used to enhance habitat for grizzly bears. Various alternatives reflect different levels of land-use restrictions. One of the major reasons respondents oppose the restoration is fear of additional access closures in the area. Most of these comments came from local residents who enjoy the amenities of the backcountry and feel that recovery of grizzly bears will affect them directly. They feel areas will be closed to protect people as well as bears and traditional uses of the area will not continue. Several respondents are concerned by the possible closure of the Magruder Corridor. A few respondents feel that restrictions are necessary to protect the grizzly bear and to protect the habitat.

Effects of the Grizzly on Big Game Species (Effects of the Grizzly Bear Recovery on Wildlife).-- A few people stated their concern for the welfare of wildlife populations in the recovery area. The most common concern is for elk herds and how they would be affected by the grizzly bear. Many point out that grizzly bears can devastate elk calf populations. People are also concerned with effects on black bear, deer populations, and big game hunting opportunities.

Effects of Grizzly on Other Predators (Effects of the Grizzly Bear Recovery on Wildlife).-- A handful of respondents were concerned with effects the grizzly bear would have on other predators. Most felt there are already enough predators in the area especially considering the prey base and food supply.

Effects of Grizzly on Hunting Opportunities (Effects of Grizzly Bear Recovery on Public Access and Recreational Use).-- Several people stated that potential conflicts with spring black bear hunting in the recovery area need to be addressed to avoid accidental killing of grizzly bears. Some people favor a moratorium on spring black bear hunting. Some hunters are concerned with the restrictions on access that might come with grizzly bear recovery. A few people stated that when the grizzly bear is recovered, there should be a hunting season on them. Other hunters voiced their support for a recovered grizzly bear population that would not be hunted.

Effects of Grizzly on Outfitters/Guides (Effects of Grizzly Bear Recovery on Public Access and Recreational Use).-- A few outfitters and guides stated that they were concerned about hunting opportunities and for the safety of their clients. They feel their livelihood would be directly affected by grizzly bears in the area. Some say their clients will stop coming to hunt in the area if there are grizzly bears there. They contend that their clientele comes to the area to have an option for good hunting without grizzly bears like in the Bob Marshall Wilderness. They also felt that the grizzly bear would prey upon elk and deer and therefore reduce the game available for harvest.

Effects of Grizzly on Other Recreational Opportunities (Effects of Grizzly Bear Recovery on Public Access and Recreational Use).-- Several people who use the BE for hiking and camping were very concerned about recovery of the grizzly bear. They avoid the Bob Marshall Wilderness and Glacier National Park because of the presence of grizzly bears. Some feel grizzly bears would infringe upon the safety and solitude they enjoy in the Bitterroot Mountains, and that there will be more closures and restrictions in the areas they use for hiking and camping. There was concern for the safety of people who float the Salmon River.

Economic/Social (Social Effects of Grizzly Bear Recovery and Economic Effects of Grizzly Bear Recovery).-- Grizzly bear recovery will have an impact on economics of the affected areas. Several people are concerned that the grizzly bear is being considered more important than the livelihood of humans. Some commented on the economic impact that restoring grizzly bears would have on the livestock industry. Some also feel their "quality of life" would be threatened, and their lives would have to change. Numerous comments point to the high cost of implementing the recovery efforts in

particular and the high cost of government spending in general. A handful of respondents feel the grizzly bear would actually bring more tourists to the area and therefore benefit the economy.

Effects on Local Economy (Economic Effects of Grizzly Bear Recovery).-- This issue reflects the economic concerns of people in communities near the grizzly recovery area. Comments focus on perceived negative impacts from grizzly recovery, such as reduction in forestry, mining, ranching, and tourism. Positive impacts that were mentioned include an increase in tourism brought by the grizzly, and the attraction of living in a 'wild' area.

Effects of Grizzly on Livestock and Pets (Economic Effects of Grizzly Bear Recovery).-- Several people expressed their concern regarding loss of livestock and pets to grizzly bears. They feel it is probable that grizzly bears will supplement their diets with domestic livestock and domestic pets. Some stated their concerns for the cattle ranchers and said that compensation for livestock depredation should be part of the plan. Several commented that the grizzly bear was not a threat to livestock.

Significant Issues/Impacts and Concerns

The specific issues / impacts (listed and discussed above) that were identified by the public and incorporated into the EIS, as either parts of the alternatives (26 issues), or as areas potentially impacted by grizzly bear recovery (11 issues grouped into 7 major impact areas), share a common set of management concerns. All of these issues / impacts can be summarized into an examination of the who, what, when, where and how of grizzly bear recovery and management. To clarify how various alternatives address the issues / impacts and concerns of the public, they were grouped into 7 general grizzly bear management questions / concerns that the USFWS considers most significant. An example of how they were grouped is demonstrated by the question, "Where will grizzly bears be obtained, reintroduced, and recovered?" This question incorporates parts of the issues of grizzly bears as a missing component of the ecosystem, travel corridors and linkages, range requirements, ecosystem management, habitat security, and recovery areas. The other 6 questions incorporate a variety of these and other issues/impacts that were also important to the public. These 7 questions form a basis to consistently describe and compare each alternative being analyzed in the EIS, and assess how the alternatives are responsive to all significant public issues/impacts and concerns.

The 7 major grizzly bear management questions / concerns were developed from the 37 pertinent issues / impacts raised during public scoping. The USFWS considers these most significant and they will be used to describe the alternatives:

1. What will be the risk to human safety?
2. What kind of land uses will be altered solely for grizzly bears?
3. How much will implementation cost?
4. How does this alternative address linkage zones?
5. Are habitat quality and size of the recovery area sufficient for recovery?
6. How will grizzly bears and their habitat be managed?
7. Where will grizzly bears be obtained, reintroduced, and recovered?

Issues and Impacts Not Evaluated in the EIS

Consultation with Fish & Wildlife Service
Interagency Grizzly Bear Committee Guidelines
State or Private Bear Management Specialist
Wilderness Act
Effects of Grizzly Bear on Other Endangered Species
Effects of Grizzly Bear on Other Animals, Fish, Birds, etc.
Spiritual/Cultural
Visitor Use
Miscellaneous

These 9 issues / impacts that are not within the scope of the decision to be made in the EIS, or will not be significantly impacted by the alternatives, are not analyzed further in the EIS. Issues not analyzed in detail and the reasons why they were not chosen for detailed analysis in the EIS are explained below. Most are addressed in the EIS and Appendices as noted below.

Consultation with Fish & Wildlife Service.-- Only two people commented saying the requirement to consult with the USFWS should remain in place for activities with potential impacts on roadless areas and other habitat needed for full recovery. The involvement of the USFWS is mandated by Federal Law under Section 7 of the ESA.

Interagency Grizzly Bear Guidelines.-- There was only one comment received on this issue. The person stated that the "decision" seemed to have already been made and why waste time with public involvement and the NEPA process now. There were no substantive comments on the guidelines to analyze in the EIS.

State or Private Bear Management Specialist.-- There were no public responses to this issue. Concerns for state or private bear management are covered under the Federal, State, Tribal and Local Authority issue that is analyzed in one or more alternatives.

Wilderness Act.-- Although numerous respondents spoke to wilderness in other issues, the Wilderness Act itself was only referred to in the sense that the grizzly bear did not exist in the Bitterroot Mountains when the Act was passed. The Wilderness Act is discussed in Chapter 1.

Effects of Grizzly on Other Endangered Species (Such as Listed Salmon).-- Some concerns were raised about restoring the grizzly bear in an area where the Chinook salmon and steelhead trout populations are dwindling. They point out that fish is a food source for the grizzly bear. The USFWS prepared an Intra-Service Section 7 Evaluation for the Restoration of Grizzly Bears to the Bitterroot Ecosystem (Appendix 9A), which analyzed and documented any impacts from this proposal to other Threatened and Endangered Species expected to occur in the BE. This Evaluation which is termed a Biological Assessment indicated no significant adverse effect to other listed species from this proposed reintroduction. The USFWS also prepared a Biological Assessment for the

National Marine Fisheries Service to document the impacts of this proposal on salmon and steelhead trout. Formal consultation with the National Marine Fisheries Service, and their resulting Biological Opinion indicated grizzly bear restoration in the BE is not likely to jeopardize the continued existence of listed steelhead or salmon species or result in the destruction or adverse modification of critical habitat (Appendix 9B). Also see Appendix 3 for discussion of potential impacts to salmon.

Effects of Grizzly on Other Animals, Fish, Birds, Etc.-- There was a request to consider other threatened and endangered organisms. The USFWS will prepare an Intra-Service Section 7 Evaluation for the Restoration of Grizzly Bears to the Bitterroot Ecosystem (Appendix 9). This will analyze and document any impacts from this proposal to other Threatened and Endangered Species.

Spiritual/Cultural.-- This issue relates to the spiritual symbolism of the grizzly bear, its cultural significance to the West, preserving the grizzly for future generations, and benefits of simply knowing that grizzly bears exist in the reintroduction area. A few commented on the complexity and mystery associated with wilderness and that grizzly bear recovery in the area would make the wilderness whole again. Many speak of their respect for nature and "there should be some humility on the part of humans so the natural ecosystems can flourish." Some individuals, particularly from the local area, say the recovery of the grizzly bear would "decrease the quality of their wilderness experience." Although these issues were not used to develop alternatives or analyses, information on spiritual and cultural issues is included in Chapter 3 and Appendix 5.

Visitor Use.-- This issue reflects the effects grizzly bears will have on visitor use. There were very few comments concerning this issue. Visitor use is considered under; "economic effects of grizzly bear recovery" and "effects of recovery on public access and recreational use."

Miscellaneous

There were a few comments and suggestions about fines for people who don't follow sanitation guidelines in bear country and remarks about political influence. Because these comments weren't substantive to the issues, they won't be considered in the EIS.

ALTERNATIVE SCOPING

Resource Inventory and Analysis

Information on various issues had to be compiled to objectively address potential impact of grizzly bear recovery. During and after scoping, efforts were made to identify and collect types of information needed for planning grizzly bear recovery strategies and analyzing potential impacts of grizzly bears on the environment. Information on grizzly bear biology, land ownership, status, management, ungulate (mule deer, white-tailed deer, elk, moose, bighorn sheep, and mountain goats) biology and management, other wildlife (black bears, mountain lions, small mammals), economics, and use of public land were gathered from resource agency files, standard technical references, and current scientific literature. This information was used to classify and describe resources and uses

so the potential impacts of grizzly bear recovery on those resources could be identified and analyzed systematically. It was also used to help formulate grizzly bear management alternatives.

Development and Evaluation of Alternatives

After the resource information was analyzed, and the public participation process identified a range of various issues and alternatives, it became necessary to describe grizzly bear management alternatives, including a proposed action. As a first step toward developing recovery alternatives, issues of concern to the public were compared to the grizzly bear management alternatives previously identified by the public or other groups that had already examined this subject. The USFWS used preliminary issues identified from public comments received during scoping meetings for the BE Recovery Plan Chapter, and the Notice of Intent to complete an EIS for Recovery in the BE, to formulate three preliminary alternatives. Prior to conducting formal scoping meetings and a comment period, the USFWS proposed these three preliminary alternatives for consideration and published them in a Scoping of Issues and Alternatives brochure that requested ideas and comments from the public (Appendix 16). The alternatives were: Alternative 1 - No Action (Natural Recolonization); Alternative 2 - Reintroduction of an Experimental Population (Proposed Action); and Alternative 3 - Accelerated Reintroduction of a Standard (Fully Protected) Population.

Two new alternatives were suggested during the public scoping period. The first proposed alternative entitled The Citizen Management Committee Alternative was submitted by the National Wildlife Federation, Defenders of Wildlife, the Resource Organization on Timber Supply, and the Intermountain Forest Industry Association (USFWS 1995). The second alternative identified was the Alliance for the Wild Rockies Alternative, which was proposed by the Alliance (USFWS 1995).

Alternatives Identified During Scoping, not Evaluated in the DEIS, but Included in the FEIS

Alternative 2 - Reintroduction of an Experimental Population (Proposed Action) was proposed by the USFWS during initial scoping for issues and alternatives. In response to public comment received during scoping, the USFWS modified this alternative from USFWS management of the experimental population to management by a Citizen Management Committee (as proposed by a coalition of non-governmental organizations). This modified alternative became Alternative 1, the proposed action of the DEIS. Public comment received on the DEIS indicated a desire for the originally scoped Alternative 2 to be evaluated in the FEIS. In response to this request, the Service included this alternative as Alternative 1A "Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Management" in this FEIS.

Alternatives Identified During Scoping, but not Evaluated Further

Alternative 3 that was identified in the scoping document, "Accelerated Reintroduction of a Standard Population" is not evaluated in this EIS. Securing 10 non-nuisance grizzly bears per year from similar habitat in the lower 48 States or southern British Columbia is not feasible because of a lack of a

suitable number of bears from existing source populations. For this reason the alternative was eliminated.

Alternatives Addressed in the FEIS

Four alternatives that represent different approaches to grizzly bear recovery and management were developed for evaluation in the DEIS because they encompassed most of the concerns raised during scoping, and they represented a full range of alternatives. Two additional alternatives (Alternatives 1A and 4A) were added to the FEIS in response to public comments received on the DEIS. Two alternatives (Alternatives 2 and 3) do not necessarily meet the purpose of and need for action, but were included in the DEIS and FEIS to be responsive to public comments, to provide a full range of alternatives for consideration, and to meet the requirements of NEPA. All six FEIS alternatives reflect public comments and suggestions identified through issue and alternative scoping, and public comments on the DEIS. These alternatives are discussed in detail in Chapter 2.

After a review of this FEIS by government agencies, tribes, tribal agencies, special interest groups and the general public during a public review period, the USFWS will select an alternative, revise the alternative if necessary based on public response, and publish a Record of Decision documenting the USFWS rationale for the decision. The alternative selected for implementation will become the management plan for grizzly bear recovery in the BE.

The six alternatives considered in this FEIS are:

1. Restoration of Grizzly Bears as a Nonessential Experimental Population with Citizen Management Alternative (The Preferred Alternative):

   The goal is to accomplish grizzly bear recovery by reintroducing grizzly bears designated as a nonessential experimental population to central Idaho and by implementing provisions within Section 10(j) of the ESA, conduct grizzly bear management to address local concerns. A Citizen Management Committee (CMC), created under a special rule to be published in the Federal Register, would be tasked with management of this grizzly bear population.

1A. Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Management Alternative:

   The goal is to accomplish grizzly bear recovery by reintroducing grizzly bears designated as a nonessential experimental population to central Idaho and by implementing provisions within Section 10(j) of the ESA, conduct grizzly bear management to address local concerns. The U.S. Fish and Wildlife Service would manage this grizzly bear population.

2. The No Action Alternative - Natural Recovery:

   The goal is to allow grizzly bears to expand from their current range in north Idaho and northwestern Montana southward into central Idaho and western Montana, and to recolonize the BE. The ultimate goal is natural recovery of grizzly bears in the BE.

3. The No Grizzly Bear Alternative:
   This alternative would prevent grizzly bear recovery in the BE.

4. Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration Alternative:
   The goal is to achieve recovery through reintroduction and extensive habitat protection and enhancement to promote natural recovery. A ten member Scientific Committee would be established to perform additional research, implement reintroduction of bears, and monitor results of the program. The grizzly bear would have full status as a threatened species under the provisions of the ESA.

4A. Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management Alternative:
   The goal is to achieve recovery through reintroduction with the USFWS managing recovery of the population. Other federal and state agencies and the Nez Perce Tribe would assist the USFWS with management activities. The grizzly bear would have full status as a threatened species under the provisions of the ESA.

PUBLIC REVIEW OF DEIS

The Draft EIS was released for public review and comment on July 1, 1997. A Notice of Availability was published in the Federal Register, the DEIS was mailed to the entire mailing list, and copies of the DEIS and Summary of the DEIS were mailed to over 60 local libraries in Idaho and Montana. The DEIS and the Summary of the DEIS were also published on the Service web site at: http://www.r6/fws/gov/endspp/grizzly. A news release announcing the availability of the DEIS and requesting public comment was provided to local and national media contacts (newspaper, television, radio). Comments were to be received through September 30. The comment period was extended to November 1 based on numerous requests for more time to prepare responses. The comment period was extended a second time to December 1, 1997 following a request from a member of the Idaho Congressional delegation. A press release announced each extension.

To provide an opportunity for people to voice their concerns, public hearings/open houses were held during October 1997 to gather public comments on the DEIS. These were held in seven communities on the perimeter of the Bitterroot area. Approximately 1400 people attended these hearings and 293 individuals testified. The dates and locations for the public hearings were as follows: Challis, Idaho and Hamilton, Montana (October 1); Missoula, Montana and Lewiston, Idaho (October 2); Boise, Idaho and Helena, Montana (October 3); and Salmon, Idaho (October 8). Hearings were conducted from 4 p.m. to 8 p.m. and verbal testimony (treated the same as written comments) was recorded and any written comments were accepted. In addition, the Service held meetings with local community,

state leaders, and interest groups in communities around the perimeter of the proposed Recovery Area.

Comments on the DEIS were received from over 24,000 individuals, organizations, and government agencies. These comments arrived in over 2,660 letters, DEIS summary forms, resolutions, and hearing testimonies. Ten petitions were received with over 21,000 signatures. Fifteen form letters were identified.

An analysis of the public comments on the DEIS was performed by an interagency team of 14 employees from the Service and the USDA Forest Service in December - January 1998. The system used to analyze comments was objective, reliable and traceable. Every comment was given an individual identification number and was coded according to the demographic nature of the response. Substantive comments (positive and negative) on issues or alternatives were coded and entered into a database. A respondent's exact words were used when entering responses into the database. A detailed summary report, *"Summary of Public Comments on the Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem"* and an executive summary report of 24,251 public comments were prepared and released to the public in April 1998 (U.S. Fish and Wildlife Service, 1998). Issues raised during public comment on the DEIS were similar to the issues identified during public scoping.

All comments from federal, state, and local governments having regulatory authorities, and comments from Native American Tribes are printed in Chapter 5 of the FEIS. Responses to those comments are also provided in Chapter 5. Due to the volume of response, most letters from individuals and non-governmental agencies are not printed in the FEIS, but 18 letters from the most prominent or most vocal large private organizations, representing the diverse points of view about the proposal, are included and responded to in detail. Issues identified through the analysis of public comments on the DEIS (USFWS 1998) and the USFWS responses are presented in Chapter 5.

CHAPTER II

ALTERNATIVES
INCLUDING THE PROPOSED ACTION

INTRODUCTION

This chapter describes the alternatives that were developed to respond to the issues and impacts previously identified in Chapter 1. The proposed action is identified. Summary tables that compare the alternatives and the expected impacts of each alternative are also included.

ALTERNATIVES CONSIDERED IN DETAIL IN THE ENVIRONMENTAL ANALYSIS

Introduction

The Bitterroot Ecosystem (BE) Recovery Plan Chapter - Supplement to the Grizzly Bear Recovery Plan (USFWS 1996) calls for the preparation of an Environmental Impact Statement to evaluate a full range of alternatives for recovery including natural recolonization, and reintroduction of some grizzly bears into the Bitterroot Ecosystem as nonessential experimental under Section 10(j) of the ESA. During early planning, the Fish and Wildlife Service (USFWS) developed three preliminary alternatives to respond to this direction. Based on comments received during public scoping of these alternatives, and under the guidance of NEPA, four alternatives were formulated by the USFWS and were evaluated in the Draft Environmental Impact Statement (DEIS).

In response to public comments on the DEIS provided by agencies, organizations, and private citizens, changes have been made to the proposed action (Alternative 1). This alternative has been selected as the USFWS Preferred Alternative. Further, in response to public comments on the DEIS, the USFWS has included two additional alternatives in the Final Environmental Impact Statement (FEIS). Alternative 1A, "Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Management" was one of three preliminary alternatives proposed by USFWS during scoping in 1995. However, in response to public comments received during the 1995 scoping, the USFWS modified the alternative for the DEIS to include a Citizen Management Committee, and it became the proposed action, Alternative 1 (see Chapter 1, "Alternative Scoping"). To be responsive to public comments received on the DEIS, and to provide a broader range of alternatives under NEPA, the USFWS has included the originally scoped alternative in the FEIS as Alternative 1A. Alternative 4A, "Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management" was also added in response to public comments on the DEIS, and to provide a broader range of alternatives for consideration by the USFWS.

The proposed action and other alternatives for grizzly bear recovery in the Bitterroot Ecosystem which are considered in detail in this Final Environmental Impact Statement include:

Alternative 1.	Restoration of a Grizzly Bears as a Nonessential Experimental Population with Citizen Management (Proposed Action and Preferred Alternative)
Alternative 1A.	Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Management
Alternative 2.	The No Action Alternative - Natural Recovery
Alternative 3.	No Grizzly Bear Alternative
Alternative 4.	Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration
Alternative 4A.	Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management

ALTERNATIVE 1. RESTORATION OF GRIZZLY BEARS AS A NONESSENTIAL EXPERIMENTAL POPULATION WITH CITIZEN MANAGEMENT (THE PREFERRED ALTERNATIVE)

Background

The designation "experimental population" had its origin in a 1982 amendment to the Endangered Species Act (ESA), which created Section 10(j). Section 10(j) provided for reintroduction of experimental populations under special regulations. Before that, the USFWS had authority to introduce threatened and endangered species into unoccupied historic range, but attempts to do so were often met with resistance. One reason for that resistance was the USFWS could not assure private landowners, other federal agencies, and state and local governments that the transplanted population would not disrupt future land management options. "Experimental population" designation gives the USFWS more flexibility because such populations can be treated as "a species proposed to be listed" or "threatened" rather than "endangered" (see Appendix 12). Congress provided the amendment to make more reintroductions possible, by allowing more management flexibility, if necessary, where such management is consistent with conservation of the experimental population. If a reintroduced population of grizzly bears is designated "experimental" and "nonessential" (refers to an experimental population whose loss would not likely reduce the survival of the species in the wild) under the ESA amendment, other federal agencies are required only to confer with USFWS on federal activities that are likely to jeopardize the species. Management of a nonessential experimental population can thus be tailored to specific areas and specific local conditions, including meeting concerns of those opposed to reintroduction. The experimental population rule has been successfully used to reintroduce black-footed ferrets to Wyoming, South Dakota, Montana, and Arizona, and gray wolves to Yellowstone National Park and central Idaho.

Restoration of Grizzly Bears as a Nonessential Experimental Population With Citizen Management Alternative.— The purpose of this alternative is to accomplish grizzly bear recovery by restoring grizzly bears designated as a nonessential experimental population to central Idaho and implementing provisions within Section 10(j) of the ESA to conduct special management to address local concerns. A Citizen Management Committee (CMC) would be authorized management implementation responsibility for the Bitterroot grizzly bear experimental population.

Note: Changes to Alternative 1 as a Result of Public Comment.— In response to agency and public comment on the Draft EIS proposal, several changes were made to the Final EIS proposal. None of those changes were significant enough to effect the potential impact of the proposed action (preferred alternative) on human health and safety, source populations of grizzly bears, land-use activities, wildlife populations, public access and recreational use, and economics and the social environment. Changes to the FEIS include the following:

1. Grizzly Bear Exclusion Areas: The following clarifications/additions were made in response to the issue concerning human health and safety. If a grizzly bear enters the Bitterroot Valley exclusion area (including private lands lying within the experimental population area in the Bitterroot Valley,

Montana, and outside the Bitterroot Forest boundary south of U.S. Highway 12 to Lost Trail pass), state and federal wildlife management agencies would attempt to capture it and notify the public of its presence, and the public would be updated until the bear is caught. Further, any grizzly bear that occupies inhabited human settlement areas on private land within the experimental population area that in the judgement of the management agencies / Citizen Management Committee (CMC) presents a clear threat to human safety or where there is indication that it may become habituated to humans, may be relocated by management agencies. This is to prevent conflicts and possible bear-human injury or the death of bears, and to promote and enhance public safety.

2. Terms Related to Management of the Experimental Population: In response to the issues of how and where the experimental population of grizzly bears would be managed, several terms in the final rule were clarified and defined, including: "recovery emphasis," "accommodate," and "Bitterroot Recovery Area." A statement was added regarding the potential for consideration of future designated Wilderness areas for inclusion in the Recovery Area.

3. CMC Structure and Function: Several clarifications/changes were made to the CMC structure and function. These changes were in response to the public comment issues of: how the CMC will be selected; need for scientific expertise on the CMC; need for clarification regarding mission, operations, and authority of the CMC; need for further insulation of the CMC from political influence; and need for a process to resolve conflicts between the Secretary and CMC. The clarifications/changes are listed below:

a. Nomination of CMC Members: The Governors of Idaho and Montana would include written documentation of the qualifications of each person they nominate to the Secretary.

b. Scientific Advisors: Two scientific advisors would be appointed by the Secretary to the CMC as non-voting members, to attend all meetings and provide scientific expertise in support of CMC management recommendations.

c. Mission and Operating Guidelines: A Mission Statement and Operating Guidelines for the CMC were added.

d. CMC Authority and Responsibility: Clarification that the CMC would implement the Bitterroot Chapter of the Recovery Plan as consistent with the Final Rule. Also the CMC may make recommendations to land and game management agencies regarding changes to plans and policies, but the final decision on implementation of those recommendations would be made by those agencies, and the requirements of NEPA may apply.

e. Resumption of Management Responsibility by Secretary of Interior: Changes were made to the procedure whereby the Secretary of Interior may resume lead management implementation responsibility from the CMC if he/she determines their decisions are not leading to recovery. The USFWS representative would consider CMC input before making any determination that CMC actions are not leading to recovery. If the USFWS representative on the CMC determines the actions of the CMC are not leading to recovery of the Bitterroot population, the USFWS representative would recommend alternative actions and provide six months for the CMC to accomplish them. If the CMC rejects those alternatives, the Service representative would convene a Scientific Review Panel of three. The USFWS representative would consider the views of all CMC members prior to

making a recommendation on initiating a Scientific Review Panel. The USFWS representative would submit for peer review to the panel those CMC actions or decisions upon which the USFWS representative based his/her decision that CMC actions or decisions are not leading to recovery or are at variance with the Special Rule. The Secretary would select one member of the panel, and the Governors of Idaho and Montana in consultation with the Universities of Idaho and Montana (respectively) are to select one panel member each. The Scientific Review Panel would review issues and make timely recommendations to the CMC as to whether CMC actions are in compliance with the Special Rule. The basis for their recommendations would be adherence of the CMC to the Special Rule. If, after timely review, the CMC rejects the recommendations of the Scientific Review Panel, and the USFWS representative determines the CMC actions are not leading to recovery of the Bitterroot population, he/she would notify the Secretary. The Secretary would consider the panel's recommendations, and if he/she decides to resume lead management responsibility, he/she would seek consultation with the Governors of Idaho and Montana to review with them the reasons for his/her decision, and further attempt to resolve the discrepancies between his/her suggested alternatives and the actions or decisions of the CMC. If the Secretary resumes lead management responsibility, he/she would take appropriate actions to assure there is an adequate regulatory process relating to Department of Interior management of grizzly bears, and would publish a Notice in the Federal Register explaining the rationale for the determination and notify the Governors of Idaho and Montana. The CMC would disband and all requirements identified in the Special Rule regarding the CMC would be nullified.

4. Outreach and Information & Education Program: In response to the issues of human health and safety and grizzly bear mortality, increased emphasis was placed on an aggressive information and education program and outreach activities in local communities in proximity to the Bitterroot Ecosystem.

5. Revision of Recovery Goal: A clarification was added regarding how a refined recovery goal for the Bitterroot experimental population would be calculated. The proposed rule indicates if the CMC refines the recovery goal for the Bitterroot grizzly bear population after grizzly bears are reintroduced and occupy suitable habitats in the experimental population area, the recovery goal would be consistent with the habitat available within the Recovery Area. A clarification was made that additional adjacent areas of public land could be considered when setting the recovery goal if it is shown to be necessary by the best scientific and commercial data available.

6. Use of Livestock Guard Dogs: In response to the issue of effects of grizzly bears on livestock, a clarification was made to the types of harassment methods permitted include the use of livestock guard dogs around livestock.

Summary

The Bitterroot Grizzly Bear Experimental Population Area (experimental population area), which includes most of central Idaho and part of western Montana (Figure 2-1), would be established by the USFWS under authority of Section 10(j) of the ESA. This would include the area bounded by U.S. Highway 93 from its junction with the Bitterroot River near Missoula, Montana, to Challis, Idaho; Idaho Highway 75 from Challis to Stanley, Idaho; Idaho Highway 21 from Stanley to Lowman, Idaho; Idaho Highway 17 from Lowman to Banks, Idaho; Idaho Highway 55 from Banks to New Meadows, Idaho; U.S. Highway 95 from New Meadows to Coeur d'Alene, Idaho; and Interstate 90 from Coeur d'Alene, Idaho, to its junction with the Clark Fork River near St. Regis, Montana; and the Clark Fork River from its junction with Interstate 90 near St. Regis, to its confluence with the Bitterroot River near Missoula, Montana; and the Bitterroot River from its confluence with the Clark Fork River to its junction with U.S. Highway 93, near Missoula, Montana. The experimental population area encompasses approximately 25,140 square miles.

The best scientific evidence available indicates there are no grizzly bears in the experimental population area at this time (USFWS 1996). Ongoing grizzly bear monitoring efforts would continue. The USFWS would designate the Bitterroot Grizzly Bear Recovery Area (recovery area) to consist of the Selway-Bitterroot Wilderness and the Frank Church-River of No Return Wilderness (Figure 2-1). The recovery area contains approximately 5,785 square miles.

Appendix 18 describes an expected time line to commence implementation of this alternative and the associated sanitation efforts to minimize conflicts. The first year of implementation would be a "phase-in" year where sanitation equipment would be installed in key areas, and information and education outreach programs would be initiated. Appendix 22 includes an independent report that lists sites within the BE where sanitation problems exist, and these wildlife attractant sites would be targeted for clean-up.

During the first few months of implementation, a Citizen Management Committee(CMC) would be formed. The CMC would be authorized management implementation responsibility by the Secretary of Interior (in consultation with the governors of Idaho and Montana) for the Bitterroot grizzly bear nonessential experimental population. The CMC would be comprised of local citizens and agency representatives from federal and state agencies and the Nez Perce Tribe. Two scientific advisors would be appointed by the Secretary to the CMC as non-voting members, to attend all meetings and provide scientific expertise in support of CMC management recommendations (Appendix 13). Grizzly bear management would allow for resource extraction activities to continue without formal Section 7 consultation under Section 7(a)(2) of the ESA. The CMC would be responsible for recommending changes in land-use standards and guidelines as necessary for grizzly bear management. Recommendations made by the CMC to land and wildlife management agencies would be subject to review and final decisions on implementation would be made by the responsible agency. All decisions of the CMC including components of its management plans must lead toward recovery of the grizzly bear and minimize social and economic impacts to the extent practicable within the context of the existing recovery goals for the species.

Grizzly bears would be reintroduced into the Selway-Bitterroot Wilderness portion of the recovery area during the second year of implementation. Specific reintroduction sites would be

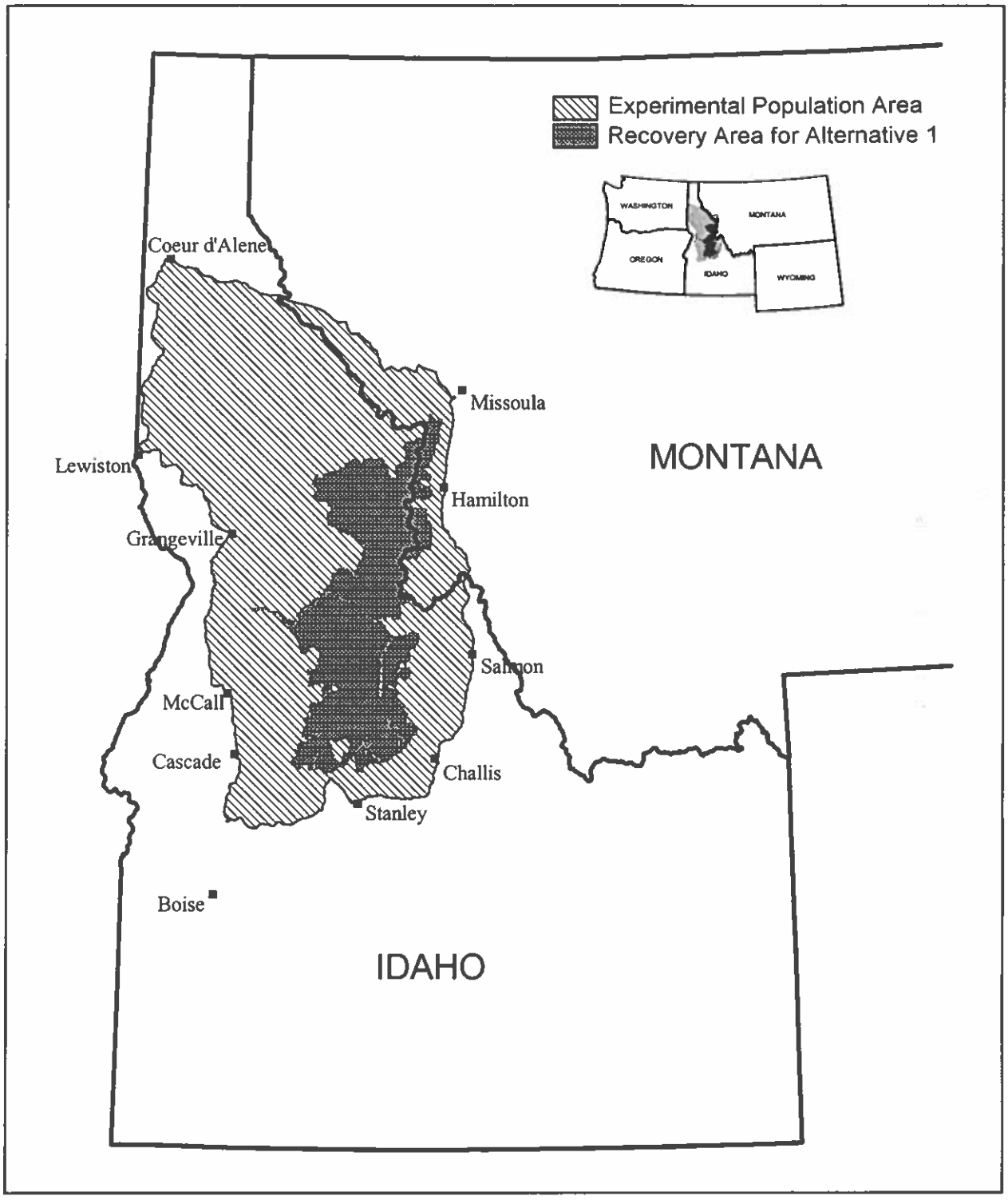


Figure 2-1. Bitterroot Grizzly Bear Experimental Population Area and Recovery Area for Alternative 1 - *Restoration of Grizzly Bears as a Nonessential Experimental Population with Citizen Management.*

recommended by the management agencies to the CMC. The recovery area would be identified as the area of recovery emphasis. This means grizzly bear management decisions in the recovery area would favor bear recovery, allowing the area to serve as core habitat for survival, reproduction, and dispersal of the recovering population. Bears moving outside the recovery area would be accommodated through management provisions in a Final Special Rule and through management plans and policies developed by the Citizen Management Committee, unless potential conflicts were significant and could not be corrected. The term "accommodate" means grizzly bears that move outside the recovery area onto public land in the experimental population area would not be disturbed unless they demonstrate a real and imminent threat to human safety or livestock.

People could continue to kill grizzly bears in self-defense or in defense of others, provided that such taking is reported within 24 hours to appropriate authorities. Grizzly bears would be managed according to grizzly bear guidelines except in the case of grizzly bears on private land who are killing livestock and could not be captured by management authorities. In such cases, landowners would be issued a permit by USFWS. Following issuance of a permit by the USFWS, the public would be allowed to harass, through non-injurious means, a grizzly bear attacking livestock (cattle, sheep, horses, and mules) or bees. A livestock owner may be issued a permit to kill a grizzly bear killing or pursuing livestock on private lands if it has not been possible to capture such a bear or deter depredations through agency efforts. If significant conflicts occurred between grizzly bears and livestock within the experimental population area, these could be resolved in favor of the livestock by agencies capturing or eliminating the bear depending on the circumstances. There would be no federal compensation program, but compensation from existing private funding sources would be encouraged. Animal control toxicants lethal to bears are not used on public lands within the recovery and experimental population areas. It is anticipated that ongoing animal damage control activities would not be affected by grizzlybear recovery. Any conflicts or mortalities associated with these activities would result in review by the CMC, and any necessary changes would be recommended by the CMC.

Implementation of this alternative would involve:

The following summary highlights the actions that would be implemented if Alternative 1 (Preferred Alternative) is selected:

-The *"ESA Final Special Rule for Establishment of a Nonessential Experimental Population of Grizzly Bears in the Bitterroot Area of Idaho and Montana"* would be finalized and published in the Federal Register. The Final Rule would be consistent with the changes indicated in this Final EIS. Implementation of actions described in this Final EIS will not occur until after the Special Rule is published in the Federal Register (see Appendix 13).

-The USFWS would designate much of central Idaho and part of western Montana (see description above) as the Bitterroot Grizzly Bear Experimental Population Area for grizzly bear recovery (Figure 2-1).

-The USFWS would designate the Bitterroot Grizzly Bear Recovery Area for recovery emphasis to consist of the Selway-Bitterroot Wilderness and the Frank Church-River of No Return Wilderness (Figure 2-1). If in the future, new wilderness areas are designated adjacent to the recovery area, the Citizen Management Committee could recommend their addition to the recovery area. This is the area where recovery would be emphasized. The term *recovery emphasis* means grizzly bear management decisions in the recovery area would favor bear recovery so that this area could serve as core habitat for survival, reproduction, and dispersal of the recovering population. The recovery area as defined in the proposed Special Rule and FEIS is different than a recovery zone as defined in the Grizzly Bear Recovery Plan (USFWS 1993, 1996). Bears would only be released in the Selway-Bitterroot Wilderness, unless the Citizen Management Committee determines that reintroduction in the River of No Return Wilderness is appropriate. Specific relocation sites would be recommended by the management agencies to the CMC.

-The USFWS would authorize a 15 member Citizen Management Committee (CMC) to be appointed by the Secretary of Interior in consultation with the governors of Idaho and Montana, and the Nez Perce Tribe. This committee would be authorized management implementation responsibility by the Secretary of Interior, in consultation with the governors of Idaho and Montana, for the Bitterroot grizzly bear nonessential experimental population. All decisions of the CMC must lead to recovery of the grizzly bear in the BE. The Committee must consult with scientists to ensure that scientific information is considered in its decision making.

Members would serve six-year terms and would consist of seven individuals appointed by the Secretary of Interior based on the recommendations of the governor of Idaho, five members appointed by the Secretary of Interior based on recommendations of the Governor of Montana, one member appointed by the Secretary based on the recommendation of the Nez Perce Tribe, one member representing the USDA Forest Service appointed by the Secretary of Agriculture or his/her designee, and one member representing the USFWS appointed by the Secretary of Interior or his/her designee. Members recommended by the Governors of Idaho and Montana would be based on recommendations of interested parties and would include at least one representative each from the appropriate state fish and wildlife agencies. If either governor failed to make recommendations, the Secretary would accept recommendations from interested parties. In their recommendations to the Secretary, the Governors of Idaho and Montana would attach written documentation of the qualifications of those nominated relating to their knowledge of and experience in a variety of natural resource issues and relating to their commitment to collaborative decision making.

The CMC is to consist of a cross-section of interests reflecting a balance of viewpoints, be selected for their diversity of knowledge and experience in natural resource issues, and for their commitment to collaborative decision making. Except for representatives from federal agencies, the CMC would be selected from communities within and adjacent to the recovery and experimental population areas. The CMC would continue until the recovery objectives were met and the Secretary of Interior completed delisting. Management authority

would then revert to the state wildlife agencies. The specific duties and responsibilities of the CMC would be described in the Final Special Rule. Specific details on how the CMC would make decisions are not included in this FEIS so as to maintain flexibility for the CMC to establish operational and decision-making processes after they are established.

-Two scientific advisors would be appointed by the Secretary to the CMC as non-voting members to attend all meetings of the CMC and to provide scientific expertise in support of CMC management recommendations. The Secretary would contact the Wildlife Society Chapters in Idaho and Montana and the Universities of Idaho and Montana for nominations of one wildlife scientist from each state, and would appoint them as advisors to the CMC

- CMC Mission Statement: "The mission of the CMC would be to facilitate recovery of the grizzly bear in the Bitterroot Ecosystem by assisting in implementing the Bitterroot Chapter of the Recovery Plan. Regarding the land and wildlife management agencies, the role of the CMC would be to make recommendations to them that the CMC thinks would lead to recovery of the grizzly bear. Decisions on, and implementation of these recommendations is the responsibility of the land and wildlife management agencies."

-CMC Operating Guidelines: "The Committee would meet a minimum of two times per year and meetings would be open to the public. Additionally, the committee would provide reasonable public notice of meetings, produce and provide written minutes of meetings to interested persons, and involve the public in its decision-making process. This public participation process would allow members of the public and/or special interest groups to have input to Committee decisions and management actions."

-The CMC would implement the Bitterroot chapter of the Grizzly Bear Recovery Plan (USFWS 1996) as consistent with the *"ESA Final Rule 10(j) Establishment of a Nonessential Experimental Population of Grizzly Bears in the Bitterroot Area of Idaho and Montana."* The Committee would develop recommendations on existing management plans and policies of land and wildlife management agencies, as necessary, for the management of grizzly bears in the experimental population area. The CMC could make recommendations to land and wildlife management agencies regarding changes to plans and policies, but the final decision on implementation of those recommendations would be made by those agencies. If the CMC recommendations would require significant changes to existing plans and policy, then the requirements of NEPA may apply. All decisions of the CMC must lead to recovery of the grizzly bear in the BE and minimize social and economic impacts to the extent practicable within the context of the existing recovery goals for the species. The CMC would be exempt from FACA (Federal Advisory Committee Act) because they would be implementing an approved recovery plan.

-The Secretary or the USFWS representative would review the plans and efforts of the CMC. If the Secretary determines, through the USFWS representative on the CMC, that the

decisions of the CMC, the management plans, or the implementation of those plans are not leading to the recovery of the grizzly bear within the experimental population area or are not in compliance with the Special Rule, the USFWS representative on the CMC would solicit from the CMC a determination whether the decision, the plan, or implementation of components of the plan are leading to recovery or why it believes it is in compliance with the Special Rule. Notwithstanding a determination by the CMC that a decision, plan, or implementation of a plan is leading to recovery of the grizzly bear within the experimental population area or is in compliance with the Special Rule, the Secretary, who necessarily retains final responsibility and authority for implementation of the Act, may find that the decision, plan, or implementation of a plan is inadequate for recovery or is not in compliance with the Special Rule, and may resume management responsibility.

The USFWS representative would consider CMC input before making any determination that CMC actions are not leading to recovery or why it believes it is in compliance with the Special Rule. In the event that the USFWS representative determines the actions of the CMC are not leading to recovery of the Bitterroot grizzly bear population or are not in compliance with the Special Rule, then the USFWS representative would recommend to the CMC, based on the best scientific and commercial data available, alternative or corrective actions and provide a 6-month time frame in which to accomplish those actions. Should the CMC reject those alternatives, the USFWS representative would convene a Scientific Review Panel of three and the USFWS representative would submit for peer review to the panel those CMC actions or decisions upon which the USFWS representative based his/her decision that the actions or decisions of the CMC are not leading to recovery or are at variance with this Special Rule. The USFWS representative would consider the views of all CMC members prior to making a recommendation on initiating a Scientific Review Panel.

Members of the panel would be professional scientists who have had no involvement with the CMC and would not be employed by Federal agencies responsible for grizzly bear recovery efforts. The Secretary would select one member of the panel, and the Governors of Idaho and Montana in consultation with the Universities of Idaho and Montana (respectively), are to select one panel member each. The Scientific Review Panel would review issues, solicit additional information if necessary, and using the best scientific and commercial data available, make timely recommendations to the CMC as to whether CMC actions, decisions, and/or processes are in compliance with the Special Rule and would lead to recovery of the grizzly bear in the Bitterroot Ecosystem. Examples of CMC actions or lack of actions, decisions, and/or processes that may be evaluated by the Scientific Review Panel include, but are not limited to: sufficiency of public involvement in CMC activities; specific decisions involving sanitation and outreach activities; management of nuisance bears; adequacy of recommendations to land and game management agencies; and adequacy of CMC actions in addressing issues such as excessive human-caused grizzly bear mortality, and other actions that are important in leading to recovery of the grizzly bear in the Bitterroot Ecosystem. The basis for the recommendations of the Scientific Review Panel would be CMC adherence to the Special Rule.

If, after timely review, the CMC rejects the recommendations of the Scientific Review Panel, and the USFWS representative determines the CMC actions are not leading to recovery of the Bitterroot population, he/she would notify the Secretary. The Secretary would consider the panel's recommendations, and if he/she nevertheless decides to resume lead management responsibility, he/she will seek consultation with the Governors of Idaho and Montana to review with them the reasons for his/her decision and further attempt to resolve the discrepancies between the suggested alternatives and the actions or decisions of the CMC. If, after that consultation, the Secretary resumes lead management responsibility, he/she would take appropriate actions to assure there is an adequate regulatory process relating to Department of Interior management of grizzly bears, and would publish a Notice in the Federal Register explaining the rationale for the determination and notify the Governors of Idaho and Montana. The CMC would disband and all requirements identified in the Special Rule regarding the CMC would be nullified. If the Secretary does not resume lead management responsibility, the CMC would continue until the recovery objectives have been met and the Secretary has completed delisting (Figure 2-2).

-Idaho Department of Fish and Game (IDFG) and/or the Nez Perce Tribe, Montana Department of Fish, Wildlife, and Parks (MDFWP), and the USDA Forest Service (USFS), in coordination with the USFWS, would exercise day-to-day management responsibility within the experimental population area while implementing the BE Grizzly Bear Recovery Plan Chapter, the Special Rule, and the policies and plans of the CMC. Day-to-day management responsibility involves handling of nuisance bears, answering questions from the public, managing human foods and garbage to minimize their availability to bears, and other such activities. The USFWS and these cooperating agencies would share management responsibility as per agreements with, and in consideration of, recommendations from the CMC.

-Grizzly bear recovery would be emphasized in the recovery area, but bears moving outside the recovery area would be accommodated through management provisions in the Special Rule and through management plans and policies developed by the CMC, unless potential conflicts were significant and could not be corrected. In this case, the CMC would develop strategies to discourage grizzly bear occupancy in portions of the experimental population area. The term *accommodate* means grizzly bears that move outside the recovery area onto public land in the experimental population area would not be disturbed unless they demonstrate a real and imminent threat to human safety or livestock.

-Unless the CMC determines otherwise, private lands outside the national forest boundary in the Bitterroot Valley (lands outside the Bitterroot Forest boundary south of U.S. Highway 12 to Lost Trail pass) are an area where any human/grizzly conflicts would be considered significant. Grizzly bear occupancy would be discouraged in these areas and grizzly bears would be captured and returned to the recovery area or destroyed depending on the history of each bear. If a grizzly bear enters this exclusion area, state and federal wildlife

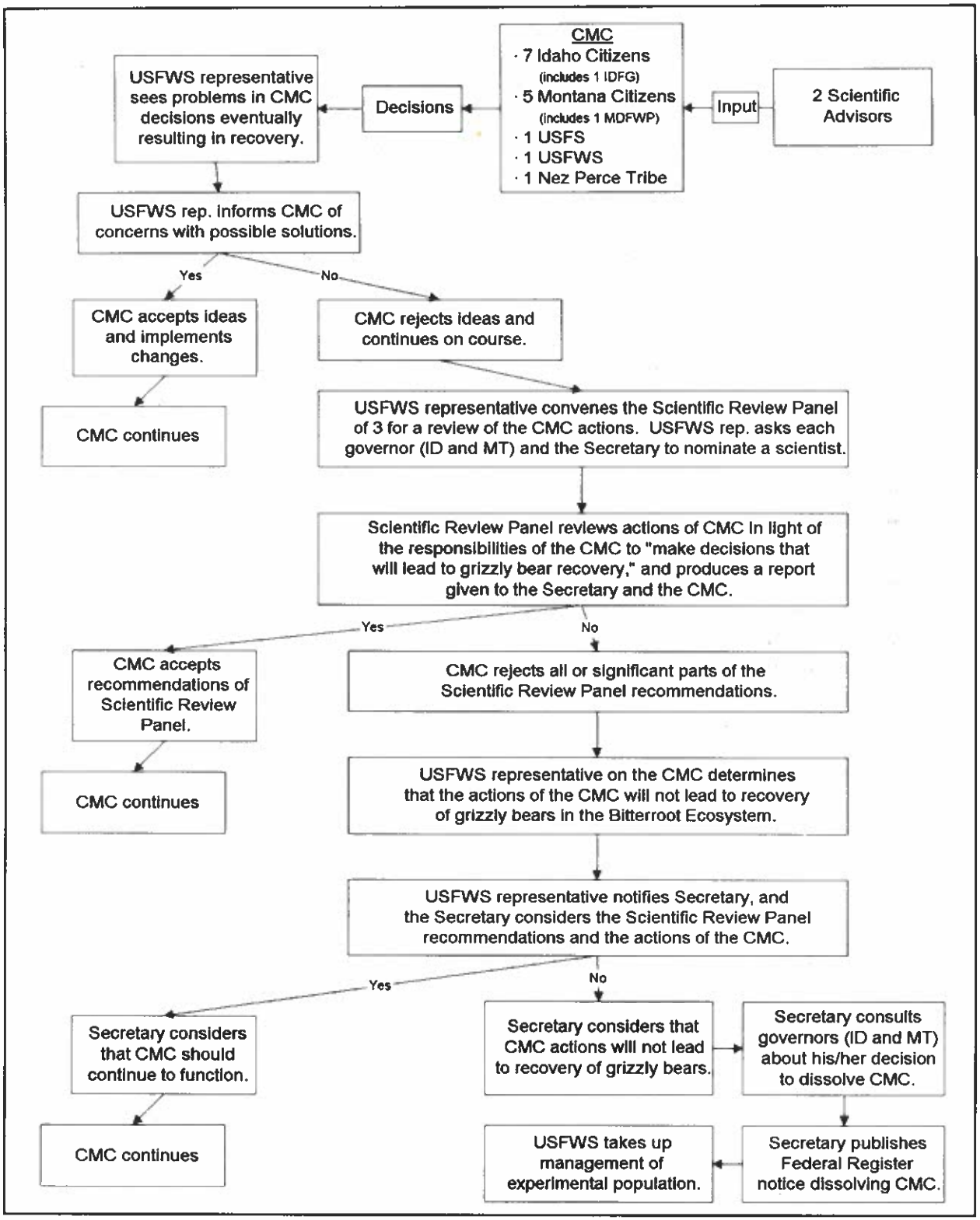


Figure 2-2. Scientific Review Panel process for the Citizen Management Committee (CMC).

management agencies would attempt to capture it and notify the public immediately of its presence. The public would be updated until the bear is caught. Further, any grizzly bear that occupies inhabited human settlement areas on private land within the experimental population area that in the judgement of the management agencies/CMC presents a clear threat to human safety or where there is indication that it may become habituated to humans, may be relocated by management agencies. This is to prevent conflicts and possible bear-human injury or the death of bears, and to promote and enhance public safety.

-Grizzly bear management would allow for resource extraction activities to continue without formal ESA Section 7 consultation, because under ESA Section 10(j)(c) nonessential experimental populations are treated under Section 7(a)(2) as "proposed" species, and thus federal agencies are not required to formally consult with USFWS on management actions. Federal agencies are only required to confer with USFWS on activities the agencies believe might jeopardize the existence of the species (see Appendix 12). The CMC would be responsible for recommending changes in land-use standards and guidelines in the BE as necessary for grizzly bear management.

-All ESA Section 9 "takings" provisions under the ESA for the nonessential experimental population of grizzly bears in the BE would be included in the Final Special Rule. People would continue to be allowed to take a grizzly bear in self-defense or defense of others, provided that such taking is reported within 24 hours to appropriate authorities. Livestock owners would be allowed to take a grizzly bear on private lands in the experimental population area to protect livestock actually pursued or being killed on private property, once a permit has been obtained, the response protocol established by the CMC has been satisfied, and efforts by the wildlife agency personnel to capture the depredating bear(s) have been unsuccessful.

-The USFWS would establish a tentative recovery goal of approximately 280 grizzly bears (bears distributed over approximately 5,785 mi^2 of designated wilderness and adjacent lands) occupying suitable habitat within the wilderness and adjacent lands (USFWS 1996). The CMC could recommend refined interim recovery goals and a final recovery goal for the Bitterroot Chapter of the Recovery Plan, based on the best available science, after grizzly bears were reintroduced and additional information was obtained on their use of the habitat. The recovery goal for the Bitterroot grizzly bear population would be consistent with habitat available within the recovery area. Additional adjacent areas of public land could be considered when setting the recovery goal if it is shown to be necessary by the best scientific and commercial data available. Any revised recovery goals developed by the CMC would require public review and USFWS formal approval as appropriate for any revision of any recovery plan. Grizzly bears outside the recovery area and within the experimental population area would contribute to meeting the recovery goal if there were reasonable certainty of their long-term occupancy in such habitats outside the recovery area.

-The CMC would base its decisions on the best scientific and commercial data available. The CMC would develop a process for obtaining the best biological, social, and economic data, which would include an explicit mechanism for peer-reviewed, scientific articles to be submitted to and considered by the CMC, as well as periodic public meetings (not less than every two years) in which qualified scientists could submit comments to and be questioned by the CMC. The two Scientific Advisors would lead this process. To increase public participation and input in their decision-making process, the CMC could consider holding periodic public hearings, or sponsor public surveys to gather public comments and opinions on management issues and concerns regarding the Bitterroot grizzly bear population.

-A minimum of 25 grizzly bears would be reintroduced into the recovery area over a period of 5 years, until a colony of bears has been established. The status of the recovery project would be reevaluated separately by the CMC and Secretary of Interior at 5-year intervals. Using the best scientific evidence available, and standards and criteria developed by the agencies and the CMC, the CMC would determine if bear reintroduction was successful after a period of at least 10 years. If based on these criteria and recommendations by the CMC, the Secretary after consultation with the CMC, states of Idaho and Montana and their fish and wildlife agencies, and the Nez Perce Tribe, concludes reintroduction has failed to produce a self-sustaining population, no more bears would be reintroduced. Any remaining bears would retain their experimental status. Prior to declaring the experimental reintroduction a failure, the USFWS would conduct an evaluation into the probable cause of the failure. If the causes can be determined, and legal and reasonable measures identified and implemented, the USFWS would consider continuing the recover effort and maintaining the relocated population.

The USFWS, USFS, states of Idaho and Montana, and Nez Perce Tribe in cooperation with the CMC would release a minimum of 25 grizzly bears into the recovery area over a period of 5 years. Procedures would include:

-The first "phase-in" year of implementation before grizzly bears are reintroduced would include an intense sanitation and public education campaign. The sanitation program would include efforts by the USFS, permittees, and private landowners in and around the recovery area. The Survey of Attractant Sites, Selway-Bitterroot Ecosystem (Appendix 22) which was conducted by Brown Bear Resources, Inc. would be utilized as a tool in addressing the areas where sanitation problems exist. Public education efforts would include: presentations at schools in and around the recovery area to teach children about grizzly bears and how to recreate safely in grizzly bear country; presentations to all civic clubs and interested organizations about grizzly bears and how to recreate safely in grizzly bear country; and placing of informative signs at all trail heads in and around the recovery area.

-Necessary federal permits, agreements, and archeological site clearances would be obtained and activities conducted for a scientifically based grizzly bear recovery program.

-Subadult grizzly bears of both sexes would be trapped each year for 5 years, from areas in Canada (in cooperation with Canadian authorities) and the United States that presently have healthy populations of grizzly bears living in habitats that are similar to those found in the Bitterroot Ecosystem. Three sources of grizzly bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population in northwest Montana, and the Yellowstone Ecosystem (YE) population. Under ESA Section 10(j), the Secretary of Interior may authorize the release of any population of an endangered or threatened species outside the current range of such species if the Secretary determines that the release will further the conservation of the species, and the population is wholly separate geographically from nonexperimental populations of the same species (see Appendix 12). The BE is geographically separate from existing grizzly bear populations (see Appendix 25). Specific numbers of bears that could be obtained yearly from potential source populations is unknown at this time, and would be predicated on the yearly achievement of recovery (YE and NCDE) and management (British Columbia) objectives.

-Some undetermined level of mortality is expected among transplanted bears. Every effort would be taken to minimize this, but mortalities are expected to occur. Any transplanted bears that died or were removed as a result of human action could be replaced. Such replacements would be in addition to the original minimum of 25 bears.

-Grizzly bears would be captured and reintroduced at the best time of year to optimize their survival. This would likely occur when grizzly bear food supplies in the BE are optimum.

-Each individual grizzly bear reintroduced would be radio collared and monitored to determine their movements and how they use their habitat, and to keep the public informed of general bear locations and recovery efforts.

For specific information on how a grizzly recovery program would be conducted, please see Appendix 6, "Scientific techniques for reintroduction of grizzly bears." Appendix 18 describes an expected time line to commence implementation of this alternative and the initial implementation-associated sanitation efforts to minimize conflicts.

How would the grizzly bear population respond to this alternative?

Grizzly bear population modeling efforts were recently completed for two interior southern populations for which habitat conditions appear similar to the BE (McLellan 1989, Eberhardt et al. 1994, Knight and Blanchard 1995, Hovey and McLellan 1996). Population growth rates of approximately 4% and 8% were reported for the Yellowstone and the North Fork of the Flathead River in Southeast British Columbia grizzly bear populations, respectively. The 4% growth rate was for the period of 1974-1992. Craighead et al. (1974) calculated a 2% rate of growth for the Yellowstone population for the period of 1959-1967. These three growth rates (2%, 4%, and 8%) were applied to an initial population having 15 female bears to illustrate potential population growth rates and to estimate anticipated time to recovered populations (Figure 2-3). Reproductive rates were

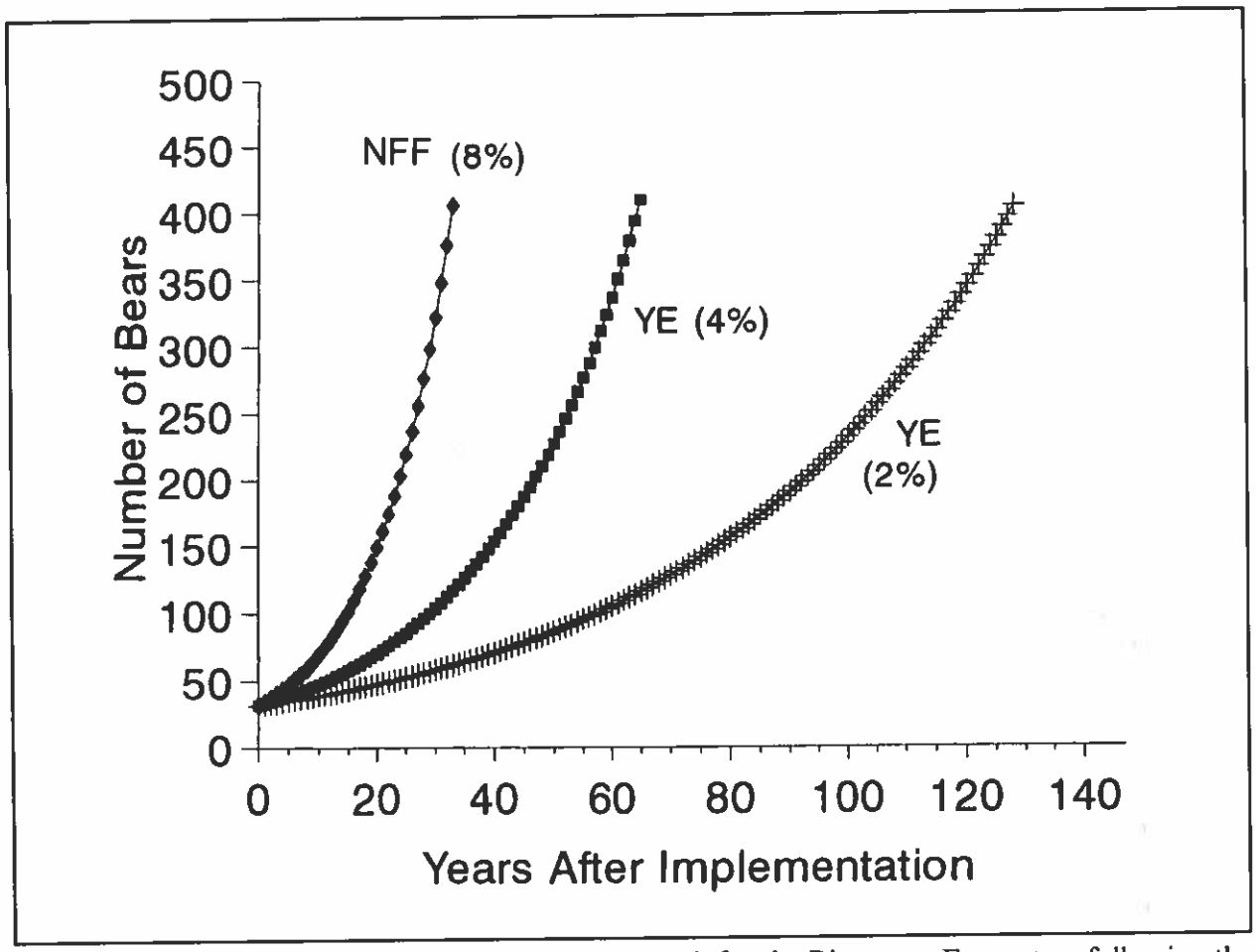


Figure 2-3. Projections of grizzly bear population growth for the Bitterroot Ecosystem following the initial 5-year implementation period. Population growth rates of approximately 2% and 4% were reported for the Yellowstone (YE), and 8% for the North Fork of the Flathead River (in southeast British Columbia) (NFF) grizzly populations. These rates are applied to an initial population having 15 female bears to illustrate potential population growth rates and to estimate anticipated time to recovered populations.

similar between studies, but survival rates were substantially different. Most notably, survival of subadult female bears was higher in the Flathead population and this produced much of the observed difference in growth rates. These scenarios were intended to provide a range of likely population projections following reintroduction, and are presented to depict how bear populations may optimally respond to implementation of this alternative. Bear populations may behave differently than projected, but these two data sets provide the best available information for modeling potential grizzly bear population growth in the BE. These models do not reflect internal population pressures (e.g., competition for food or space) that may reduce the rate of increase through reduced survival and reproduction. These effects could be expected to slow the rate of growth as the population fills the available habitat. These projections are completely dependent upon a majority of transplanted bears

remaining within the target area and reproducing at rates similar to bears in the Yellowstone or Flathead populations.

The tentative recovery goal of this alternative is approximately 280 grizzly bears (USFWS 1996). The population projections indicate that bear populations would require at least 110 years at a 2% growth rate, a minimum of 50 years at a 4% growth rate, and at least 30 years at an 8% growth rate to reach the tentative recovery level of approximately 280 bears (Figure 2-3). The USFWS has determined that the 8% growth rate is unrealistic for expected population growth in the BE. Realistically, grizzly bear recovery in the BE could take a minimum of 50 years, and given potential conflicts, could likely take more than 110 years. The three scenarios indicate that improving survivorship of young bears can dramatically affect population growth. If bear mortality can be reduced, recovery would occur decades sooner (Maguire and Servheen 1992).

How does this alternative address the major issues and concerns of the public?

1. *What will be the risk to human safety?*

To identify actual risk factors, it would be best to compare areas of similar habitat, human population and recreational activities, and grizzly bear densities, both projected for recovery and expected during the implementation phase. The Northern Continental Divide Ecosystem (NCDE), outside of Glacier National Park, has habitats similar to those in the northern portion of the BE, has grizzly bear population densities of about 1 bear per 20-30 square miles (similar to projected recovered grizzly bear densities for the BE), and has human recreation consisting of hiking, fishing, camping, horseback riding, and big game hunting. Glacier National Park annually receives approximately 2-3 million visitors, does not allow hunting, and has grizzly bear population densities estimated at about 1 bear per 8 square miles. The Yellowstone Ecosystem (YE) which is comprised of Yellowstone Park and surrounding National Forests, receives more visitation than Glacier Park and has an increasing grizzly bear population estimated at 1 bear per 30-50 square miles. Consequently, it would be more comparable to estimate risk to human safety based on habitat and bear densities that occur in the NCDE and YE outside of the national parks, because conditions in these areas most closely resemble those that would occur over time in the BE.

Within the NCDE (outside of Glacier National Park) there has been one bear-inflicted human mortality and one injury since 1950. The injury rate in the YE outside of Yellowstone Park has increased over the last two decades and averages about one injury per year outside the Park. Within the YE (outside Yellowstone Park) there have been three grizzly bear-inflicted human mortalities in the last 159 years.

Presently, the human population levels within and surrounding the NCDE and the YE are greater than those in the BE. Because more than 98% of the BE occurs on national forest lands, resident human populations will likely not increase substantially. However, visitation would likely increase over the recovery period, until saturation of recreation use has occurred, or wilderness managers limit use to reduce impacts. Presently, visitation to the Selway-Bitterroot and Frank Church-River of No Return Wilderness Areas is approximately 1% of that occurring in Glacier and Yellowstone Parks. It is likely

that human use of the national forest lands in central Idaho will increase within a few decades, but will likely never reach visitation levels presently occurring in or near Glacier or Yellowstone National Parks.

During the first several decades following reintroduction, the chance of injury caused by grizzly bears would be exceedingly small due to the low density of bears in the area. For instance, in the Cabinet-Yaak (CYE) and Selkirk (SE) ecosystems where there are low density recovering populations of grizzly bears, there have not been any recorded injuries in at least the last 20 years. Similar injury rates would be expected in the Bitterroot Ecosystem until bear and human densities increased beyond those presently occurring in the SE and CYE.

Under this alternative populations are estimated to achieve tentative recovery levels of approximately 280 bears in a minimum of 50 years, and likely more than 110 years. Using human injury rates in the NCDE and YE, and recognizing a net increase in human visitation, projections for human injury, once bears are recovered 50-110+ years in the future, are less than one injury per year and less than one grizzly bear-induced human mortality every few decades.

Under Interagency Grizzly Bear Committee (IGBC) guidelines (IGBC 1986), grizzly bears posing problems to camps, cabins, individuals and stock may be relocated or removed. Humans that act in self-defense or defense of others would be allowed to kill a grizzly bear. In addition, new technologies such as repellants, proper sanitation procedures, aversive conditioning, monitoring, and preemptive management, as well as educating humans how to react during an encounter would reduce chance of injuries. See Appendix 11 for more information on risks to human safety.

2. *What kind of land uses will be altered solely for grizzly bears?*
The CMC would review any potential impacts to land uses and assure that resource extraction activities would be maintained at levels consistent with grizzly bear recovery. Existing Forest Plan standards and guidelines, as amended, would be deemed adequate pending review by the CMC. It is anticipated that laws and regulations in the BE, in effect at the time of issuance of this FEIS, and governing land management activities would promote grizzly bear recovery.

It is expected that timber harvest is an activity that can be compatible with grizzly bear recovery as long as it meets the standards and guidelines of the USFS Forest Plans. Road density guidelines presently in effect in the Clearwater and Nez Perce National Forest Plans outside the wilderness areas are assumed to be adequate for grizzly bear recovery (see Appendix 10). If this alternative is implemented, the CMC would be tasked with making recommendations for changes to agency management plans. If CMC reviews of existing grizzly bear standards and guidelines utilized by the U.S. Forest Service and other agencies and landowners deem such standards and guidelines inadequate for recovery of grizzly bears in the BE, the Committee may recommend changes to the U.S. Forest Service and other agencies and landowners. The CMC could make recommendations to land and wildlife management agencies regarding changes to plans and policies, but the final decision on implementation of those recommendations would be made by those agencies, and the

requirements of NEPA could apply. Such management plans and policies would be in accordance with applicable state and federal laws.

Livestock grazing although presently either not occurring or at very low densities within the recovery area is not expected to be impacted. However, within the experimental boundaries, grazing does occur predominantly in the southern portion of the BE (Figure 3-8, Table 3-13). Consequently, at recovered grizzly population levels and current livestock stocking rates, impacts to livestock would be expected to be similar to levels occurring in portions of the NCDE and the YE. In 50-110+ years (the estimated time to recovery assuming 2-4% growth rates) grizzly bears would likely be present within the southern portion of the BE. Projections indicate that at a grizzly bear population level of 280 bears in the recovery area, yearly livestock losses to depredation by bears could range from 4-8 cattle and 5-44 sheep. Management activities would try to preempt livestock problems. The CMC would try to make all uses compatible with recovery. Based on what is currently known about bear behavior in the NCDE and YE, nuisance bear incidents would likely range between 0 and 74 per year at recovered population levels.

Recreation impacts in the form of permanent trail closures within the wilderness would likely not occur. Temporary closures of trails may occur in response to a dangerous situation that might result in human injury or bear mortality (e.g., grizzly on a carcass in a trail). However, even in Glacier National Park where bear and human densities are greater than would likely ever occur in the BE, less than 5% of the trails are temporarily closed at one time. Trails are rarely closed in the NCDE, outside of the park. In the NCDE where a minimum population of about 325 grizzly bears currently exists, only one trail was closed on national forest lands because of grizzly bears in the last 10 years. In the event trail use restrictions for public safety are necessary in response to a rare instance such as a grizzly bear feeding on a carrion source, such restrictions would be short-term. Policy changes on trail restrictions for human safety would be recommended by the CMC as necessary. Sanitation concerns in the BE would have to be addressed, such that backcountry users properly store food and garbage to reduce potential conflicts with bears (See Appendices 18 and 22).

Mineral extraction would likely not be altered due to grizzly bear concerns in and by themselves. Recommendations would be made by the CMC to reduce potential impacts if the need arises.

Impacts of grizzly bear restoration to big game populations would likely be insignificant. Studies from similar ecosystems with high densities of both bears and ungulates indicate that predation rates range from almost none to low levels of predation. In many locations, animal matter may not constitute a major annual diet item, but may be seasonally vital to bears (Mattson et al. 1991). An expected predation rate of 0.17-0.38% of the ungulate population in the area occupied by bears in the BE could occur. Using Mattson's (1997) estimate of 1.4 or 5.8 ungulates per year for adult female and male bears respectively, a population of 280 bears (USFWS 1996) would be expected to prey upon 504 ungulates per year across the BE. The loss of 504 ungulates to a recovered grizzly bear population would represent approximately eleven hundredths of one percent (0.11%) of estimated pre-harvest populations of ungulates in the PAA. Grizzly bear predation is not expected

to result in measurable or observable changes in ungulate populations. Potential long-term impacts to black bear population dynamics is unclear, but felt to be minimal. Overall impacts of a recovered population of grizzly bears on other wildlife populations are expected to be minimal. It should not be necessary to adjust hunting seasons to compensate for grizzly bear predation on other wildlife. In portions of Montana where hunting for big game species overlaps with grizzly bear habitat, there has been no need to change hunting seasons due to grizzly bear recovery programs. Any restrictions on black bear hunters or other hunting opportunities to reduce the likelihood of mistaken identity kills or to address other potential conflicts could be recommended by the CMC, but would have to be acceptable and implemented by the IDFG and MDFWP.

3. *How much will implementation cost?*

The present cost estimate for capturing a minimum of 25 grizzly bears, transplanting bears to the central Idaho recovery area, and monitoring and management of the grizzly bears over a 5-year period of reintroductions is $283,632 annually. The CMC would meet about 4-6 times annually during the early period of the project and less frequently later. CMC travel expenses and associated costs would amount to an estimated $15,000 dollars per year. An additional $5,000 would be required for the Science Advisors to the CMC. In addition to costs involved in the transplanting, monitoring, and management of bears, there is also a cost associated with sanitation, information and education, and law enforcement activities conducted by the USFS within the recovery area. This cost would be approximately $150,000 annually. Total annual cost for the 5-year reintroduction period would be approximately$433,632/year, and total 5-year implementation cost would be approximately $2,168,160 (Appendix 7). Annual costs for monitoring and citizen management would be approximately $193,000 for each year beyond the 5-year reintroduction period. The USFWS should be evaluate costs of recovery on an ongoing basis. The CMC would also be responsible for evaluating management costs and requesting additional funding to meet monitoring and management needs as required. See the economic analysis for Alternative 1 (Chapter 4) for an assessment of costs other than those associated with implementation.

4. How does this alternative address linkage zones?

Restoration of grizzly bears in the Bitterroot Ecosystem will increase concern about the possible linkage between existing areas with grizzly bears and the BE. The USFWS intends to complete a linkage zone analysis that will detail the possible linkage areas between the existing ecosystems, and between the BE and existing ecosystems. The linkage zone analysis is a Geographic Information System (GIS) computer modeling effort that looks at the levels of human impact and activity in the intervening areas between ecosystems and identifies the best linkage areas based on this human activity. This linkage zone analysis is a separate Grizzly Bear Recovery Plan Task and will be completed regardless of which FEIS alternative is selected for the BE. Maintenance of linkage zones is maintenance of the opportunity for grizzly bears and other wildlife species to move between the existing large blocks of public lands in order to maintain demographic and genetic health. A key factor in the maintenance of such linkage zones is the high-speed highways between these areas and how accommodations can and will be made to allow large animals such as bears the opportunity to cross these highways. In the long-term, the opportunity for bears to move between these ecosystems

will improve the health of these populations. In the near term, restoration of a grizzly bear population in the BE will require placement of bears rather than waiting for eventual dispersal into this area, which may never occur, due to the limited number of movements of bears outside of existing range to date. Data from more that 550 different radio-collared grizzly bears since 1975 shows no movement between any grizzly bear ecosystems.

Under Alternative 1, grizzly bears outside the recovery area but within the experimental population area boundaries would be accommodated or discouraged depending on conflict potential. Linkage zones to the BE would have to be considered from management of other ecosystems, because for reintroduction purposes, the nonessential experimental population designation under Section 10(j) of the ESA requires that the recovery area be totally separate from other grizzly bear populations.

5. *Are habitat quality and size of the recovery area sufficient for recovery?*
The recovery area is approximately 5,785 square miles. This is smaller than either the NCDE or the YE, but larger than the Selkirk or the Cabinet-Yaak ecosystems. However, the roadless, wilderness, and contiguous national forest lands within the recovery area, and adjacent public lands is approximately 15,000 square miles. Together these areas are of sufficient size to allow for grizzly bear recovery. The experimental population area boundary encompasses approximately 25,140 square miles.

Appendix 21B contains the results of a study contracted by the USFWS to an independent scientist in 1998 to estimate the number of grizzly bears that can be expected to be supported by the habitat in Bitterroot Ecosystem. The report, "The Application of Resource Selection Function Analysis to Estimate the Number of Grizzly Bears that Could be Supported by Habitats in the Bitterroot Ecosystem" (Appendix 21B), analyses the suitability of habitats in the Frank Church-River of No Return and Selway-Bitterroot Wilderness areas, and non-wilderness public lands to the north, and through modeling produces an estimate of the number of grizzly bears that can be expected to be supported by the habitat in these areas. The report estimates that at full carrying capacity, between 234-247 grizzly bears could be expected to live in the Selway-Bitterroot and the Frank Church-River of No Return Wilderness areas, and an additional 74 grizzly bears could be expected to live in the public lands north of the Selway-Bitterroot Wilderness in the upper North Fork of the Clearwater River drainage in Idaho. It is estimated that it would take at least 80-100 years for the population to reach this full carrying capacity number if 25 bears were reintroduced.

Habitat quality has been studied extensively. A number of different studies have been conducted within the BE that have direct applicability to the potential for grizzly bear recovery (see Appendix 3). Habitat quality varies throughout the experimental population area, and likewise throughout the recovery area. At one time grizzly bears were present in high densities throughout the BE. Salmon and whitebark pine (Pinus albicaulis), two important grizzly bear foods, were common during the peak of grizzly bear populations. Salmon have been virtually eliminated along the Clearwater drainage due to dams that have blocked their migration. Whitebark pine has been reduced to about 20%-40% of its historical abundance in the BE, and now is most prevalent in the southern half of the

ecosystem. This species is expected to decline to approximately 5-10% of its historic abundance level before increasing again (Keene and Arno 1996).

However, studies indicate that a great variety of preferred grizzly bear foods are present in the ecosystem. A wide variety of all season foods are present including good quantities of several key berry species, forbs and grasses, as well as historically high levels of ungulates to provide carrion during the fall and spring months. Food habits of black bears are quite similar to those of grizzly bears. Healthy populations of black bears live within the primary analysis area (PAA, see Figure 3-1), and annual hunter harvest totals about 1,000. Grizzly bears relocated to the BE would likely come from areas where neither salmon nor whitebark pine are plentiful. A recovered population of 280 grizzly bears should be able to find sufficient high quality forage within and adjacent to the recovery area. Although bear densities may not recover to their historical levels during the peak of the salmon and whitebark pine era, the population should achieve densities similar to those found in other interior ecosystems where those food sources are not present. The key to recovery in the BE would likely be due to effective management including limitation of human-caused mortality rather than quantity or quality of habitat.

A recent vegetation-based inventory and analysis of grizzly bear habitat in the Bitterroot Ecosystem was completed by the Craighead Wildlife-Wildlands Institute. Appendix 21D, "Synopsis of Portions of, and Excerpts from the Report, '*Abundance and Spatial Distribution of Grizzly Plant-Food Groups in the Salmon-Selway Ecosystem: A Preliminary Analysis and Report*' (Hogg, Weaver, and Craighead et al. 1999)" presents detailed habitat maps showing the distribution and abundance of major grizzly bear foods. The USFWS examined the Hogg, Weaver, Craighead et al. (1999) data and selected whitebark pine nuts and several berry producing shrubs for quantification because they provide a major contribution to annual energy demands for bears (Interagency Grizzly Bear Committee 1987). In summary, results of Hogg, Weaver, Craighead et al. (1999) indicate bear foods in the form of berries generally decline moving from north to south through the Bitterroot area. Significant berry distribution occurs north of the Selway-Bitterroot Wilderness area in the North Fork of the Clearwater River drainage and throughout much of the Lochsa and Selway River drainages. Berry-producing species generally decline to the south, particularly species of huckleberry other than grouse whortleberry. Grouse whortleberry could potentially provide a significant seasonal food source in some years. Whitebark pine and associated nut crops tend to follow the opposite pattern with greater distributions south of the Salmon River and a general decline through the northern portions of the Bitterroot Ecosystem. For further information, see Chapter 3 "*Current Research on Grizzly Bear Habitat Suitability in the Bitterroot Ecosystem,*" and Appendix 21D. See Chapter 3, "Habitat Suitability" section and Appendix 21 for more information.

6. *How will grizzly bears and their habitat be managed?*

Under this alternative, the Citizen Management Committee would be authorized management implementation responsibility by the Secretary of Interior, in consultation with the governors of Idaho and Montana and the Nez Perce Tribe, for the Bitterroot grizzly bear experimental population. The CMC would implement the Bitterroot Chapter of the Grizzly Bear Recovery Plan (USFWS 1996).

The CMC would develop management plans and policies, as necessary, for the management of grizzly bears in the experimental population area. Specific details on how the CMC would make decisions are not included in the FEIS, so as to maintain flexibility for the CMC to establish operational and decision-making processes once they are formed. IDFG and/or the Nez Perce Tribe, MDFWP, and USFS in consultation with the USFWS would exercise day-to-day management responsibility within the experimental population area in accordance with the Final Special Rule and the BE Recovery Plan Chapter (USFWS 1996).

Habitat would continue to be managed by the land management agencies. The USFS would still conduct its management under the guidelines of the respective Forest Plans and applicable environmental laws. State land managers and private land owners would not lose any of their management authority. The CMC would only make recommendations to these agencies.

Grizzly bears would be restored as a nonessential experimental population under Section 10(j) of the ESA, which would allow increased management flexibility. Experimental populations must be designated either "essential" or "nonessential" (Appendix 12). "Essential" refers to a reintroduced population whose loss would be likely to reduce the likelihood of the survival of the species in the wild. Essential populations receive the full protection of Section 7 of the ESA, meaning that federal agencies must formally consult with the USFWS on actions that may affect the species. "Nonessential" refers to an experimental population whose loss would not be likely to appreciably reduce the likelihood of the survival of the species in the wild. Because nonessential populations are treated under Section 7 as "proposed species", federal agencies must only confer with the USFWS on activities that the agencies believe might jeopardize the species.

7. *Where will grizzly bears be obtained, reintroduced, and recovered?*

Grizzly bears obtained for reintroduction purposes would likely originate in the U. S. and Canada where current grizzly bear populations are healthy enough to sustain removal of a few bears per year over a 5-year period. Only bears with no history of conflict with humans and livestock, and most likely subadults, would be reintroduced. Grizzly bears determined to be "nuisance" under IGBC Nuisance Bear Guidelines would not be reintroduced to the BE. The donor population should come from habitat as similar as possible to that found in the BE. Three sources of bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) in northwest Montana, and the Yellowstone Ecosystem (YE) population.

No female bears would be removed from YE or NCDE recovery zones or from within the buffer area 10 miles outside the recovery zone boundaries. No bears would be removed from either U.S. ecosystem if such removal would exceed mortality limits. If the NCDE or YE populations exceed existing mortality limits in any year, then the placement of grizzly bears to the BE from these ecosystems would be suspended for the following year. This would not preclude the movement of bears from Canada. However, as 5 bears may not be available from Canada in a given year, this may extend the time period for reintroduction. Further, the actual capture of the necessary bears is dependent upon access to areas with such bears, and significant effort by capture crews. Capture of

desired bears is not assured, even with intensive effort. It may require more than 5 years to obtain the desired minimum of 25 bears to initiate a new population in the BE. This should be made clear to the public and to cooperating agencies at the outset.

There would be no significant detrimental effects to the health of source populations because mortality limits in the Grizzly Bear Recovery Plan (USFWS 1993) and British Columbia grizzly bear management criteria (B.C. Min. Environ., Lands, and Parks 1995) would be met during implementation of this alternative. Further, since no bears would be removed from the YE or NCDE if the mortality limits would be exceeded, and no female bears would be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE would be nonexistent.

Grizzly bears would be reintroduced into the Selway-Bitterroot Wilderness Area. Reintroduction sites that have high quality bear habitat and low likelihood of human encounters would be identified. Bears would be placed close enough to each other to create a "colony" or population of bears, providing a basis from which to expand in numbers. Appendix 18 describes the expected time line and tentative geographic areas proposed to commence implementation of this alternative.

The recovery area includes both the Selway-Bitterroot Wilderness and the Frank Church-River of No Return Wilderness. This is the area where bear recovery would be emphasized. This means grizzly bear management decisions in the recovery area would favor bear recovery so that this area could serve as core habitat for survival, reproduction, and dispersal of the recovering population. However, much of the experimental population area has high-quality bear habitat with low likelihood of conflicts between grizzly bears and humans. Therefore, bears that move outside the recovery area onto public land in the experimental area would be accommodated and would not be moved unless they demonstrate a real and imminent threat to human safety or livestock, and such threats could not otherwise be minimized. Bears found outside the recovery area but within the experimental population area boundaries would be counted as part of the recovery goal, if there was reasonable certainty for their long-term occupancy of such areas outside the recovery area. Bears found outside the experimental population area boundaries are a fully threatened species, not experimental bears.

Unless the CMC determines otherwise, private lands outside the national forest boundary in the Bitterroot Valley (private lands lying within the experimental population area and outside the Bitterroot Forest boundary south of U.S. Highway 12 to Lost Trail Pass) would be an area where any human/grizzly bear conflicts would be considered significant. Grizzly bear occupancy would be discouraged in these areas and grizzly bears would be captured, destroyed, or returned to the recovery area. Further, any grizzly bear that occupies inhabited human settlement areas on private land within the experimental population area that in the judgement of the management agencies/CMC presents a clear threat to human safety or where there is indication that it may become habituated to humans, could be relocated by management agencies in cooperation with the landowner if a suitable relocation site is available. This is to prevent conflicts and possible bear-human injury or the death of bears, and to promote and enhance public safety.

ALTERNATIVE 1A. RESTORATION OF GRIZZLY BEARS AS A NONESSENTIAL EXPERIMENTAL POPULATION WITH USFWS MANAGEMENT

Background

The designation "experimental population" had its origin in a 1982 amendment to the Endangered Species Act (ESA), which created Section 10(j). Section 10(j) provided for reintroduction of experimental populations under special regulations. Before that, the USFWS had authority to introduce threatened and endangered species into unoccupied historic range, but attempts to do so were often met with resistance. One reason for that resistance was the USFWS could not assure private landowners, other federal agencies, and state and local governments that the transplanted population would not disrupt future land management options. "Experimental population" designation gives the USFWS more flexibility because such populations can be treated as "a species proposed to be listed" or "threatened" rather than "endangered" (see Appendix 12). Congress provided the amendment to make more reintroductions possible, by allowing more management flexibility, if necessary, where such management is consistent with conservation of the experimental population. If a reintroduced population of grizzly bears is designated "experimental" and "nonessential" (refers to an experimental population whose loss would not likely reduce the survival of the species in the wild) under the ESA amendment, other federal agencies are required only to confer with USFWS on federal activities that are likely to jeopardize the species. Management of a nonessential experimental population can thus be tailored to specific areas and specific local conditions, including meeting concerns of those opposed to reintroduction. The experimental population rule has been successfully used to reintroduce black-footed ferrets to Wyoming, South Dakota, Montana, and Arizona, and gray wolves to Yellowstone National Park and central Idaho.

Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Management Alternative.—The purpose of this alternative is to accomplish grizzly bear recovery by restoring grizzly bears designated as a nonessential experimental population to central Idaho and implementing provisions within Section 10(j) of the ESA to conduct special management to address local concerns. The USFWS would have management of the Bitterroot grizzly bear experimental population. The states and tribes would be encouraged to implement the Special Rules for grizzly bear management under cooperative agreement with the USFWS.

Summary

The Bitterroot Grizzly Bear Experimental Population Area (experimental population area), which includes most of central Idaho and part of western Montana (Figure 2-4), would be established by the USFWS under authority of Section 10(j) of the ESA. This would include the area bounded by U.S. Highway 93 from its junction with the Bitterroot River near Missoula, Montana, to Challis, Idaho; Idaho Highway 75 from Challis to Stanley, Idaho; Idaho Highway 21 from Stanley to Lowman, Idaho; Idaho Highway 17 from Lowman to Banks, Idaho; Idaho Highway 55 from Banks to New Meadows, Idaho; U.S. Highway 95 from New Meadows to Coeur d'Alene, Idaho; and Interstate 90 from Coeur d'Alene, Idaho, to its junction with the Clark Fork River near St. Regis,

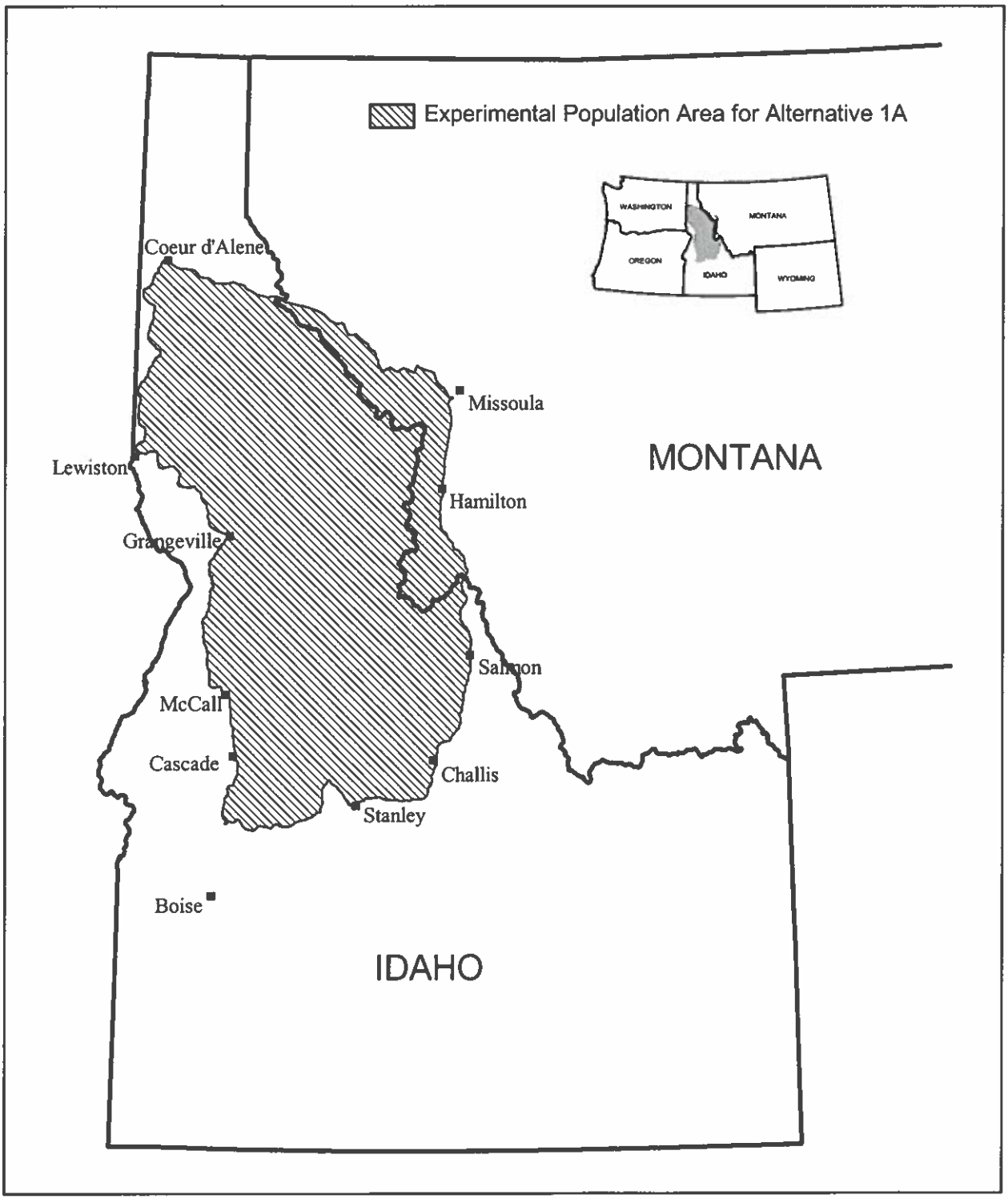


Figure 2-4. Bitterroot Grizzly Bear Experimental Population Area for Alternative 1A - *Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Management.*

Montana; and the Clark Fork River from its junction with Interstate 90 near St. Regis, to its confluence with the Bitterroot River near Missoula, Montana; and the Bitterroot River from its confluence with the Clark Fork River to its junction with U.S. Highway 93, near Missoula, Montana. Montana. The experimental population area encompasses approximately 25,140 square miles (Figure 2-4). The USFWS would not designate a recovery area.

The best scientific evidence available indicates there are no grizzly bears in the experimental population area at this time (USFWS 1996). Ongoing grizzly bear monitoring efforts would continue. The first year of implementation would be a "phase-in" year where sanitation equipment would be installed in key areas, and information and education outreach programs would be initiated. Grizzly bears would be restored into the Selway-Bitterroot Wilderness portion of the experimental population area during the second year of implementation. Specific reintroduction sites would be recommended by the management agencies to the USFWS. Experimental grizzly bears moving outside the experimental population area would be captured and placed back inside the experimental area.

Grizzly bear management would allow for resource extraction activities to continue without formal Section 7 consultation under Section 7(a)(2) of the ESA. The USFWS would be responsible for recommending changes in land-use standards and guidelines as necessary for grizzly bear management. People could continue to kill grizzly bears in self-defense or in defense of others, provided that such taking is reported within 24 hours to appropriate authorities. Following issuance of a permit by the USFWS, the public would be allowed to harass, through non-injurious means, a grizzly bear attacking livestock (cattle, sheep, horses, and mules) or bees. A livestock owner may be issued a permit to kill a grizzly bear killing or pursuing livestock on private lands if it has not been possible to capture such a bear or deter depredations through agency efforts. If significant conflicts occurred between grizzly bears and livestock within the experimental population area, these could be resolved in favor of the livestock by agencies capturing or eliminating the bear depending on the circumstances. There would be no federal compensation program, but compensation from existing private funding sources would be encouraged. Animal control toxicants lethal to bears are not used on public lands within the recovery and experimental population areas. It is anticipated that ongoing animal damage control activities would not be affected by grizzly bear recovery. Any conflicts or mortalities associated with these activities would result in review by the USFWS and any necessary changes would be recommended by the USFWS.

Implementation of this alternative would involve:

The following summary highlights the actions that would be implemented if Alternative 1A is selected:

-The USFWS would develop a nonessential experimental population rule (Special Rule) under Section 10(j) of the ESA, and publish it in the Federal Register.

-The USFWS would designate much of central Idaho and part of western Montana (see description above) as the Bitterroot Grizzly Bear Experimental Population Area for grizzly bear restoration (Figure 2-4). Bears would only be released in the Selway-Bitterroot Wilderness, unless the USFWS determines that release in the River of No Return Wilderness is appropriate. Specific relocation sites would be recommended by the management agencies to the USFWS.

-The USFWS would implement the Bitterroot chapter of the Grizzly Bear Recovery Plan (USFWS 1996). The USFWS would develop management plans and policies, as necessary, for management of grizzly bears in the experimental population area.

-The Idaho Department of Fish and Game (IDFG) and/or the Nez Perce Tribe, Montana Department of Fish, Wildlife, and Parks (MDFWP), and the USDA Forest Service (USFS), in cooperation with the USFWS, would exercise day-to-day management responsibility within the experimental population area while implementing the BE Grizzly Bear Recovery Plan Chapter. Day-to-day management responsibility involves handling of nuisance bears, answering questions from the public, managing human foods and garbage to minimize their availability to bears, and other such activities.

-Grizzly bear recovery would be emphasized in designated wilderness areas, but bears moving outside wilderness areas into the experimental population area would be managed through provisions in a Special Rule and through management plans and policies developed by the USFWS, unless potential conflicts were significant and could not be corrected, in which case the USFWS would develop strategies to discourage grizzly bear occupancy in portions of the experimental population area.

-Private lands outside the national forest boundary in the Bitterroot Valley (lands outside the Bitterroot Forest boundary south of U.S. Highway 12 to Lost Trail pass) are an area where any human/grizzly conflicts would be considered significant. Grizzly bear occupancy would be discouraged in these areas and grizzly bears would be captured and returned to the recovery area or destroyed depending on the history of each individual bear. If a grizzly bear enters the exclusion area, state and federal wildlife management agencies would attempt to capture it and notify the public immediately of its presence. The public would be updated until the bear is caught. Further, any grizzly bear that occupies inhabited human settlement areas on private land within the experimental population area that in the judgement of the management agencies presents a clear threat to human safety or where there is indication that it may become habituated to humans, may be relocated by management agencies. This is to prevent conflicts and possible bear-human injury or the death of bears, and to promote and enhance public safety.

-Grizzly bear management would allow for resource extraction activities to continue without formal Section 7 consultation, because under ESA Section 10(j)(c) nonessential experimental populations are treated under Section 7(a)(2) as "proposed" species, and thus federal agencies are not required to formally consult with USFWS on management actions. Federal agencies are only required to confer with USFWS on activities the agencies believe might jeopardize the existence of the species (see Appendix 12).

-All Section 9 "takings" provisions under the ESA for the nonessential experimental population of grizzly bears in the BE would be included in a Special Rule. The USFWS

would be responsible for recommending changes in land-use standards and guidelines in the BE as necessary for grizzly bear management. People would continue to be allowed to take a grizzly bear in self-defense or defense of others, provided that such taking is reported within 24 hours to appropriate authorities. Livestock owners would be allowed to take a grizzly bear once a permit has been obtained, the response protocol established by the USFWS has been satisfied, and efforts by the wildlife agency personnel to capture depredating bears have been unsuccessful.

-The USFWS would establish a tentative recovery goal of approximately 280 grizzly bears occupying suitable habitat within the wilderness and adjacent lands (USFWS 1996). The USFWS could recommend a refined recovery goal based on scientific information once grizzly bears were reintroduced and additional information was obtained on their use of the habitat. The recovery goal for the Bitterroot grizzly bear population would be consistent with habitat available within the wilderness and adjacent lands within the experimental population area and the best scientific and commercial data available. Any revised recovery goals developed by the USFWS would require public review appropriate for the revision of a recovery plan.

-A minimum of 25 grizzly bears would be reintroduced into the Selway-Bitterroot Wilderness portion of the experimental population area over a period of 5 years, until a colony of bears is established.

The USFWS, USFS, states of Idaho and Montana, and Nez Perce Tribe would release a minimum of 25 grizzly bears into the experimental population area over a period of 5 years. Procedures would include:

-The first "phase-in" year of implementation before grizzly bears are reintroduced would include an intense sanitation and public education campaign. The sanitation program would include efforts by the USFS, permittees, and private landowners in and around the experimental population area. The Survey of Attractant Sites, Selway-Bitterroot Ecosystem (Appendix 22) which was conducted by Brown Bear Resources, Inc. would be utilized as a tool in addressing the areas where sanitation problems exist. Public education efforts would include: presentations at schools in and around the experimental population area to teach children about grizzly bears and how to recreate safely in grizzly bear country; presentations to all civic clubs and interested organizations about grizzly bears and how to recreate safely in grizzly bear country; and placing of informative signs at all trail heads in and around the experimental population area.

-Necessary federal permits, agreements, and archeological site clearances would be obtained and activities conducted for a scientifically based grizzly bear reintroduction program.

-Subadult grizzly bears of both sexes would be trapped each year for 5 years, from areas in Canada (in cooperation with Canadian authorities) and the United States that presently have healthy populations of grizzly bears living in habitats that are similar to those found in the Bitterroot Ecosystem. Three sources of grizzly bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population in northwest Montana, and the Yellowstone Ecosystem (YE) population. Under ESA Section 10(j), the Secretary of Interior may authorize the release of any population of an endangered or threatened species outside the current range of such species if the Secretary determines that the release will further the conservation of the species, and the population is wholly separate geographically from nonexperimental populations of the same species (see Appendix 12). Specific numbers of bears that could be obtained yearly from potential source populations is unknown at this time, and would be predicated on the yearly achievement of recovery (YE and NCDE) and management (British Columbia) objectives.

-Some undetermined level of mortality is expected among transplanted bears. Every effort would be taken to minimize this, but mortalities are expected to occur. Any transplanted bears that died or were removed as a result of human action could be replaced. Such replacements would be in addition to the original minimum of 25 bears.

-Grizzly bears would be captured and reintroduced at the best time of year to optimize their survival. This would likely occur when grizzly bear food supplies in the BE are optimum.

-Each individual grizzly bear reintroduced would be radio collared and monitored to determine their movements and how they use their habitat, and to keep the public informed of general bear locations and recovery efforts.

For specific information on how a grizzly recovery program would be conducted, please see Appendix 6, "Scientific techniques for reintroduction of grizzly bears".

How would the grizzly bear population respond to this alternative?

Grizzly bear population modeling efforts were recently completed for two interior southern populations for which habitat conditions appear similar to the BE (McLellan 1989, Eberhardt et al. 1994, Knight and Blanchard 1995, Hovey and McLellan 1996). Population growth rates of approximately 4% and 8% were reported for the Yellowstone and the North Fork of the Flathead River in Southeast British Columbia grizzly bear populations, respectively. The 4% growth rate was for the period of 1974-1992. Craighead et al. (1974) calculated a 2% rate of growth for the Yellowstone population for the period of 1959-1967. These three growth rates (2%, 4%, and 8%) were applied to an initial population having 15 female bears to illustrate potential population growth rates and to estimate anticipated time to recovered populations (Figure 2-3). Reproductive rates were similar between studies, but survival rates were substantially different. Most notably, survival of subadult female bears was higher in the Flathead population and this produced much of the observed difference in growth rates. These scenarios were intended to provide a range of likely population

projections following reintroduction, and are presented to depict how bear populations may optimally respond to implementation of this alternative. Bear populations may behave differently than projected, but these two data sets provide the best available information for modeling potential grizzly bear population growth in the BE. These models do not reflect internal population pressures (e.g., competition for food or space) that may reduce the rate of increase through reduced survival and reproduction. These effects could be expected to slow the rate of growth as the population fills the available habitat. These projections are completely dependent upon a majority of transplanted bears remaining within the target area and reproducing at rates similar to bears in the Yellowstone or Flathead populations.

The tentative recovery goal of this alternative is approximately 280 grizzly bears (USFWS 1996). The population projections indicate that bear populations would require at least 110 years at a 2% growth rate, a minimum of 50 years at a 4% growth rate, and at least 30 years at an 8% growth rate to reach the tentative recovery level of approximately 280 bears (Figure 2-3). The USFWS has determined that the 8% growth rate is unrealistic for expected population growth in the BE. Realistically, grizzly bear recovery in the BE could take a minimum of 50 years, and given potential conflicts, could likely take more than 110 years. The three scenarios indicate that improving survivorship of young bears can dramatically affect population growth. If bear mortality can be reduced, recovery would occur decades sooner (Maguire and Servheen 1992).

How does this alternative address the major issues and concerns of the public?

1. *What will be the risk to human safety?*

To identify actual risk factors, it would be best to compare areas of similar habitat, human population and recreational activities, and grizzly bear densities, both projected for recovery and expected during the implementation phase. The Northern Continental Divide Ecosystem (NCDE), outside of Glacier National Park, has habitats similar to those in the northern portion of the BE, has grizzly bear population densities of about 1 bear per 20-30 square miles (similar to projected recovered grizzly bear densities for the BE), and has human recreation consisting of hiking, fishing, camping, horseback riding, and big game hunting. Glacier National Park annually receives approximately 2-3 million visitors, does not allow hunting, and has grizzly bear population densities estimated at about 1 bear per 8 square miles. The Yellowstone Ecosystem (YE) which is comprised of Yellowstone Park and surrounding National Forests, receives more visitation than Glacier Park and has an increasing grizzly bear population estimated at 1 bear per 30-50 square miles. Consequently, it would be more comparable to estimate risk to human safety based on habitat and bear densities that occur in the NCDE and YE outside of the national parks, because conditions in these areas most closely resemble those that would occur over time in the BE.

Within the NCDE (outside of Glacier National Park) there has been one bear-inflicted human mortality and one injury since 1950. The injury rate in the YE outside of Yellowstone Park has increased over the last two decades and averages about one injury per year outside the Park. Within the YE (outside Yellowstone Park) there have been three grizzly bear-inflicted human mortalities in the last 159 years.

Presently, the human population levels within and surrounding the NCDE and the YE are greater than those in the BE. Because more than 98% of the BE occurs on national forest lands, resident human populations will likely not increase substantially. However, visitation would likely increase over the recovery period, until saturation of recreation use has occurred, or wilderness managers limit use to reduce impacts. Presently, visitation to the Selway-Bitterroot and Frank Church-River of No Return Wilderness Areas is approximately 1% of that occurring in Glacier and Yellowstone Parks. It is likely that human use of the national forest lands in central Idaho will increase within a few decades, but will likely never reach visitation levels presently occurring in or near Glacier or Yellowstone National Parks.

During the first several decades following reintroduction, the chance of injury caused by grizzly bears would be exceedingly small due to the low density of bears in the area. For instance, in the Cabinet-Yaak (CYE) and Selkirk (SE) ecosystems where there are low density recovering populations of grizzly bears, there have not been any recorded injuries in at least the last 20 years. Similar injury rates would be expected in the Bitterroot Ecosystem until bear and human densities increased beyond those presently occurring in the SE and CYE.

Under this alternative populations are estimated to achieve tentative recovery levels of approximately 280 bears in a minimum of 50 years, and likely more than 110 years. Using human injury rates in the NCDE and YE, and recognizing a net increase in human visitation, projections for human injury, once bears are recovered 50-110+ years in the future, are less than one injury per year and less than one grizzly bear-induced human mortality every few decades.

Under Interagency Grizzly Bear Committee (IGBC) guidelines (IGBC 1986), grizzly bears posing problems to camps, cabins, individuals and stock may be relocated or removed. Humans that act in self-defense or defense of others would be allowed to kill a grizzly bear. In addition, new technologies such as repellants, proper sanitation procedures, aversive conditioning, monitoring, and preemptive management, as well as educating humans how to react during an encounter would reduce chance of injuries. See Appendix 11 for more information on risks to human safety.

2. *What kind of land uses will be altered solely for grizzly bears?*
The USFWS would review any potential impacts to land uses and assure that resource extraction activities would be maintained at levels consistent with grizzly bear recovery. Existing Forest Plan standards and guidelines in the BE, as amended, would be deemed adequate pending review by the USFWS. It is anticipated that laws and regulations, in effect at the time of issuance of the FEIS, and governing land management activities would promote grizzly bear recovery.

It is expected that timber harvest is an activity that can be compatible with grizzly bear recovery as long as it meets the standards and guidelines of the USFS Forest Plans. Road density guidelines presently in effect in the Clearwater and Nez Perce National Forest Plans outside the wilderness areas are assumed to be adequate for grizzly bear recovery (see Appendix 10). If this alternative is implemented, a Special Rule would govern recommended changes to Forest Plan standards and

guidelines as per direction of the USFWS. Changes to the Forest Plans should have to be reviewed by the USFWS and agency biologists to determine potential impacts.

Livestock grazing although presently either not occurring or at very low densities within the Selway Bitterroot and Frank Church Wilderness Areas is not expected to be impacted. However, within the experimental boundaries, grazing does occur predominantly in the southern portion of the BE (Figure 3-8, Table 3-13). Consequently, at recovered grizzly population levels and current livestock stocking rates, impacts to livestock would be expected to be similar to levels occurring in portions of the NCDE and the YE. In 50-110+ years (the estimated time to recovery assuming 2-4% growth rates) grizzly bears would likely be present within the southern portion of the BE. Projections indicate that at a grizzly bear population level of 280 bears in the experimental population area, yearly livestock losses to depredation by bears could range from 4-8 cattle and 5-44 sheep. Management activities would try to preempt livestock problems. The USFWS would try to make all uses compatible with recovery. Based on what is currently known about bear behavior in the NCDE and YE, nuisance bear incidents would likely range between 0 and 74 per year at recovered population levels.

Recreation impacts in the form of permanent trail closures within the wilderness would likely not occur. Temporary closures of trails may occur in response to a dangerous situation that might result in human injury or bear mortality (e.g., grizzly on a carcass in a trail). However, even in Glacier National Park where bear and human densities are greater than would likely ever occur in the BE, less than 5% of the trails are temporarily closed at one time. Trails are rarely closed in the NCDE, outside of the park. In the NCDE where a minimum population of about 325 grizzly bears currently exists, only one trail was closed on national forest lands because of grizzly bears in the last 10 years. In the event trail use restrictions for public safety are necessary in response to a rare instance such as a grizzly bear feeding on a carrion source, such restrictions would be short-term. Policy changes on trail restrictions for human safety would be recommended by the USFWS as necessary. Sanitation concerns in the BE would have to be addressed, such that backcountry users properly store food and garbage to reduce potential conflicts with bears (See Appendix 18).

Mineral extraction would likely not be altered due to grizzly bear concerns in and by themselves. Recommendations would be made by the USFWS to reduce potential impacts if the need arises.

Impacts of grizzly bear restoration to big game populations would likely be insignificant. Studies from similar ecosystems with high densities of both bears and ungulates indicate that predation rates range from almost none to low levels of predation. In many locations, animal matter may not constitute a major annual diet item, but may be seasonally vital to bears (Mattson et al. 1991). An expected predation rate of 0.17-0.38% of the ungulate population in the area occupied by bears in the BE could occur. Using Mattson's (In press) estimate of 1.4 or 5.8 ungulates per year for adult female and male bears respectively, a population of 280 bears (USFWS 1996) would be expected to prey upon 504 ungulates per year across the BE. The loss of 504 ungulates to a recovered grizzly bear population would represent approximately eleven hundredths of one percent (0.11%) of estimated pre-harvest populations of ungulates in the PAA. Grizzly bear predation is not expected

to result in measurable or observable changes in ungulate populations. Potential long-term impacts to black bear population dynamics is unclear, but felt to be minimal. Overall impacts of a recovered population of grizzly bears on other wildlife populations are expected to be minimal. It should not be necessary to adjust hunting seasons to compensate for grizzly bear predation on other wildlife. In portions of Montana where hunting for big game species overlaps with grizzly bear habitat, there has been no need to change hunting seasons due to grizzly bear recovery programs. Any restrictions on black bear hunters or other hunting opportunities to reduce the likelihood of mistaken identity kills or to address other potential conflicts could be recommended by the CMC, but would have to be acceptable and implemented by the IDFG and MDFWP.

3. *How much will implementation cost?*

The present cost estimate for capturing a minimum of 25 grizzly bears, transplanting bears to the central Idaho recovery area, and monitoring and management of the grizzly bears over a 5-year period of reintroductions is $263,632 annually. In addition to costs involved in the transplanting, monitoring, and management of bears, there is also a cost associated with sanitation, information and education, and law enforcement activities conducted by the USFS within the recovery area. This cost would be approximately $150,000 annually. Total annual cost for the 5-year reintroduction period would be approximately $413,632, and total 5-year implementation cost would be approximately $2,068,160 (Appendix 7). Annual costs for monitoring and management would be approximately $173,000 for each year beyond the 5-year reintroduction period. See the economic analysis for Alternative 1 (Chapter 4) for an assessment of costs other than those associated with implementation.

4. How does this alternative address linkage zones?

Restoration of grizzly bears in the Bitterroot Ecosystem will increase concern about the possible linkage between existing areas with grizzly bears and the BE. The USFWS intends to complete a linkage zone analysis that will detail the possible linkage areas between the existing ecosystems, and between the BE and existing ecosystems. The linkage zone analysis is a Geographic Information System (GIS) computer modeling effort that looks at the levels of human impact and activity in the intervening areas between ecosystems and identifies the best linkage areas based on this human activity. This linkage zone analysis is a separate Grizzly Bear Recovery Plan Task and will be completed regardless of which FEIS alternative is selected for the BE. Maintenance of linkage zones is maintenance of the opportunity for grizzly bears and other wildlife species to move between the existing large blocks of public lands in order to maintain demographic and genetic health. A key factor in the maintenance of such linkage zones in the high-speed highways between these areas and how accommodations can and will be made to allow large animals such as bears the opportunity to cross these highways. In the long-term, the opportunity for bears to move between these ecosystems will improve the health of these populations. In the near term, restoration of a grizzly bear population in the BE will require placement of bears rather than waiting for eventual dispersal into this area, due to the limited number of movements of bears outside of existing range to date. Data from more that 550 different radio-collared grizzly bears since 1975 shows no movement between any grizzly bear ecosystems.

Grizzly bears outside the recovery area but within the experimental population area boundaries would be accommodated or discouraged depending on conflict potential. Linkage zones to the BE would have to be considered from management of other ecosystems, because for reintroduction purposes, the nonessential experimental population designation under Section 10(j) of the ESA requires that the recovery area be totally separate from other grizzly bear populations.

5. *Are habitat quality and size of the recovery area sufficient for recovery?*
The experimental population area boundary encompasses approximately 25,140 square miles. The roadless, wilderness, and contiguous national forest lands within the experimental population area, is approximately 15,000 square miles. Both of these areas are larger than the NCDE, YE, Selkirk or the Cabinet-Yaak ecosystems. Thus, the experimental population area is of sufficient size to allow for grizzly bear recovery.

Appendix 21B contains the results of a study contracted by the USFWS to an independent scientist in 1998 to estimate the number of grizzly bears that can be expected to be supported by the habitat in Bitterroot Ecosystem. The report, "The Application of Resource Selection Function Analysis to Estimate the Number of Grizzly Bears that Could be Supported by Habitats in the Bitterroot Ecosystem" (Appendix 21B), analyses the suitability of habitats in the Frank Church-River of No Return and Selway-Bitterroot Wilderness areas, and non-wilderness public lands to the north, and through modeling produces an estimate of the number of grizzly bears that can be expected to be supported by the habitat in these areas. The report estimates that at full carrying capacity, between 234-247 grizzly bears could be expected to live in the Selway-Bitterroot and the Frank Church-River of No Return Wilderness areas, and an additional 74 grizzly bears could be expected to live in the public lands north of the Selway-Bitterroot Wilderness in the upper North Fork of the Clearwater River drainage in Idaho. It is estimated that it would take at least 80-100 years for the population to reach this full carrying capacity number if 25 bears were reintroduced.

Habitat quality has been studied extensively. A number of different studies have been conducted within the BE that have direct applicability to the potential for grizzly bear recovery (see Appendix 3). Habitat quality varies throughout the experimental population area, and likewise throughout the recovery area. At one time grizzly bears were present in high densities throughout the BE. Salmon and whitebark pine (Pinus albicaulis), two important grizzly bear foods, were common during the peak of grizzly bear populations. Salmon have been virtually eliminated along the Clearwater drainage due to dams that have blocked their migration. Whitebark pine has been reduced to about 20%-40% of its historical abundance in the BE, and now is most prevalent in the southern half of the ecosystem. This species is expected to decline to approximately 5-10% of its historic abundance level before increasing again (Keene and Arno 1996).

However, studies indicate that a great variety of preferred grizzly bear foods are present in the ecosystem. A wide variety of all season foods are present including good quantities of several key berry species, forbs and grasses, as well as historically high levels of ungulates to provide carrion during the fall and spring months. Food habits of black bears are quite similar to those of grizzly

bears. Healthy populations of black bears live within the primary analysis area (PAA, see Figure 3-1), and annual hunter harvest totals about 1,000. Grizzly bears relocated to the BE would likely come from areas where neither salmon nor whitebark pine are plentiful. A recovered population of 280 grizzly bears should be able to find sufficient high quality forage within and adjacent to the recovery area. Although bear densities may not recover to their historical levels during the peak of the salmon and whitebark pine era, the population should achieve densities similar to those found in other interior ecosystems where those food sources are not present. The key to recovery in the BE would likely be due to effective management including limitation of human-caused mortality rather than quantity or quality of habitat.

A recent vegetation-based inventory and analysis of grizzly bear habitat in the Bitterroot Ecosystem was completed by the Craighead Wildlife-Wildlands Institute. Appendix 21D, "Synopsis of Portions of, and Excerpts from the Report, '*Abundance and Spatial Distribution of Grizzly Plant-Food Groups in the Salmon-Selway Ecosystem: A Preliminary Analysis and Report*' (Hogg, Weaver, and Craighead et al. 1999)" presents detailed habitat maps showing the distribution and abundance of major grizzly bear foods. The USFWS examined the Hogg, Weaver, Craighead et al. (1999) data and selected whitebark pine nuts and several berry producing shrubs for quantification because they provide a major contribution to annual energy demands for bears (Interagency Grizzly Bear Committee 1987). In summary, results of Hogg, Weaver, Craighead et al. (1999) indicate bear foods in the form of berries generally decline moving from north to south through the Bitterroot area. Significant berry distribution occurs north of the Selway-Bitterroot Wilderness area in the North Fork of the Clearwater River drainage and throughout much of the Lochsa and Selway River drainages. Berry-producing species generally decline to the south, particularly species of huckleberry other than grouse whortleberry. Grouse whortleberry could potentially provide a significant seasonal food source in some years. Whitebark pine and associated nut crops tend to follow the opposite pattern with greater distributions south of the Salmon River and a general decline through the northern portions of the Bitterroot Ecosystem. For further information, see Chapter 3 "*Current Research on Grizzly Bear Habitat Suitability in the Bitterroot Ecosystem,*" and Appendix 21D. See Chapter 3, "Habitat Suitability" section and Appendix 21 for more information.

6. *How will grizzly bears and their habitat be managed?*

The purpose of this alternative is to accomplish grizzly bear recovery by restoring grizzly bears designated as a nonessential experimental population to central Idaho and implementing provisions within Section 10(j) of the ESA to conduct special management to address local concerns. The USFWS would manage the Bitterroot grizzly bear experimental population. The USFWS would implement the Bitterroot Chapter of the Grizzly Bear Recovery Plan (USFWS 1996). The USFWS would develop management plans and policies, as necessary, for the management of grizzly bears in the experimental population area. IDFG and/or the Nez Perce Tribe, MDFWP, and USFS in cooperation with the USFWS would exercise day-to-day management responsibility within the experimental population area under cooperative agreement with the USFWS and in accordance with a Special Rule and the BE Recovery Plan Chapter (USFWS 1996).

Habitat would continue to be managed by the land management agencies. The USFS would still conduct its management under the guidelines of the respective Forest Plans and applicable environmental laws. State land managers and private land owners would not lose any of their management authority. The USFWS would only make recommendations to these agencies.

Grizzly bears would be restored as a nonessential experimental population under Section 10(j) of the ESA, which would allow increased management flexibility. Experimental populations must be designated either "essential" or "nonessential" (Appendix 12). "Essential" refers to a reintroduced population whose loss would be likely to reduce the likelihood of the survival of the species in the wild. Essential populations receive the full protection of Section 7 of the ESA, meaning that federal agencies must formally consult with the USFWS on actions that may affect the species. "Nonessential" refers to an experimental population whose loss would not be likely to appreciably reduce the likelihood of the survival of the species in the wild. Because nonessential populations are treated under Section 7 as "proposed species", federal agencies must only confer with the USFWS on activities that the agencies believe might jeopardize the species.

7. *Where will grizzly bears be obtained, reintroduced, and recovered?*
Grizzly bears obtained for reintroduction purposes would likely originate in the U. S. and Canada where current grizzly bear populations are healthy enough to sustain removal of a few bears per year over a 5-year period. Only bears with no history of conflict with humans and livestock, and most likely subadults, would be reintroduced. Grizzly bears determined to be "nuisance" under IGBC Nuisance Bear Guidelines would not be reintroduced to the BE. The donor population should come from habitat as similar as possible to that found in the BE. Three sources of bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) in northwest Montana, and the Yellowstone Ecosystem (YE) population.

No female bears would be removed from YE or NCDE recovery zones or from within the buffer area 10 miles outside the recovery zone boundaries. No bears would be removed from either U.S. ecosystem if such removal would exceed mortality limits. If the NCDE or YE populations exceed existing mortality limits in any year, then the placement of grizzly bears to the BE from these ecosystems would be suspended for the following year. This would not preclude the movement of bears from Canada. However, as 5 bears may not be available from Canada in a given year, this may extend the time period for reintroduction. Further, the actual capture of the necessary bears is dependent upon access to areas with such bears, and significant effort by capture crews. Capture of desired bears is not assured, even with intensive effort. It may require more than 5 years to obtain the desired minimum of 25 bears to initiate a new population in the BE. This should be made clear to the public and to cooperating agencies at the outset.

There would be no significant detrimental effects to the health of source populations because mortality limits in the Grizzly Bear Recovery Plan (USFWS 1993) and British Columbia grizzly bear management criteria (B.C. Min. Environ., Lands, and Parks 1995) would be met during implementation of this alternative. Further, since no bears would be removed from the YE or NCDE

if the mortality limits would be exceeded, and no female bears would be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE would be nonexistent.

Grizzly bears would be restored into the Selway-Bitterroot Wilderness Area. Reintroduction sites that have high quality bear habitat and low likelihood of human encounters would be identified. Bears would be placed close enough to each other to create a "colony" or population of bears, providing a basis from which to expand in numbers. Appendix 18 describes the expected time line and tentative geographic areas proposed to commence implementation of this alternative.

Much of the experimental population area has high-quality bear habitat with low likelihood of conflicts between grizzly bears and humans. Grizzly bear recovery would be emphasized on public lands throughout the experimental population area as long as bears did not pose a threat to human safety and such threats could not otherwise be minimized. All grizzly bears within the experimental population area would be counted as part of the recovery goal. Bears found outside the experimental population area boundaries are a fully threatened species, not experimental bears. Private lands outside the national forest boundary in the Bitterroot Valley (private lands lying within the experimental population area and outside the Bitterroot Forest boundary south of U.S. Highway 12 to Lost Trail Pass) would be an area where any human/grizzly bear conflicts would be considered significant. Grizzly bear occupancy would be discouraged in these areas and grizzly bears would be captured, destroyed, or returned to other suitable habitat in the experimental population area.

ALTERNATIVE 2. THE NO ACTION ALTERNATIVE — NATURAL RECOVERY

Background

The BE is unique among the six established grizzly bear recovery areas in the United States in that the best scientific evidence available indicates there are no grizzly bears in the BE at this time. There is only a remote likelihood that recovery of grizzly bears in the BE would occur through natural recolonization because grizzly bears do not readily disperse and colonize distant, disjunct areas (USFWS 1993, 1996). There are two other recovery areas that are occupied by recovering populations of grizzly bears that might serve as sources of bears to naturally recolonize the BE through expansion of their current ranges. These ecosystems include the Cabinet-Yaak (CYE), and Northern Continental Divide (NCDE) ecosystems (Figure 2-5). This alternative would allow for natural recolonization of the BE by grizzly bears from these other recovery zones. The goal would be to recover grizzly bears in the BE. Following grizzly recovery, grizzly bears would be removed from ESA protection and the states of Idaho and Montana would continue to manage bears.

The No Action Alternative - Natural Recovery.—The purpose of this alternative is to allow grizzly bears to expand from their current range in north Idaho and northwestern Montana southward into central Idaho and western Montana, and to recolonize the BE. The ultimate goal is natural recovery of grizzly bears in the BE.

Summary

Grizzly bears would be allowed to expand their current range in north Idaho and northwestern Montana southward into central Idaho and western Montana. The likelihood of recovery of grizzly bears in the BE through natural recolonization appears remote because grizzly bears do not move far to colonize distant, disjunct areas. The nearest grizzly bear population to the BE is approximately 40 miles away in the Cabinet Mountains of northwest Montana. Data from more than 550 different radio-collared grizzly bears since 1975 shows no movement by grizzly bears between any ecosystems. Given existing information, it is unlikely that such movement would occur into the BE from an area currently occupied by grizzly bears.

If grizzly bears did disperse, they would be protected as a threatened species under the Endangered Species Act wherever they occurred. Because grizzly bears would be fully protected as threatened under the ESA, Section 7(a)(2) would apply upon documentation of the presence of a grizzly bear in the BE, and all federal actions within the recovery zone would be subject to Section 7 consultation with the USFWS. The IGBC nuisance grizzly bear management guidelines (IGBC 1986) would be implemented to address conflicts that occur between grizzly bears and humans. The USFWS would manage all aspects of grizzly bear recovery. It is unknown (but not likely) whether this alternative would result in recovery of grizzly bears in the BE. It was the opinion of the Bitterroot Ecosystem Technical Committee that recovery of grizzly bears in the BE through recolonization is considered a remote possibility because of lack of movement or dispersal by grizzly bears in the northern Rocky Mountains (USFWS 1996).

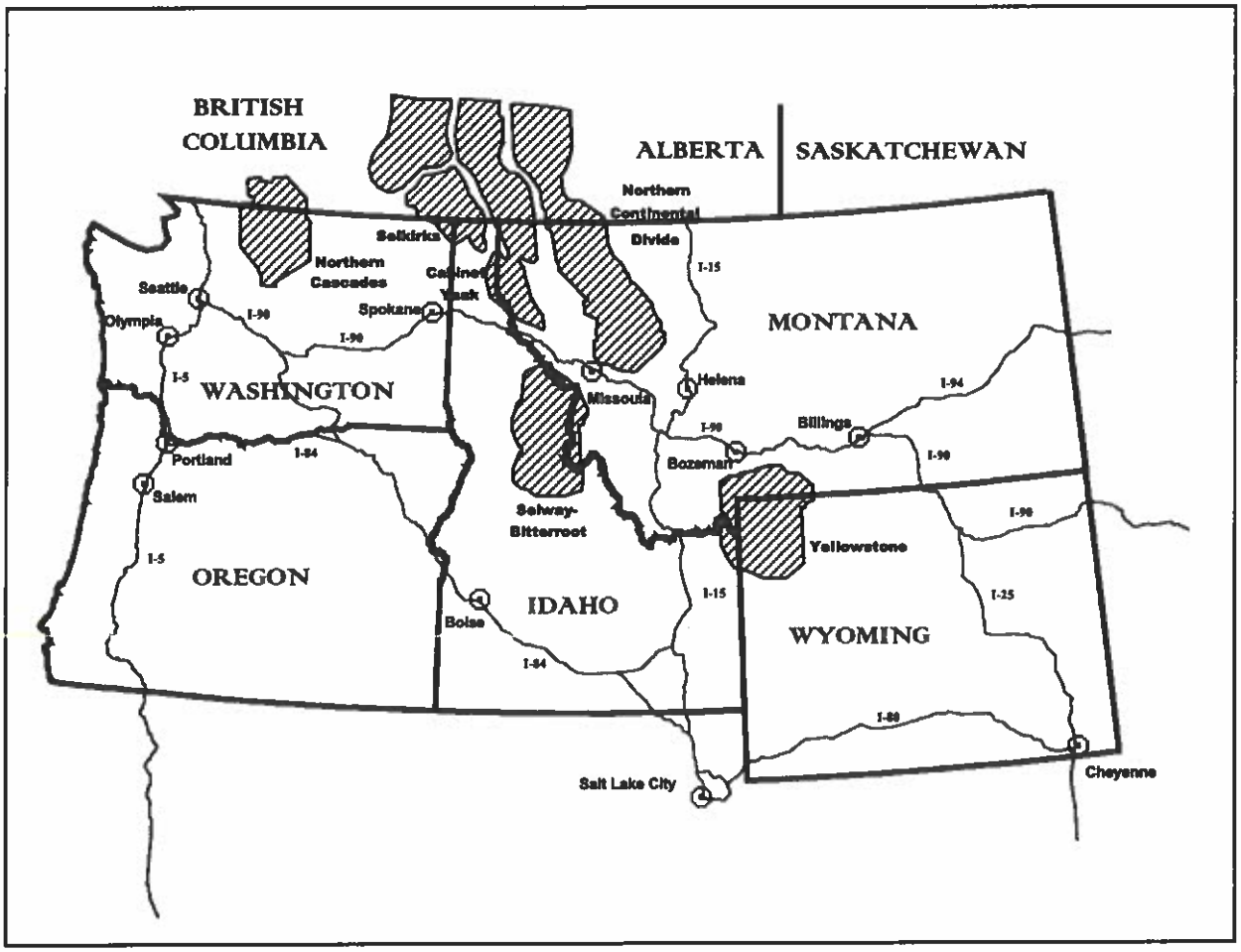


Figure 2-5. Grizzly bear ecosystems in the northern Rocky Mountains (Grizzly Bear Recovery Plan, USFWS 1993).

Implementing this alternative would involve:

The following summary highlights the actions that would be implemented if Alternative 2 is selected:

-The USFWS would designate the Bitterroot Grizzly Bear Recovery Zone as delineated in Figure 2-6, and consistent with the 5,500 square mile Bitterroot Grizzly Bear Evaluation Area (BEA) as defined in the Bitterroot Ecosystem Recovery Plan Chapter - Supplement to the Grizzly Bear Recovery Plan (USFWS 1993, 1996) (Appendix 14).

-The USFWS would establish a tentative long-term recovery goal (USFWS 1996) of approximately 280 grizzly bears (bears distributed over 5,500 square miles of designated wilderness and adjacent lands) within the recovery zone (Figure 2-6).

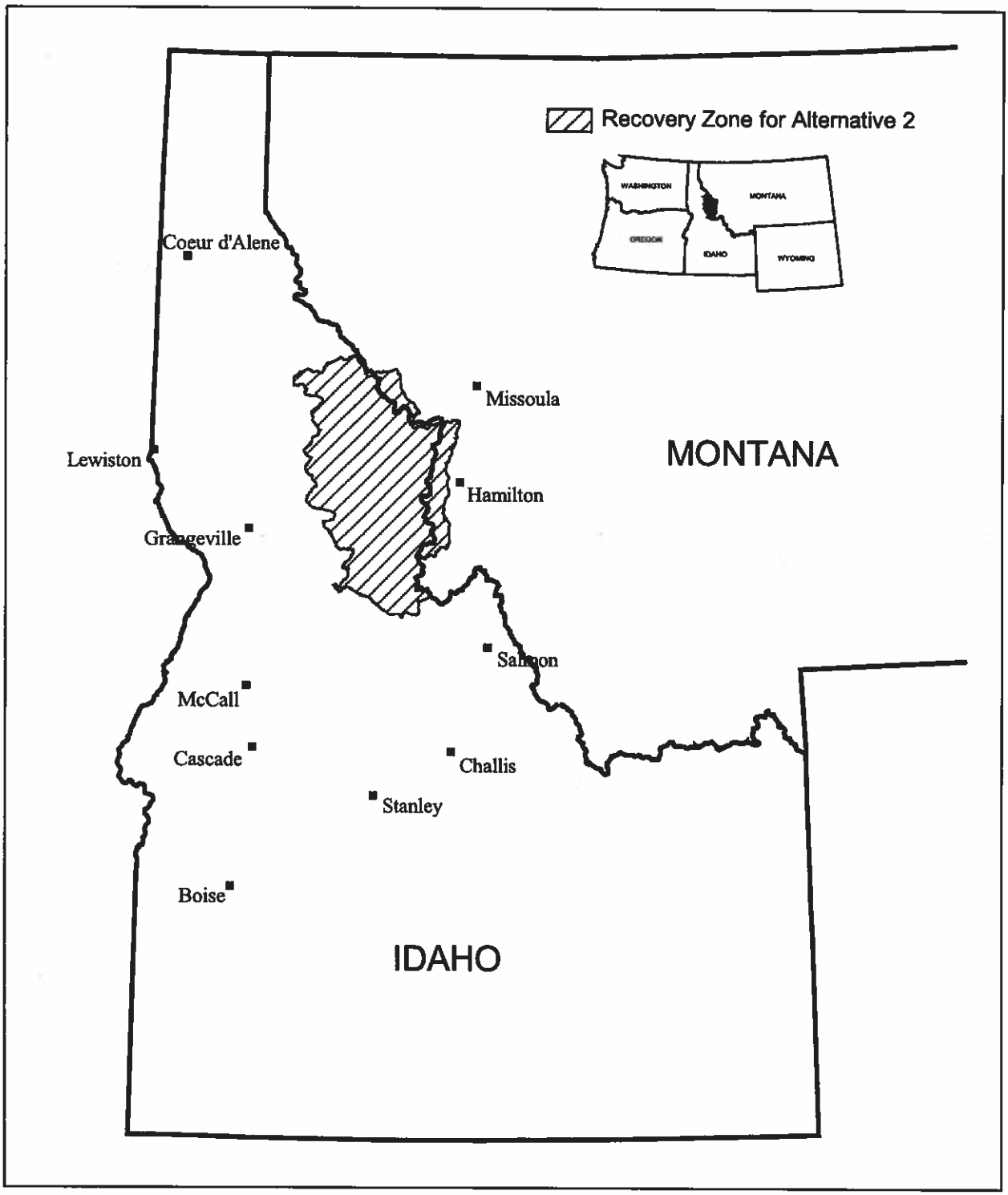


Figure 2-6. The Bitterroot Grizzly Bear Recovery Zone for Alternative 2 - *The No Action Alternative - Natural Recovery.*

-Upon documentation of grizzly bear(s) in the BE, the USFWS would conduct an extensive and objective public education and information program to inform the public about grizzly bears and their management under the ESA.

-The USFWS would continue to evaluate reported sightings of grizzly bears in the BE to determine their presence. The USFWS would also coordinate a monitoring program within the recovery zone to determine the status of recolonization.

-The national forests within the recovery zone would continue to manage habitat to meet or exceed their existing Forest Plan standards for big game habitat management. ESA Section 7(a)(2) would apply upon documentation of grizzly bear presence in the BE, and all federal actions within the recovery zone would be subject to Section 7 consultation with the USFWS.

-Upon documentation of grizzly bear(s) in the BE, the USFWS would evaluate the adequacy of land-use restrictions to protect suitable grizzly bear habitat within the Bitterroot recovery zone and within potential linkage zones to other occupied recovery zones. The USFWS would use the existing evaluation of adjacent wilderness areas to consider them as additions to the recovery zone (to include the portion of the Frank Church-River of No Return Wilderness south of the Salmon River).

-The USFWS, in cooperation with IDFG and MDFWP would apply the IGBC nuisance grizzly bear management guidelines (Appendix 15) to grizzly bears in conflict with humans or domestic animals.

-Land-use restrictions could be implemented when necessary if illegal killing threatens grizzly bear recovery.

How would the grizzly bear population respond to this alternative?

This alternative would allow for the natural recolonization of the BE by grizzly bears. The nearest grizzly bear ecosystem to the BE is the Cabinet/Yaak Ecosystem (CYE) to the north. Continuous bear habitat between the BE and CYE is fragmented by two areas of human occupation and development. The Clark Fork River valley is the southern border of the CYE. It contains three hydroelectric reservoir systems and several communities including Plains, Thompson Falls, Trout Creek, and Noxon, Montana, and Clark Fork, Idaho. The valley also contains Montana Highway 200 and a railroad line. Interstate 90 and the communities of St. Regis, Montana, and Mullan and Wallace, Idaho lie further to the south of the Clark Fork River valley.

Grizzly bear sightings from and adjacent to the CYE have indicated some limited grizzly bear use of areas south of the Clark Fork River (Kasworm and Servheen 1995). Since 1980 there have been less than 20 credible reports of grizzly bears between the Clark Fork River valley and Interstate 90 to the south. None of these sightings have involved females with young. In 1984 and 1985, a radio-collared

male grizzly bear from the Cabinet Mountains moved south of the Clark Fork River and spent the months of September and October in this area, and then moved north back to the CYE.

The likelihood of grizzly bear recolonization of the BE would be dependent upon several factors including; population levels and pressures within the CYE, impediments to movement south of the CYE, and survival prospects of bears inhabiting the area between the CYE and the BE. Population levels in the Cabinet Mountains portion of the CYE were estimated to be 15 or fewer grizzly bears (Kasworm and Manley 1988). This population was augmented with four subadult female grizzly bears during the period 1990-1994 (Servheen et al. 1995, Kasworm et al. In prep.). An analysis of linkage zones for habitat suitability and potential impediments to bear movement is being conducted by the USFWS as directed by the Grizzly Bear Recovery Plan (USFWS 1993), and is not part of this EIS process. This analysis will determine if linkage zones among grizzly bear ecosystems could occur and where those zones might exist. The areas between the Bitterroot and all other ecosystems are being analyzed as part of this linkage zone analysis.

It is difficult to predict whether natural recolonization of the BE by grizzly bears could occur, and the associated time frame of such possible recolonization. Survival prospects for bears that would move within the area between the CYE and BE are difficult to predict, as is the direction of range expansion when population pressures warrant. For instance, if a subadult female were to move a long distance away from her mother before setting up a home range, the immigration process could develop within 10 years. However, female grizzly bears typically expand their range through occupancy of areas adjacent to their mother's home range (IGBC 1987, Knight et al. 1984). The maximum life range size of an adult female grizzly bear in the CYE is 330 square miles (Kasworm and Servheen 1995). The diameter of this area (when it is converted to a circle) is 20 miles. Adult female bears typically breed at age five and produce their first litter at age six. Given an optimistic generation time of 6 years, a 20 mile diameter home range size, and a series of adjacent home ranges moving directly toward the BE, one could expect it would take a minimum of 24 years for reproducing populations of bears from the CYE to expand to the Selway-Bitterroot Wilderness, which is 80 miles away. However, under expected conditions, this process could take at least 50 years. Once reproducing populations of grizzly bears reached the BE, it would conservatively require an additional 50-110+ years to reach the recovered level of 280 bears (see Figure 2-3). Thus, estimated time to recover grizzly bears in the BE under this alternative is at least 100-160 years.

How does this alternative address the major issues and concerns of the public?

1. What will be the risk to human safety?

Under this alternative, there is only a remote likelihood that recovery of grizzly bears in the BE would occur through natural recolonization because grizzly bears do not readily colonize distant, disjunct areas such as the BE. Therefore this alternative would not cause any risk to human health and safety until it was determined that grizzly bears were actually moving from other occupied ecosystems and expanding their ranges into the BE. If this did occur, there would be an increased risk to human safety commensurate with the number of bears that move over time. During the first several decades following establishment of a breeding population of grizzly bears, chance of injury caused by bears

would be exceedingly small due to the low density of bears in the area. Under this alternative, populations are estimated to achieve recovery levels of approximately 280 bears in a minimum of 100-160 years. Using human injury rates in the NCDE and YE, and recognizing a net increase in human visitation, projections for human injury, once bears are recovered a minimum of 100-160 years in the future, are less than one injury per year and less than one grizzly bear-induced human mortality every few decades.

2. What kind of land-uses will be altered solely for grizzly bears?

If grizzly bears naturally recolonized the BE, they would be protected under the ESA as a threatened species, and all federal activities that may affect grizzly bears would require Section 7 consultation with the USFWS. Because grizzly bears would be fully protected as threatened under the ESA, Section 7(a)(2) requirements would triggered upon documented presence of grizzly bears in the BE, and all federal actions within the recovery zone would be subject to Section 7 consultation with the USFWS. To date, there have been few land-use restrictions recommended to protect suitable grizzly bear habitat within the recovery zone for this alternative. This could change if grizzly bears are documented in the BE, which would trigger Section 7 consultation requirements under the ESA. Upon documentation of the presence of grizzly bears, this no action alternative could alter existing and ongoing land-use activities (including timber harvest and minerals extraction activities) solely for grizzly bears. If the USFWS determines that current habitat management is not adequate to maintain suitable grizzly bear habitat, or that linkage zone restrictions are necessary to promote grizzly bear recolonization of the recovery zone, then recommendations could be made to alter land-use activities within these areas.

Impacts to land-use activities were analyzed under a "worst-case" scenario. For consistency with other FEIS alternatives, the Alternative 2 impacts to land-use activities were analyzed for a recovered population of 280 grizzly bears. Under this alternative grizzly bears would recolonize the area from other ecosystems. This process was estimated to require at least 50 years before grizzly bears might reach the area via range expansion from the CYE which is approximately 80 miles north. Once breeding populations were established it would conservatively require an additional 50-110+ years to reach the recovered level of 280 bears. During the first few decades following establishment of a breeding population in the BE few bears would be present, however, impacts to land-use activities are likely to occur. These impacts would not be fully realized until grizzly bears naturally recolonized the BE and the population reached recovery levels. If this occurred, it would be 100-160 years in the future.

It is expected that timber harvest is an activity that can be compatible with grizzly bear recovery, however all timber sale activities would be subject to Section 7 consultation if grizzly bears were documented in the BE, and could be affected based on such consultation. It is likely that grizzly bear habitat management would restrict to some degree timber harvests on currently roaded areas within the recovery area (Tom Wittinger, pers. comm. 1996). Based on the best available data (Tom Wittinger, Flathead Forest, pers. comm. 1996), it is estimated that reductions in timber harvest on affected national forest lands within the PAA would be between 8.3 and 39.7 million board feet per

year over the next decade if Alternative 2 was implemented as proposed (Table 4-10). Impacts to timber harvest could be less based on current land-use restrictions in Idaho that do not occur in Montana on the Flathead Forest (i.e. Pacfish, etc.). The large variation between the high and low estimates reflect the divergence between the planned Allowable Sale Quantity (ASQ) of timber from Forests in the PAA and the actual harvest volume which has occurred in recent years (see Table 3-11). Mineral extraction could be altered due to grizzly bear concerns in and by themselves.

If recolonization and recovery (280 bears) would occur within the recovery zone, yearly livestock losses to depredation by bears could range from 1-3 cattle and 1-6 sheep. Based on what is currently known about bear behavior in the NCDE and YE, nuisance bear incidents would likely range between 0 and 74 per year at recovered population levels. However, conflicts should be reduced in the future because much more would be known about proper sanitation and avoiding many of the potential conflicts between bears and humans. The IGBC nuisance grizzly bear management guidelines (Appendix 15) would be implemented by the USFWS in cooperation with state agencies to control grizzly bears in conflict with humans or domestic animals. If illegal killing or legal taking (control) of grizzly bears appears to be preventing recovery, then land-use restrictions could be implemented.

Under this alternative, there are no proposed changes in hunting seasons. If grizzly bears recovered naturally in the BE, then it is predicted that 280 grizzly bears would kill 504 ungulates per year. Interactions with other predators and the compensatory nature of some predation may affect the total loss of ungulates to predators, but at this rate only 0.11% of the pre-harvest ungulate population would be preyed upon by a recovered bear population. Overall impacts of a recovered population of grizzly bears on other wildlife populations are expected to be minimal. It should not be necessary to adjust hunting seasons to compensate for grizzly bear predation on other wildlife. Restrictions on black bear hunters or other hunting opportunities to reduce the likelihood of mistaken identity kills or to address other potential conflicts could, however, be recommended.

There could be impacts to public access and recreational use under this alternative if grizzly bears naturally recolonize the BE. If natural recovery occurred, then some people would avoid recreating in the recovery zone as a result of grizzly bear presence and other people would increase their recreation in the area because of it. The vast majority of recreationists and resource area users would continue to use the recovery zone with little change in their trip frequency or length. Over time, recreation and visitor use of the PAA would continue to increase. Upon the documentation of grizzly bears in the BE, Section 7 consultation with the USFWS would be triggered and could result in impacts to public access in the form of road and trail closures. Also, if ongoing USFWS research determines that linkage zones are necessary for recovery, and that changes in habitat management within the identified zones are necessary, then USFWS would recommend appropriate management actions.

3. How much will implementation cost?

Since this alternative relies on natural recolonization to recover grizzly bears in the BE, there would

be no cost associated with reintroduction of bears. Costs for ongoing monitoring and management activities would be approximately $140,000 per year (Appendix 7).

4. How does this alternative address linkage zones?
This alternative does not delineate linkage zones or change existing and ongoing management activities on federally managed lands. Per direction of the Grizzly Bear Recovery Plan, the USFWS is currently leading a 5-year process to assess the linkage potential between the various ecosystems identified for grizzly bear recovery. The linkage zone analysis is a Geographic Information System (GIS) computer modeling effort that looks at the levels of human impact and activity in the intervening areas between ecosystems and identifies the best linkage areas based on this human activity. This linkage zone analysis is a separate Grizzly Bear Recovery Plan Task and will be completed regardless of which FEIS alternative is selected for the BE. Maintenance of linkage zones is maintenance of the opportunity for grizzly bears and other wildlife species to move between the existing large blocks of public lands in order to maintain demographic and genetic health.

Under this alternative, USFWS would continue to coordinate research studies to determine the need for and location of linkage zones, and to identify specific habitat management guidelines necessary to maintain suitable habitat within linkage zones. If research determines that linkage zones are necessary for recovery, and that changes in habitat management within the identified zones are necessary, then the USFWS would recommend appropriate management actions.

5. Are habitat quality and size of the recovery zone sufficient for recovery?
The recovery zone is approximately 5,500 square miles. This is smaller than either the NCDE or the YE, but larger than the Selkirk or the Cabinet-Yaak ecosystems. This area is of sufficient size to allow for grizzly bear recovery (Servheen et al. 1991).

Appendix 21B contains the results of a study contracted by the USFWS to an independent scientist in 1998 to estimate the number of grizzly bears that can be expected to be supported by the habitat in Bitterroot Ecosystem. The report, "The Application of Resource Selection Function Analysis to Estimate the Number of Grizzly Bears that Could be Supported by Habitats in the Bitterroot Ecosystem" (Appendix 21B), analyses the suitability of habitats in the Frank Church-River of No Return and Selway-Bitterroot Wilderness areas, and non-wilderness public lands to the north, and through modeling produces an estimate of the number of grizzly bears that can be expected to be supported by the habitat in these areas. The report estimates that at full carrying capacity, between 234-247 grizzly bears could be expected to live in the Selway-Bitterroot and the Frank Church-River of No Return Wilderness areas, and an additional 74 grizzly bears could be expected to live in the public lands north of the Selway-Bitterroot Wilderness in the upper North Fork of the Clearwater River drainage in Idaho. Thus, the estimated carrying capacity of the recovery zone in this alternative is 189 bears.

For grizzly bears to naturally repopulate the BE they must gradually extend their range south from the CYE and SE to the BE, which is 40 miles south at the closest point. If this occurred, grizzly

bears would also inhabit the area between the two ecosystems as a result of their southern range extension. Since grizzly bears would necessarily inhabit the area between the two ecosystems (40+miles long by an undetermined width) if they naturally recovered in the BE, the recovery goal of 280 is appropriate. The recovery goal would be comprised of approximately 189 bears within the recovery zone and the remainder inhabiting the area between the CYE/SE and BE.

Habitat quality has been studied extensively. A number of different studies have been conducted within the BE that have direct applicability to the potential for grizzly bear recovery (see Appendix 3). Habitat quality varies throughout the recovery zone. At one time grizzly bears were present in high densities throughout the BE. Salmon and whitebark pine, two important grizzly bear foods, were common during the peak of grizzly bear populations. Salmon have been virtually eliminated along the Clearwater drainage due to dams that have blocked their migration. Whitebark pine has been reduced to about 20%-40% of its historical abundance in the BE, and now is most prevalent in the southern half of the ecosystem. This species is expected to decline to approximately 5-10% of its historic abundance level before increasing again (Keene and Arno 1996).

However, studies indicate that a great variety of preferred grizzly bear foods are present in the ecosystem. A wide variety of all season foods are present including good quantities of several key berry species, forbs and grasses, as well as historically high levels of ungulates to provide carrion during the fall and spring months. Food habits of black bears are quite similar to those of grizzly bears. Healthy populations of black bears live within the PAA, and annual hunter harvest totals about 1,000. A recovered population of grizzly bears should be able to find sufficient high quality forage within the recovery zone. Although bear densities may not recover to their historical levels during the peak of the salmon and whitebark pine era, the population should achieve densities similar to those found in other interior ecosystems where those food sources are not present. The key to recovery in the BE would likely be due to effective management including limitation of human-caused mortality rather than quantity or quality of habitat

A recent vegetation-based inventory and analysis of grizzly bear habitat in the Bitterroot Ecosystem was completed by the Craighead Wildlife-Wildlands Institute. Appendix 21D, "Synopsis of Portions of, and Excerpts from the Report, '*Abundance and Spatial Distribution of Grizzly Plant-Food Groups in the Salmon-Selway Ecosystem: A Preliminary Analysis and Report*' (Hogg, Weaver, and Craighead et al. 1999)" presents detailed habitat maps showing the distribution and abundance of major grizzly bear foods. The USFWS examined the Hogg, Weaver, Craighead et al. (1999) data and selected whitebark pine nuts and several berry producing shrubs for quantification because they provide a major contribution to annual energy demands for bears (Interagency Grizzly Bear Committee 1987). In summary, results of Hogg, Weaver, Craighead et al. (1999) indicate bear foods in the form of berries generally decline moving from north to south through the Bitterroot area. Significant berry distribution occurs north of the Selway-Bitterroot Wilderness area in the North Fork of the Clearwater River drainage and throughout much of the Lochsa and Selway River drainages. Berry-producing species generally decline to the south, particularly species of huckleberry other than grouse whortleberry. Grouse whortleberry could potentially provide a significant seasonal food

source in some years. Whitebark pine and associated nut crops tend to follow the opposite pattern with greater distributions south of the Salmon River and a general decline through the northern portions of the Bitterroot Ecosystem. For further information, see Chapter 3 "*Current Research on Grizzly Bear Habitat Suitability in the Bitterroot Ecosystem,*" and Appendix 21D. See Chapter 3, "Habitat Suitability" section and Appendix 21 for more information.

6. How will grizzly bears and their habitat be managed?

Under this alternative, primary grizzly bear management responsibility would reside within the USFWS and include active participation by federal land management agencies, the states of Idaho and Montana, and the Nez Perce Tribe. An interagency committee of managers (similar to other grizzly bear recovery zones) would be responsible for management decisions. Habitat would continue to be managed by the land management agencies through their appropriate management plans.

Nuisance bears would be controlled following direction contained in the IGBC nuisance grizzly bear management guidelines (Appendix 15). Response to human or livestock/grizzly bear conflicts must occur within 24 hours of notification of USFWS or state fish and wildlife management agency. Grizzly bears could not be harassed or harmed by the public, except to protect human life or safety.

7. Where will grizzly bears be obtained, reintroduced, and recovered?

This alternative proposes to recover grizzly bears in the BE through natural recolonization. Grizzly bears would not be reintroduced under this alternative. Grizzly bears would be recovered within the designated Bitterroot Grizzly Bear Recovery Zone as delineated in Figure 2-6. This area is consistent with the 5,500 sq. mi. Bitterroot Grizzly Bear Evaluation Area as defined in the BE Recovery Plan Chapter (USFWS 1996).

ALTERNATIVE 3. THE NO GRIZZLY BEAR ALTERNATIVE

Background

The federal government is mandated to recover threatened and endangered species under the Endangered Species Act. Species listed under the ESA are entitled to special protection and federal agencies are required to make efforts to recover them to the point where they can be removed from the list of protected species. In 1975, grizzly bears in the conterminous United States (the lower 48) were officially listed as threatened under the ESA. The BE was designated as a recovery area because it historically supported a population of grizzly bears, was suspected to contain grizzly bears at the time of their listing, and provided suitable habitat to recover the species. The ESA requires the USFWS to develop recovery plans that detail the efforts necessary to recover listed species. The USFWS developed a recovery plan for the BE in 1996 (Appendix 14). This alternative proposes not to recover grizzly bears in the BE. Under this alternative, the ESA would have to be changed, and 50CFR17.40 that requires protection of threatened species outside of recovery areas would also have to be changed to allow removal and taking of grizzly bears within the BE (to allow elimination of bears if they naturally recolonized the BE in the future). References to the BE would have to be removed from the Grizzly Bear Recovery Plan. State laws that protect grizzly bears in the BE of Idaho and Montana would have to be changed. These changes to federal and state law are beyond the scope of this document. The National Environmental Policy Act requires that an Environmental Impact Statement should consider an adequate range of alternatives that are responsive to public concerns. Public scoping indicated support for the "No Grizzly Bear Alternative", and thus it is included for detailed analysis in this DEIS so that the effects of grizzly bear recovery can be accurately compared to the situation of not having grizzly bears in the BE.

No Grizzly Bear Alternative.—The purpose of this alternative is to prevent grizzly bears from naturally re-establishing in Bitterroot Ecosystem.

Summary

Changes to the ESA proposed under this alternative would require intensive lobbying, changes in public attitudes, and years to implement. Actions of this magnitude would cost millions of dollars. Congress would need to pass legislation to remove grizzly bears in central Idaho and portions of western Montana from the list of threatened species. The USFWS would stop all funding and management activity toward bear research, education, and management in central Idaho. Furthermore, the states of Idaho and Montana would remove grizzly bears from the protection of state law within the BE (central Idaho and west-central Montana). Unregulated killing by the public and extirpation or removal by agencies would likely prevent any possible grizzly bear recovery in this area.

Implementing this alternative would involve:
The following summary highlights the actions that would be implemented if Alternative 3 is selected:

-Federal legislation would be passed to remove grizzly bears from the list of threatened species in the BE.

-State legislation would be passed to remove grizzly bears from protection of Idaho and Montana state law in the BE.

-Agencies and the public would be allowed to kill grizzly bears at any time within the BE without restriction. This would prevent any natural recovery of bears.

How would the grizzly bear population respond to this alternative?
Without legal protection from human persecution, lone grizzly bears may occasionally be reported and killed throughout the BE. Grizzly bear population recovery would not occur in this area. Grizzly bear populations in other ecosystems within the conterminous United States would be negatively impacted by the overall smaller total number of bears. Failure to establish a population would reduce the overall numbers of potential grizzly bears south of Canada and decrease the survival potential of this species south of Canada. The Yellowstone Ecosystem would become increasingly isolated and possibly subject to genetic or demographic problems due to this isolation.

How does this alternative address the major issues and concerns of the public?
1. What will be the risk to human safety?
Risk of injury from grizzly bears would be virtually nonexistent. The risk of grizzly bear-associated injury during wilderness travel would remain virtually unchanged from that existing today. Fear associated with the risk of encountering bears would be reduced due to the assumption that grizzly bears would not be present.

2. What kind of land-uses will be altered solely for grizzly bears?
This alternative would not result in any changes to current land-uses.

3. How much will implementation cost?
Costs associated with this alternative include staff salary and travel expenses necessary to develop required legislation to change existing laws and regulations. The total cost to implement this alternative is estimated at a minimum of 2 million dollars (Appendix 7), although the legal, public involvement, and political costs of changing the ESA could easily exceed this estimate. Grizzly bears would be so uncommon that additional expenditures for occasional removal would not be significant.

4. How does this alternative address linkage zones?
Linkage zones would not be delineated and would be discouraged under this alternative. Grizzly bear movement through the BE would be prevented.

5. Is habitat quality and size of the recovery zone sufficient for recovery?
Habitat quality for grizzly bears is not an issue under this alternative. The recovery zone would not exist.

6. How will grizzly bears and their habitat be managed?
Grizzly bears occurring in the BE would be moved or destroyed. Habitat would not be managed specifically for grizzly bears.

7. Where will grizzly bears be obtained, reintroduced, and recovered?
Grizzly bears would not be reintroduced or recovered under this alternative.

ALTERNATIVE 4. RESTORATION OF GRIZZLY BEARS AS A THREATENED POPULATION WITH FULL PROTECTION OF THE ESA AND HABITAT RESTORATION

Background

Grizzly bears would be reintroduced into the BE without an experimental population rule and would be fully protected by all provisions of the Endangered Species Act as a "threatened" species until recovery was achieved. The experimental population provisions of Section 10(j) of the ESA would not be used. Bears would be restored and recovered in the northern Rocky Mountains under measures similar to protection given in other ecosystems such as the Yellowstone, Northern Continental Divide, Selkirk, or Cabinet-Yaak Ecosystems and would be listed as threatened under the ESA. Grizzly bear recovery would be the responsibility of the USFWS, with active participation of other federal agencies, states, and the Nez Perce Tribe. A Scientific Committee would be established to carry out additional research, implement reintroduction of bears, and monitor results of the program. Reintroduction of bears would occur within the Selway-Bitterroot Wilderness or roadless areas north of the Lochsa River. Management situation boundaries would be mapped and guidelines would be applied as in other recovery areas. Ninety-eight percent of the Bitterroot Grizzly Bear Recovery Zone (21,645 square miles) that would be established under this alternative is federal land and the majority is wilderness or roadless (Figure 2-7). Land-use restrictions such as reduction in the number of open roads as well as the elimination of new roads and logging on lands currently roadless would be implemented. Habitat for bears may also be enhanced by purchase or easement. This proposal would designate three restoration areas. One of these would be a Corridor Special Management Area between the proposed Bitterroot Recovery Zone and the Cabinet Mountains within which numerous roads would be closed and reclaimed. Grizzly bears that attack livestock would be managed under the Interagency Grizzly Bear Committee (IGBC 1986) nuisance grizzly bear management guidelines (Appendix 15). No federal or state compensation would be available. Private compensation might be obtained, if existing programs were to expand. Sanitation and food storage regulations would be implemented within the recovery zone. The State of Idaho would be requested to eliminate the use of dogs and bait for hunting black bears within the area designated for release.

Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration Alternative.—The purpose of this alternative is to use reintroduction and extensive habitat protection and enhancement to promote natural recovery of grizzly bears in the BE.

NOTE: Scope of This Document

This document covers the actions of the U.S. Fish and Wildlife Service and cooperating agencies in evaluating alternatives to recover the grizzly bear in the BE of Idaho and Montana. The actions evaluated in this alternative involve the listed grizzly bear and relate to actions involving grizzly bears and the management of these grizzly bears. Actions involving allocation of public resources such as timber, mining, road building, or grazing on National Forest lands and State lands are not implementable through a Record of Decision signed by the USFWS. Decision documents involving allocation of these resources on National Forest and State lands are the legal responsibility of the USDA Forest Service, and the states of Idaho and Montana, through appropriate Forest and State planning processes.

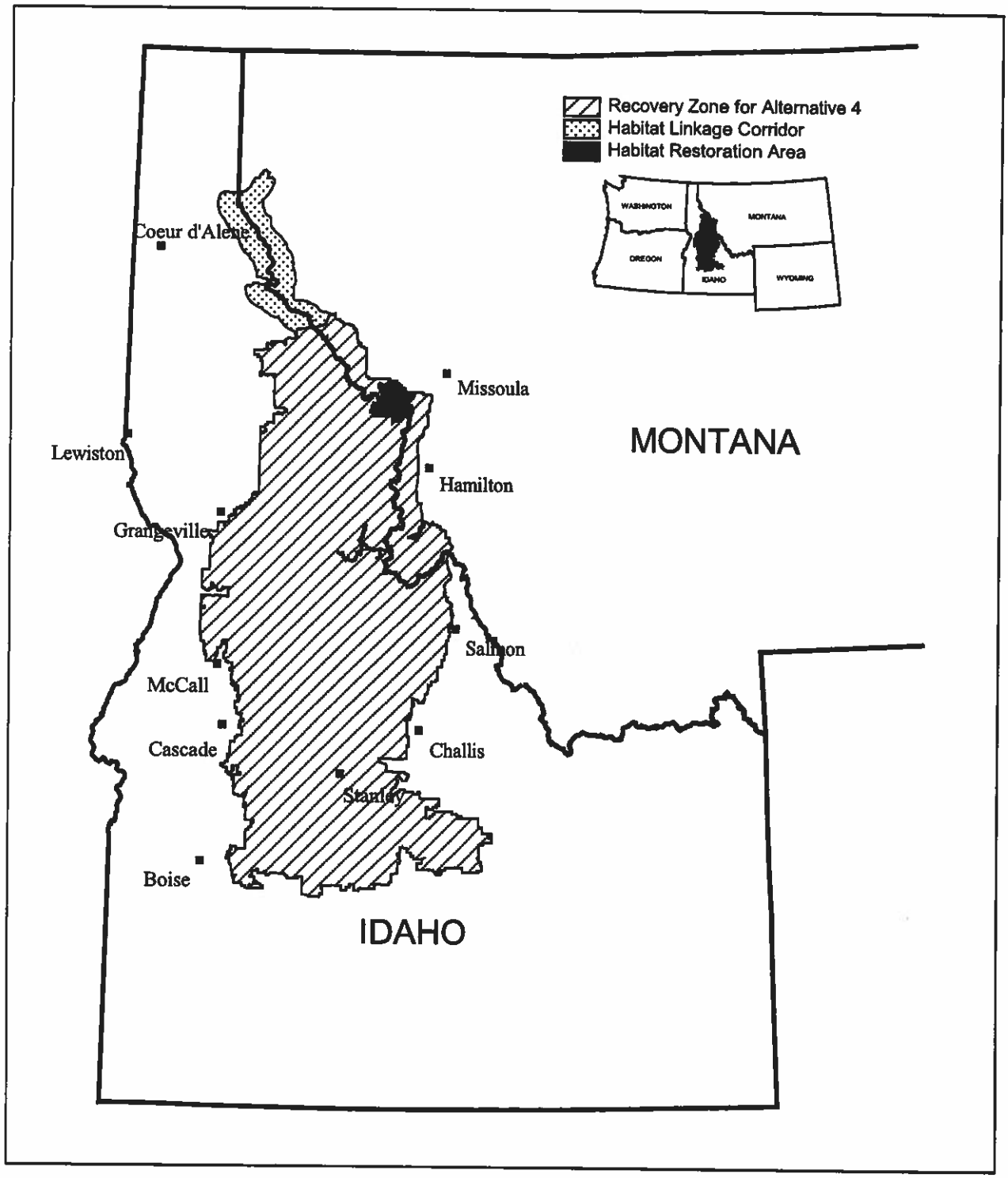


Figure 2-7. Bitterroot Grizzly Bear Recovery Zone and habitat linkage corridor for Alternative 4 - *Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration.*

Summary

Of importance is the fact that the principal laws that govern land management on federal lands would have to be changed for the USFWS to implement this alternative. Primary grizzly bear management responsibility would reside with the USFWS and include active participation by the states and the Nez Perce Tribe. A ten member Scientific Committee would be appointed by the Secretary of Interior in cooperation with the National Academy of Sciences to define needs for additional research, develop strategies for reintroduction of bears, and monitor results of the program.

Grizzly bears would be reintroduced into the Selway-Bitterroot Wilderness and roadless areas north of the Lochsa River through methods determined by the Scientific Committee. They would be fully listed as threatened with all the protections under the ESA (including Section 7(a)(2)), and all federal actions within the recovery zone would be subject to ESA Section 7 consultation with the USFWS. Management Situation designation would reflect a high priority for recovery on all federal lands within the 21,645 square mile recovery zone. Grizzly bear populations would take a minimum of 65 years, and likely more than 125 years to recover to a population of 300-500 individuals.

No logging or road building would be permitted on roadless lands within the recovery zone. The Magruder Road would be reclaimed and converted to a pack trail from Magruder crossing 23 miles west to Sabe Saddle. The Hells Half Acre Mountain Road would be reclaimed over the entire eight mile length. The Lolo Restoration Area (219 square miles) and a Corridor Special Management Area (1,380 square miles) would be designated for road density reduction through reclamation. Road densities on roaded lands within the Restoration Area and the Corridor Special Management Area would be reduced to an average of no more than 0.25 miles per square mile.

Interagency Grizzly Bear Committee (IGBC) nuisance grizzly bear management guidelines (IGBC 1986) would be applied to bears killing livestock. The Scientific Committee would review and modify these guidelines if necessary. If losses occurred on nearby private lands, bears would be moved. Agency response to reported livestock losses from grizzly bears must occur rapidly. Grizzly bears could be killed in defense of life, but not in defense of property. Use of toxicants lethal to bears on public lands within the recovery zone and areas used by bears would be subject to Section 7 consultation and could be prohibited by existing ADC policy and EPA labeling instructions.

Backcountry users would be required to make food, garbage, and livestock feed unavailable to grizzly bears. Front country campgrounds would install bear resistant garbage containers as soon as possible. An intensive education campaign regarding food storage and garbage handling would be instituted for all residents and visitors. A request for elimination of hunting of black bears with dogs and bait within the wilderness areas designated for reintroduction of grizzly bears would be made to the State of Idaho. The Scientific Committee would recommend whether this ban would need to be extended if conditions warrant. Intensive hunter education efforts regarding bear identification and recreation in grizzly bear habitat would be undertaken.

Implementing this alternative would involve:

The following summary highlights the actions that would be implemented if Alternative 4 is selected:

-Of importance is the fact that the principal laws that govern land management on federal lands would have to be changed for the USFWS to implement this alternative.

-The USFWS would designate the Bitterroot Grizzly Bear Recovery Zone along boundaries described in Figure 2-7. The Recovery Zone would include all of the Selway-Bitterroot, Frank Church-River of No Return, Sawtooth, and Gospel Hump Wilderness Areas, surrounding inventoried roadless lands, and other National Forest lands comprising approximately 21,645 square miles. The area is located on portions of the Clearwater, Bitterroot, Lolo, Panhandle, Payette, Boise, Sawtooth, Challis, and Salmon National Forests. Specifically, the northern boundary of the recovery zone would be the northern boundary of the Mallard-Larkins inventoried roadless area on the Clearwater and Panhandle National Forests and the northern boundary of the Sheep Mountain inventoried roadless area on the Lolo National Forest. The western boundary of the recovery zone would be the western boundary of the Clearwater National Forest; the westernmost boundaries of the Nez Perce and Payette National Forests west of U.S. Highway 95 and Idaho Highway 55; the westernmost boundaries of the Boise National Forest east of Idaho Highway 55. The southern boundary of the recovery zone would be the southern boundaries of the Boise, Sawtooth, and Challis National Forests north of U.S. Highway 20. The eastern boundary of the recovery zone would be the eastern boundaries of the Challis and Salmon National Forests west of U.S. Highway 93; the Bitterroot National Forest west of Lost Trail Pass northwest to Trapper Peak; the eastern boundary of the Selway-Bitterroot Wilderness Area to Lolo Peak and to include Lost Horse and Blodgett Canyons out to the mouth; the Lolo National Forest from Lolo Peak northwest to Garden Point; from Garden Point northwest to Rivulet Peak; from Rivulet Peak northwest to Sunrise Point; from Sunrise Point northwest to Blacktail Mountain.

-The USFWS would establish proactive interagency grizzly bear recovery programs in the BE (similar to those existing in other ecosystems) to conduct monitoring, research, education, and information programs.

-A Scientific Committee would be established to define needs for additional research, develop strategies for reintroduction of bears, and monitor results of the program.

-A recovery goal of between 300-500 (average of 400) grizzly bears (bears distributed over 21,645 square miles of designated wilderness, non-wilderness, and private land) would be established within the recovery zone. The Scientific Committee could recommend a refined recovery goal once grizzly bears are reintroduced and information is obtained on their use of the habitat.

-The USFWS would reintroduce a minimum of 25 bears over a period of five years into the Selway-Bitterroot Wilderness and roadless areas north of the Lochsa River following recommendations of the Scientific Committee. Subadult grizzly bears of both sexes would be trapped, each year for 5 years, from areas in Canada (in cooperation with Canadian authorities) and the United States that presently have healthy populations of grizzly bears living in habitats that are similar to those found in the Bitterroot Ecosystem. Three sources

of grizzly bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population in northwest Montana, and the Yellowstone Ecosystem (YE) population. The specific number of bears that could be obtained yearly from the potential source populations is unknown at this time. Bears would be reintroduced at the best time of year to optimize their survival. Reintroduced bears would be radio collared and monitored to determine their movements and how they use their habitat, and to keep the public informed of general bear locations and recovery efforts.

-Some undetermined level of mortality is expected among the transplanted bears. Every effort would be taken to minimize this, but mortalities are expected to occur. Any transplanted bears that died or were removed as a result of human action could be replaced. Such replacements would be in addition to the original minimum of 25 bears.

-Within the recovery zone (Figure 2-7), the USFS and Bureau of Land Management (BLM) in cooperation with USFWS would: not approve logging or road building within roadless areas; use road closures and road reclamation to reduce road densities to no more than 0.25 miles per square mile within the recovery zone, habitat restoration areas and habitat linkage corridors; designate management situations as per the Interagency Grizzly Bear Guidelines (IGBC 1986); and implement sanitation programs to assist recovery of grizzly bears.

-USFWS, in cooperation with other federal agencies, the states, the Nez Perce Tribe, and private groups would use federal funding to enhance grizzly bear habitat through acquisitions or easements.

-USFWS, in cooperation with IDFG and MDFWP would apply the IGBC (1986) nuisance grizzly bear management guidelines (Appendix 15) to grizzly bears in conflict with humans or domestic animals.

-IDFG in cooperation with the USFWS would be requested to eliminate the use of dogs and bait for black bear hunting within the area designated for release of reintroduced bears.

How would the grizzly bear population respond to this alternative?

Grizzly bear population modeling efforts were recently completed for two interior southern populations for which habitat conditions appear similar to the BE (McLellan 1989, Eberhardt et al. 1994, Knight and Blanchard 1995, Hovey and McLellan 1996). Population growth rates of approximately 4% and 8% were reported for the Yellowstone and the North Fork of the Flathead River in Southeast British Columbia grizzly bear populations, respectively. The 4% growth rate was for the period of 1974-1992. Craighead et al. (1974) calculated a 2% rate of growth for the Yellowstone population for the period of 1959-1967. These three growth rates (2%, 4%, and 8%) were applied to an initial population having 15 female bears to illustrate potential population growth rates and to estimate anticipated time to recovered populations (Figure 2-8). Reproductive rates were similar between studies, but survival rates were substantially different. Most notably, survival of

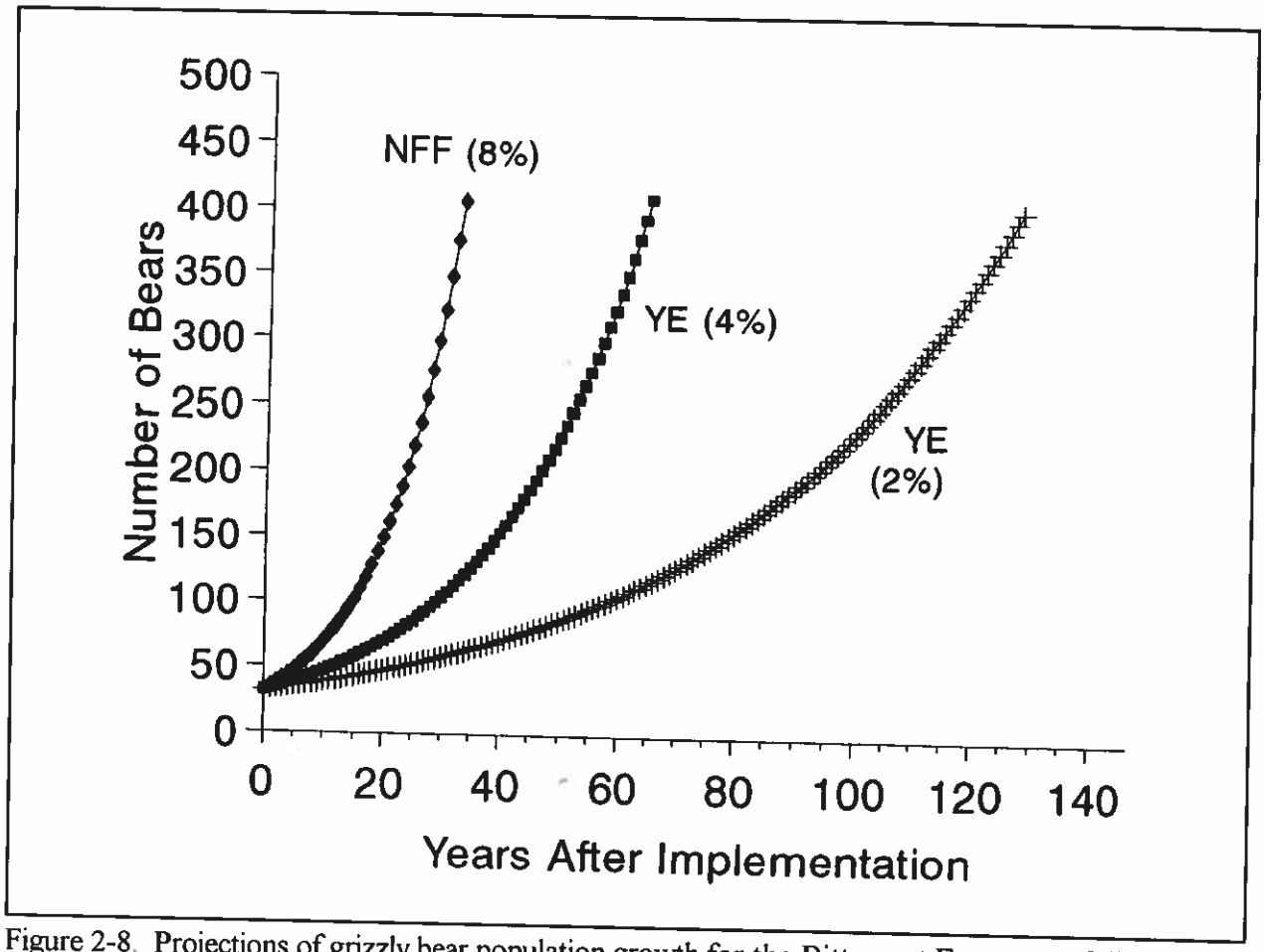


Figure 2-8. Projections of grizzly bear population growth for the Bitterroot Ecosystem following the initial 5-year implementation period. Population growth rates of approximately 2% and 4% were reported for the Yellowstone (YE), and 8% for the North Fork of the Flathead River (in southeast British Columbia) (NFF) grizzly populations. These rates are applied to an initial population having 15 female bears to illustrate potential population growth rates and to estimate anticipated time to recovered populations.

subadult female bears was higher in the Flathead population and this produced much of the observed difference in growth rates. These scenarios were intended to provide a range of likely population projections following reintroduction, and are presented to depict how bear populations may optimally respond to implementation of this alternative. Bear populations may behave differently than projected, but these two data sets provide the best available information for modeling potential grizzly bear population growth in the BE. These models do not reflect internal population pressures (e.g., competition for food or space) that may reduce the rate of increase through reduced survival and reproduction. These effects could be expected to slow the rate of growth as the population fills the available habitat. These projections are completely dependent upon a majority of transplanted bears

remaining within the target area and reproducing at rates similar to bears in the Yellowstone or Flathead populations.

The recovery goal of this alternative is approximately 300-500 (mid-point of 400 bears) grizzly bears (bears distributed over 21,645 square miles of wilderness, non-wilderness, and private land). The population projections indicate that bear populations would require at least 125 years at a 2% growth rate, a minimum of 65-70 years at a 4% growth rate, and at least 35 years at an 8% growth rate to reach the recovery goal of approximately 300-500 bears (Figure 2-8). The USFWS has determined that the 8% growth rate is unrealistic for expected population growth in the BE. Realistically, under this alternative, grizzly bear recovery in the BE could take a minimum of 65-70 years, and given expected conditions and conflicts, could likely take more than 125 years. The three scenarios indicate that improving survivorship of young bears can dramatically affect population growth. If bear mortality can be reduced, recovery would occur decades sooner (Maguire and Servheen 1992).

How does this alternative address the major issues and concerns of the public?

1. *What will be the risk to human safety?*

Impacts on human health and safety from implementation of this alternative would be similar to those described for Alternative 1. The BE grizzly bear population would be managed as a threatened population with full protection of the ESA under this alternative.

During the first several decades following reintroduction, the chance of injury caused by grizzly bears would be exceedingly small due to the low density of bears in the area. For instance, in the Cabinet-Yaak and Selkirk ecosystems where there are low density recovering populations of grizzly bears, there have not been any recorded injuries in at least the last 20 years. Under this alternative populations are estimated to achieve recovery levels of approximately 400 bears in a minimum of 65 years, and likely more than 125 years. Using human injury rates in the NCDE and YE, and recognizing a net increase in human visitation, projections for human injury, once bears are recovered 65-125+ years in the future, are less than one injury per year and less than one grizzly bear-induced human mortality every few decades.

Under Interagency Grizzly Bear Committee (IGBC) guidelines (IGBC 1986), grizzly bears posing problems to camps, cabins, individuals and stock may be relocated or removed. Humans that act in self-defense or defense of others would continue to be allowed to kill a grizzly bear. In addition, new technologies such as repellants, proper sanitation procedures, aversive conditioning, monitoring, and preemptive management, as well as educating humans how to react during an encounter would reduce chance of injuries. See Appendix 11 for more information on risks to human safety.

2. *What kind of land-uses will be altered solely for grizzly bears?*

Because grizzly bears would be listed as a fully protected threatened species, all federal actions within the recovery zone would be subject to ESA Section 7 consultation with the USFWS. Road building and timber harvest would not be allowed on federal lands within the recovery zone that are presently roadless. Additionally, it is likely that grizzly bear habitat management would restrict to some degree

timber harvests on currently roaded areas within the recovery zone (Tom Wittinger, pers. comm. 1996). Based on the best available data (Tom Wittinger, Flathead Forest, pers. comm. 1996), it is estimated that reductions in timber harvest on national forest lands within the PAA would be between 40 and 194 million board feet per year over the next decade if Alternative 4 grizzly bear recovery were implemented as proposed (see Table 4-16). Impacts to timber harvest could be less based on current land-use restrictions in Idaho that do not occur in Montana on the Flathead Forest (i.e. Pacfish, etc.). The large variation between the high and low estimates reflect the divergence between the planned Allowable Sale Quantity (ASQ) of timber from Forests in the PAA and the actual harvest volume which has occurred in recent years (see Table 3-11).

Within the Lolo Restoration Area and Special Corridor Management Areas, road densities would be reduced to an average of no more than 0.25 miles per square mile. This would require closure and reclamation of about 3500 miles of roads. The Magruder Road would be reclaimed and converted to a pack trail from Magruder crossing 23 miles west to Sabe Saddle. The Hells Half Acre Mountain Road would be reclaimed over the entire eight mile length. USFS Forest Plans and BLM Area Management Plans would require amendments or revisions to implement these standards.

Livestock grazing presently occurs at very low densities within the recovery zone and is not expected to be impacted by the implementation of this alternative. Grazing occurs predominantly in the southern portion of the BE (Figure 3-8, Table 3-13). Consequently, at recovered grizzly population levels and current livestock stocking rates, impacts to livestock would be expected to be similar to levels occurring in portions of the NCDE and the YE. In 65-125+ years grizzly bears would likely be present within the southern portion of the BE. Projections indicate that at a grizzly bear population level of 400 bears in the recovery zone, yearly livestock losses to depredation from bears could range from 12-27 cattle and 41-355 sheep. Management activities would try to preempt livestock problems. The Scientific Committee would evaluate areas with recurring incidents and recommend solutions to aid in recovery.

Recreation impacts in the form of permanent trail closures within the wilderness would likely not occur. Temporary closures of trails may occur in response to a dangerous situation that might result in human injury or bear mortality (e.g., grizzly on a carcass in a trail). However, even in Glacier National Park where grizzly bear and human densities are greater than would likely ever occur in the BE, less than 5% of the trails are temporarily closed at one time. Trails are rarely closed in the NCDE outside of the park. In the NCDE where a minimum population of about 325 grizzly bears currently exists, only one trail was closed on national forest lands because of grizzly bears in the last 10 years. Sanitation concerns in the BE must be addressed, such that backcountry users properly store food and garbage to reduce potential conflicts with bears. Under this alternative, backcountry users would be required to make food, garbage and livestock feed unavailable to bears. This would necessitate hanging foods and garbage or placing it in containers to make it unavailable to bears. Front country campgrounds would install bear resistant garbage containers as soon as possible. An intensive education campaign regarding food storage and garbage handling would be instituted for all residents and visitors. Based on what is currently known about bear behavior in the NCDE and

YE, nuisance bear incidents would likely range between 0 and 105 per year at recovered population levels.

Mineral extraction could be altered due to grizzly bear concerns in and by themselves. Recommendations may be made by the Scientific Committee to reduce potential impacts if the need arises.

Impacts of grizzly bear reintroduction to big game populations would likely be insignificant. Studies from similar ecosystems with high densities of both bears and ungulates indicate that predation rates range from almost none to low levels of predation. Based on the current population of big game animals in the central Idaho analysis area (260,000 post-harvest), impacts of between 1-400 grizzly bears over a 50 year period whose diets consist of 90% vegetable matter, would likely not be measurable. In many locations, animal matter may not constitute a major annual diet item, but may be seasonally vital to bears (Mattson et al. 1991). An expected predation rate of 0.3-0.54% of the ungulate population in the area occupied by bears in the BE could occur. Using Mattson's (1997) estimate of 1.4 or 5.8 ungulates per year for adult female and male bears respectively, a population of 400 bears would be expected to prey upon 720 ungulates per year across the BE. The loss of 720 ungulates to a recovered grizzly bear population would represent approximately 0.15% of estimated pre-harvest populations of ungulates in the PAA. Grizzly bear predation is not expected to result in measurable or observable changes in ungulate populations. Potential long-term impacts to black bear population dynamics is unclear, but felt to be minimal. Overall impacts of a recovered population of grizzly bears on other wildlife populations are expected to be minimal. It should not be necessary to adjust hunting seasons to compensate for grizzly bear predation on other wildlife. Any restrictions on black bear hunters or other hunting opportunities to reduce the likelihood of mistaken identity kills or to address other potential conflicts could be recommended by the Scientific Committee, but would have to be acceptable and implemented by the IDFG and MDFWP. Under this alternative, there is a proposal to eliminate baiting and hound hunting of black bears within the Selway-Bitterroot Wilderness, Lochsa drainage, and upper North Fork of the Clearwater drainage. These hunting techniques would be eliminated if authorized by the Idaho Fish and Game Commission.

3. *How much will implementation cost?*

The present cost estimate for capturing a minimum of 25 grizzly bears, transplanting bears to the central Idaho recovery area, and monitoring and management of the grizzly bears over a 5-year period of reintroductions is 278,632 annually. The Scientific Committee would meet about 4-6 times annually during the early period of the project and less frequently later. Travel expenses and associated costs would amount to an estimated $15,000 dollars per year. In addition to costs involved in the transplanting, monitoring, and management of bears, there is also a cost associated with sanitation, information and education, and law enforcement activities conducted by the USFS within the recovery area. This cost would be approximately $150,000 annually. Total annual cost for the 5-year reintroduction period would be approximately 428,632/year, and total 5-year implementation cost would be approximately 2,143,160 (Appendix 7). Annual costs for monitoring and management would be approximately 188,000 for each year beyond the 5-year reintroduction

period. Additional funding for the road reclamation work would be by Congressional appropriation. See the economic analysis for Alternative 4 (Chapter 4), for an assessment of costs other than those associated with implementation.

4. How does this alternative address linkage zones?
Restoration of grizzly bears in the Bitterroot Ecosystem will increase concern about the possible linkage between existing areas with grizzly bears and the BE. The USFWS intends to complete a linkage zone analysis that will detail the possible linkage areas between the existing ecosystems, and between the BE and existing ecosystems. The linkage zone analysis is a Geographic Information System (GIS) computer modeling effort that looks at the levels of human impact and activity in the intervening areas between ecosystems and identifies the best linkage areas based on this human activity. This linkage zone analysis is a separate Grizzly Bear Recovery Plan Task and will be completed regardless of which FEIS alternative is selected for the BE. Maintenance of linkage zones is maintenance of the opportunity for grizzly bears and other wildlife species to move between the existing large blocks of public lands in order to maintain demographic and genetic health.

This alternative identifies a Corridor Special Management Area that links the north end of the proposed Bitterroot Grizzly Bear Recovery Zone to the south end of the Cabinet-Yaak Ecosystem. Within this area, road densities would be reduced to allow a resident, but likely lower density population of grizzly bears to exist. Reproduction by these bears with immigration and emigration would provide genetic and demographic linkage between the two ecosystems. Additional management actions, such as standards for maintenance of cover, may be specified by the Scientific Committee.

5. *Are habitat quality and size of the recovery zone sufficient for recovery?*
The recovery zone is 21,645 square miles and is larger than either the NCDE or the YE at approximately 9,500 square miles each. The roadless and wilderness lands are approximately 15,845 square miles. This area is of sufficient size to allow for grizzly bear recovery.

Habitat quality has been studied extensively. A number of different studies have been conducted within the BE that have direct applicability to the potential for grizzly bear recovery (see Appendix 3). Habitat quality varies throughout the recovery zone. At one time grizzly bears were present in high densities throughout the BE. Salmon and whitebark pine, two important grizzly bear foods, were common during the peak of grizzly bear populations. Salmon have been virtually eliminated along the Clearwater drainage due to dams that block their migration. Whitebark pine has been reduced to about 20-40% of its historical abundance in the BE, and now is most prevalent in the southern half of the ecosystem. The species is expected to decline to approximately 5-10% of its historic abundance level before increasing again (Keene and Arno 1996).

However, studies indicate that a great variety of preferred grizzly bear foods are present in the ecosystem. A wide variety of all season foods are present including good quantities of several key berry species, forbs and grasses, as well as historically high levels of ungulates to provide carrion

during the fall and spring months. Food habits of black bears are quite similar to those of grizzly bears. Healthy populations of black bears live within the PAA, and annual hunter harvest totals about 1,000. Grizzly bears relocated to the BE would likely come from areas where neither salmon nor whitebark pine are plentiful. A recovered population of 300-500 grizzly bears should find sufficient high quality forage within the recovery zone. Although bear densities may not recover to their historical levels during the peak of the salmon and whitebark pine era, the population should achieve densities similar to those found in other interior ecosystems where those food sources are not present. The key to recovery in the BE would likely be due to effective management including limitation of human-caused mortality rather than quantity or quality of habitat.

A recent vegetation-based inventory and analysis of grizzly bear habitat in the Bitterroot Ecosystem was completed by the Craighead Wildlife-Wildlands Institute. Appendix 21D, "Synopsis of Portions of, and Excerpts from the Report, '*Abundance and Spatial Distribution of Grizzly Plant-Food Groups in the Salmon-Selway Ecosystem: A Preliminary Analysis and Report*' (Hogg, Weaver, and Craighead et al. 1999)" presents detailed habitat maps showing the distribution and abundance of major grizzly bear foods. The USFWS examined the Hogg, Weaver, Craighead et al. (1999) data and selected whitebark pine nuts and several berry producing shrubs for quantification because they provide a major contribution to annual energy demands for bears (Interagency Grizzly Bear Committee 1987). In summary, results of Hogg, Weaver, Craighead et al. (1999) indicate bear foods in the form of berries generally decline moving from north to south through the Bitterroot area. Significant berry distribution occurs north of the Selway-Bitterroot Wilderness area in the North Fork of the Clearwater River drainage and throughout much of the Lochsa and Selway River drainages. Berry-producing species generally decline to the south, particularly species of huckleberry other than grouse whortleberry. Grouse whortleberry could potentially provide a significant seasonal food source in some years. Whitebark pine and associated nut crops tend to follow the opposite pattern with greater distributions south of the Salmon River and a general decline through the northern portions of the Bitterroot Ecosystem. For further information, see Chapter 3 "*Current Research on Grizzly Bear Habitat Suitability in the Bitterroot Ecosystem,*" and Appendix 21D. See Chapter 3, "Habitat Suitability" section and Appendix 21 for more information.

6. *How will grizzly bears and their habitat be managed?*

Primary grizzly bear management responsibility would reside within the USFWS and include active participation by federal land management agencies, the states of Idaho and Montana, and the Nez Perce Tribe. An interagency committee of managers (similar to other grizzly bear recovery areas) would be responsible for management decisions. A ten-member Scientific Committee would be appointed by the Secretary of Interior in cooperation with the National Academy of Sciences to recommend procedures for additional research, reintroduction of bears, and monitoring results of the program. The Scientific Committee would advise the Management Committee on other issues as directed. Habitat would still be managed by the land management agencies through management plans, but those plans may require amendments or changes to implement this alternative.

Nuisance bears would be controlled following the IGBC (1986) nuisance grizzly bear management guidelines (Appendix 15). Response to human or livestock/grizzly bear conflicts must occur rapidly after notification of USFWS or state fish and wildlife management agency. Grizzly bears could not be harassed or harmed by the public, except to protect human life or safety.

7.Where will grizzly bears be obtained, reintroduced, and recovered?
Grizzly bears obtained for reintroduction purposes would likely originate in the U. S. and Canada where current grizzly bear populations are healthy enough to sustain removal of a few bears per year over a 5-year period, but plans for this effort would be developed by the Scientific Committee. Only bears with no history of conflict with humans and livestock, and most likely subadults, would be reintroduced. Grizzly bears determined to be "nuisance" under IGBC Nuisance Bear Guidelines would not be reintroduced to the BE. The donor population should come from habitat as similar as possible to that found in the BE. Three sources of bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) in northwest Montana, and the Yellowstone Ecosystem (YE) population.

No bears would be removed from either U.S. ecosystem if such removal would exceed mortality limits. If the NCDE or YE populations exceed existing mortality limits in any year, then the placement of grizzly bears to the BE from these ecosystems would be suspended for the following year. This would not preclude the movement of bears from Canada. However, as 5 bears may not be available from Canada in a given year, this may extend the time period for reintroduction. Further, the actual capture of the necessary bears is dependent upon access to areas with such bears, and significant effort by capture crews. Capture of desired bears is not assured, even with intensive effort. It may require more than 5 years to obtain the desired minimum of 25 bears to initiate a new population in the BE. This should be made clear to the public and cooperating agencies at the outset.

There would be no significant detrimental effects to the health of source populations because mortality limits in the Grizzly Bear Recovery Plan (USFWS 1993) and British Columbia grizzly bear management criteria (B.C. Min. Environ., Lands, and Parks 1995) would be met during implementation of this alternative. Further, since no bears would be removed from the YE or NCDE if the mortality limits would be exceeded, and no female bears would be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE would be nonexistent.

The British Columbia government may have representation on both the Scientific and Management committees. Release sites would be within the Selway-Bitterroot Wilderness or roadless areas north of the Lochsa River.

The recovery zone totals 21,645 square miles and is 98.1% federal land, 0.3 % state lands (Idaho and Montana), and 1.6% private land (Figure 2-7). The federal lands are 30% Wilderness and 43% roadless areas. The Scientific Committee would extend the habitat mapping and evaluation effort that has already been conducted in the northern portion of the recovery zone (Davis and Butterfield 1991). This analysis would be used for adjustment of recovery zone boundaries or linkage zone designation.

ALTERNATIVE 4A. RESTORATION OF GRIZZLY BEARS AS A THREATENED POPULATION WITH FULL PROTECTION OF THE ESA AND USFWS MANAGEMENT

Background

Grizzly bears would be reintroduced into the BE without an experimental population rule and would be fully protected by all provisions of the Endangered Species Act as a "threatened" species until recovery was achieved. The experimental population provisions of Section 10(j) of the ESA would not be used. Bears would be restored and recovered in the northern Rocky Mountains under measures similar to protection given in other ecosystems such as the Yellowstone, Northern Continental Divide, Selkirk, or Cabinet-Yaak Ecosystems and would be listed as threatened under the ESA. Grizzly bear recovery would be the responsibility of the USFWS, with active participation of other federal agencies, states, and the Nez Perce Tribe. A Scientific Advisory Committee would be established to provide objective recommendations on research needs, implement reintroduction of bears, and monitor results of the program. Reintroduction of bears would occur within the Selway-Bitterroot Wilderness. Management situation boundaries would be mapped and guidelines would be applied as in other recovery areas. Ninety-eight percent of the Bitterroot Grizzly Bear Recovery Zone (21,645 square miles) that would be established under this alternative is federal land and the majority is wilderness or roadless (Figure 2-9). Grizzly bears that attack livestock would be managed under the Interagency Grizzly Bear Committee (IGBC 1986) nuisance grizzly bear management guidelines (Appendix 15). No federal or state compensation would be available. Private compensation might be obtained, if existing programs were to expand. Sanitation and food storage regulations would be implemented within the recovery zone. The State of Idaho would be requested to eliminate the use of dogs and bait for hunting black bears within the area designated for release.

Reintroduction of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management.—The purpose of this alternative is to achieve recovery through reintroduction, with the USFWS managing all aspects of recovery of the population. Other federal and state agencies and the Nez Perce Tribe would assist the USFWS with management activities. The grizzly bear would have full status as a threatened species under the provisions of the ESA.

Summary

Primary grizzly bear management responsibility would reside with the USFWS and include active participation by the states and the Nez Perce Tribe. A ten member Scientific Advisory Committee would be appointed by the Secretary of Interior in cooperation with the National Academy of Sciences to make recommendations regarding research needs and strategies for reintroduction of bears, and to monitor results of the program.

Grizzly bears would be reintroduced into the Selway-Bitterroot Wilderness through methods developed in cooperation with the Scientific Advisory Committee and the USFWS. Reintroduced bears would be fully listed as threatened with all the protections under the ESA (including Section 7(a)(2)), and all federal actions within the recovery zone would be subject to ESA Section 7

consultation with the USFWS. Management Situation designation would reflect a high priority for recovery on all federal lands within the 21,645 square mile recovery zone.

Grizzly bear populations would take a minimum of 65 years, and likely more than 125 years to recover to a population of 300-500 individuals. Interagency Grizzly Bear Committee (IGBC) nuisance grizzly bear management guidelines (IGBC 1986) would be applied to bears killing livestock. If losses occurred on nearby private lands, bears would be moved. Agency response to reported livestock losses from grizzly bears must occur rapidly. Grizzly bears could be killed in defense of life, but not in defense of property. Use of toxicants lethal to bears on public lands within the recovery zone and areas used by bears would be subject to Section 7 consultation and could be prohibited by existing ADC policy and EPA labeling instructions.

Backcountry users would be required to make food, garbage, and livestock feed unavailable to grizzly bears. Front country campgrounds would install bear resistant garbage containers as soon as possible. An intensive education campaign regarding food storage and garbage handling would be instituted for all residents and visitors. Appendix 22 includes an independent report that lists sites within the BE where sanitation problems exist, and these wildlife attractant sites would be targeted for clean-up. A request for elimination of hunting of black bears with dogs and bait within the wilderness areas designated for reintroduction of grizzly bears would be made to the State of Idaho. The Scientific Advisory Committee would evaluate whether this ban would need to be extended if conditions warrant. Intensive hunter education efforts regarding bear identification and recreation in grizzly bear habitat would be undertaken.

Implementing this alternative would involve:

The following summary highlights the actions that would be implemented if Alternative 4A is selected:

-The USFWS would designate the Bitterroot Grizzly Bear Recovery Zone along boundaries described in Figure 2-9. The Recovery Zone would include all of the Selway-Bitterroot, Frank Church-River of No Return, Sawtooth, and Gospel Hump Wilderness Areas, surrounding inventoried roadless lands, and other National Forest lands comprising approximately 21,645 square miles. The area is located on portions of the Clearwater, Bitterroot, Lolo, Panhandle, Payette, Boise, Sawtooth, Challis, and Salmon National Forests. Specifically, the northern boundary of the recovery zone would be the northern boundary of the Mallard-Larkins inventoried roadless area on the Clearwater and Panhandle National Forests and the northern boundary of the Sheep Mountain inventoried roadless area on the Lolo National Forest. The western boundary of the recovery zone would be the western boundary of the Clearwater National Forest; the westernmost boundaries of the Nez Perce and Payette National Forests west of U.S. Highway 95 and Idaho Highway 55; the westernmost boundaries of the Boise National Forest east of Idaho Highway 55. The southern boundary of the recovery zone would be the southern boundaries of the Boise, Sawtooth, and Challis National Forests north of U.S. Highway 20. The eastern boundary of the recovery zone would be the eastern boundaries of the Challis and Salmon National Forests west of U.S. Highway 93; the Bitterroot National Forest west of Lost Trail Pass northwest

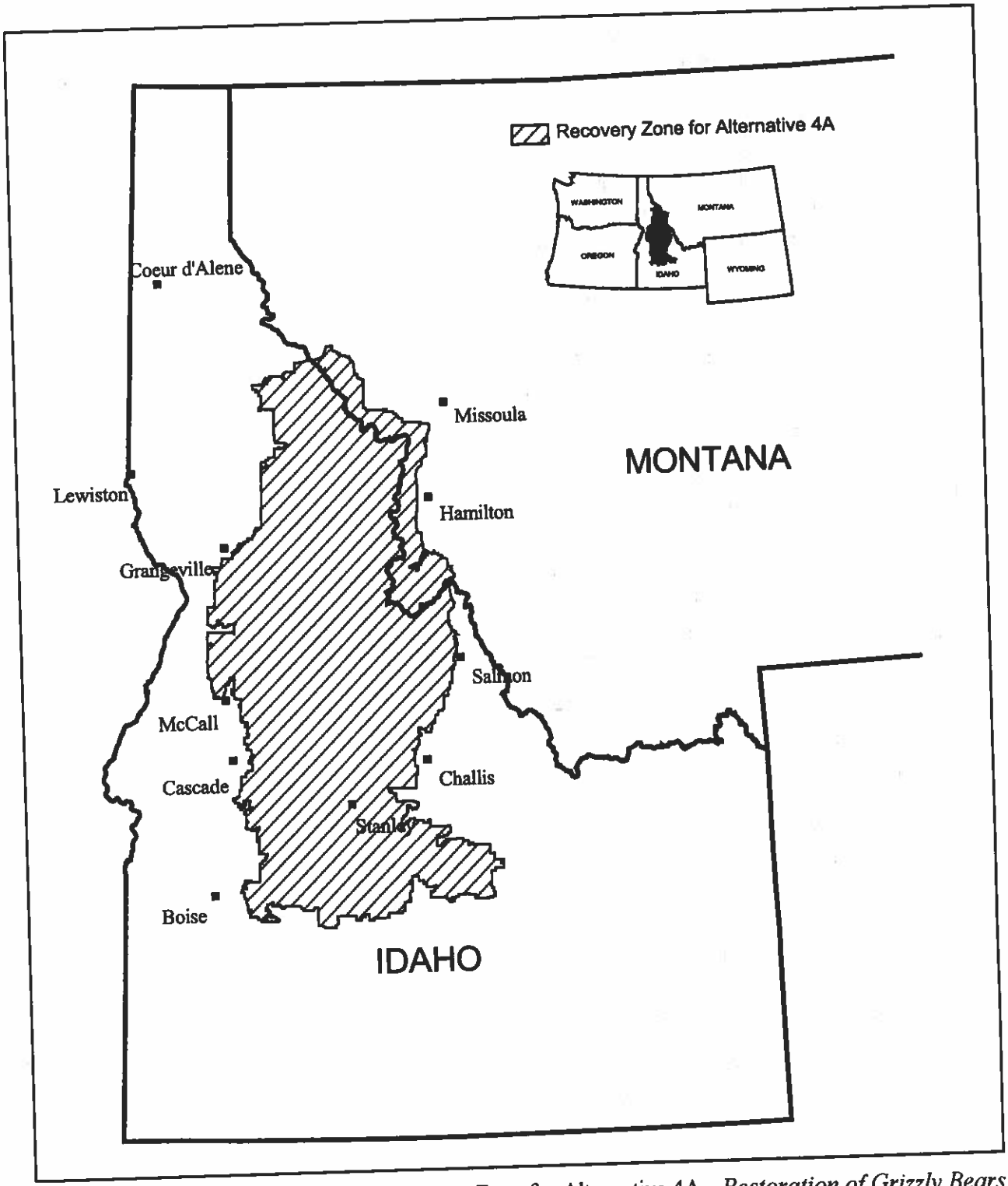


Figure 2-9. Bitterroot Grizzly Bear Recovery Zone for Alternative 4A - *Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management.*

to Trapper Peak; the eastern boundary of the Selway-Bitterroot Wilderness Area to Lolo Peak and to include Lost Horse and Blodgett Canyons out to the mouth; the LoloNational Forest from Lolo Peak northwest to Garden Point; from Garden Point northwest to Rivulet Peak; from Rivulet Peak northwest to Sunrise Point; from Sunrise Point northwest to Blacktail Mountain.

-The USFWS would establish proactive interagency grizzly bear recovery programs in the BE (similar to those in other ecosystems) to conduct monitoring, research, education, and information programs.

-A Scientific Advisory Committee would be established to provide input on research needs, strategies for reintroduction of bears, and monitoring program results.

-A recovery goal of between 300-500 (average of 400) grizzly bears (bears distributed over 21,645 square miles of designated wilderness, non-wilderness, and private land) would be established within the recovery zone. The Scientific Advisory Committee could recommend a refined recovery goal once grizzly bears are reintroduced and information is obtained on their use of the habitat.

-The USFWS would reintroduce a minimum of 25 bears over a period of five years into the Selway-Bitterroot Wilderness following procedures established from recommendations of the Scientific Advisory Committee. Subadult grizzly bears of both sexes would be trapped, each year for 5 years, from areas in Canada (in cooperation with Canadian authorities) and the United States that presently have healthy populations of grizzly bears living in habitats that are similar to those found in the Bitterroot Ecosystem. Three sources of grizzly bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population in northwest Montana, and the Yellowstone Ecosystem (YE) population. The specific number of bears that could be obtained yearly from the potential source populations is unknown at this time. Bears would be reintroduced at the best time of year to optimize their survival. Reintroduced bears would be radio collared and monitored to determine their movements and how they use their habitat, and to keep the public informed of general bear locations and recovery efforts.

-Some undetermined level of mortality is expected among the transplanted bears. Every effort would be taken to minimize this, but mortalities are expected to occur. Any transplanted bears that died or were removed as a result of human action could be replaced. Such replacements would be in addition to the original minimum of 25 bears.

-Within the recovery zone (Figure 2-9), the USFS and Bureau of Land Management (BLM) in cooperation with USFWS would designate management situations as per the Interagency Grizzly Bear Guidelines (IGBC 1986); and implement sanitation programs to assist recovery of grizzly bears.

-USFWS, in cooperation with other federal agencies, the states, the Nez Perce Tribe, and private groups would use federal funding to enhance grizzly bear habitat through acquisitions or easements.

-USFWS, in cooperation with IDFG and MDFWP would apply the IGBC (1986) nuisance grizzly bear management guidelines (Appendix 15) to grizzly bears in conflict with humans or domestic animals.

-USFWS could evaluate the need to eliminate the use of dogs and bait for black bear hunting within the area designated for release of reintroduced bears. These hunting techniques could be eliminated if authorized by the IDFG and Idaho Fish and Game Commission.

How would the grizzly bear population respond to this alternative?

Grizzly bear population modeling efforts were recently completed for two interior southern populations for which habitat conditions appear similar to the BE (McLellan 1989, Eberhardt et al. 1994, Knight and Blanchard 1995, Hovey and McLellan 1996). Population growth rates of approximately 4% and 8% were reported for the Yellowstone and the North Fork of the Flathead River in Southeast British Columbia grizzly bear populations, respectively. The 4% growth rate was for the period of 1974-1992. Craighead et al. (1974) calculated a 2% rate of growth for the Yellowstone population for the period of 1959-1967. These three growth rates (2%, 4%, and 8%) were applied to an initial population having 15 female bears to illustrate potential population growth rates and to estimate anticipated time to recovered populations (Figure 2-8). Reproductive rates were similar between studies, but survival rates were substantially different. Most notably, survival of subadult female bears was higher in the Flathead population and this produced much of the observed difference in growth rates. These scenarios were intended to provide a range of likely population projections following reintroduction, and are presented to depict how bear populations may optimally respond to implementation of this alternative. Bear populations may behave differently than projected, but these two data sets provide the best available information for modeling potential grizzly bear population growth in the BE. These models do not reflect internal population pressures (e.g., competition for food or space) that may reduce the rate of increase through reduced survival and reproduction. These effects could be expected to slow the growth rate as the population fills the available habitat. These projections are completely dependent upon a majority of transplanted bears remaining within the target area and reproducing at rates similar to bears in the Yellowstone or Flathead populations.

The recovery goal of this alternative is approximately 300-500 (mid-point of 400 bears) grizzly bears (bears distributed over 21,645 square miles of wilderness, non-wilderness, and private land). The population projections indicate that bear populations would require at least 125 years at a 2% growth rate, a minimum of 65-70 years at a 4% growth rate, and at least 35 years at an 8% growth rate to reach the recovery goal of approximately 300-500 bears (Figure 2-8). The USFWS has determined that the 8% growth rate is unrealistic for expected population growth in the BE. Realistically, under this alternative, grizzly bear recovery in the BE could take a minimum of 65-70 years, and given

expected conditions and conflicts, could likely take more than 125 years. The three scenarios indicate that improving survivorship of young bears can dramatically affect population growth. If bear mortality can be reduced, recovery would occur decades sooner (Maguire and Servheen 1992).

How does this alternative address the major issues and concerns of the public?

1. *What will be the risk to human safety?*

Impacts on human health and safety from implementation of this alternative would be similar to those described for Alternative 1. The BE grizzly bear population would be managed as a threatened population with full protection of the ESA under this alternative.

During the first several decades following reintroduction, the chance of injury caused by grizzly bears would be exceedingly small due to the low density of bears in the area. For instance, in the Cabinet-Yaak and Selkirk ecosystems where there are low density recovering populations of grizzly bears, there have not been any recorded injuries in at least the last 20 years. Under this alternative populations are estimated to achieve recovery levels of approximately 400 bears in a minimum of 65 years, and likely more than 125 years. Using human injury rates in the NCDE and YE, and recognizing a net increase in human visitation, projections for human injury, once bears are recovered 65-125+ years in the future, are less than one injury per year and less than one grizzly bear-induced human mortality every few decades.

Humans that act in self-defense or defense of others would continue to be allowed to kill a grizzly bear. In addition, new technologies such as repellants, proper sanitation procedures, aversive conditioning, monitoring, and preemptive management, as well as educating humans how to react during an encounter would reduce chance of injuries. See Appendix 11 for more information on risks to human safety.

2. *What kind of land-uses will be altered solely for grizzly bears?*

Because grizzly bears would be listed as a fully protected threatened species, all federal actions within the recovery zone would be subject to ESA Section 7 consultation with the USFWS. Additionally, it is likely that grizzly bear habitat management would restrict to some degree timber harvests on currently roaded areas within the recovery zone (Tom Wittinger, pers. comm. 1996). Based on the best available data (Tom Wittinger, Flathead Forest, pers. comm. 1996), it is estimated that reductions in timber harvest on national forest lands within the PAA would be between 32 and 76 million board feet per year over the next decade if Alternative 4A grizzly bear recovery were implemented as proposed (see Table 4-18). Impacts to timber harvest could be less based on current land-use restrictions in Idaho that do not occur in Montana on the Flathead Forest (i.e. Pacfish, etc.). The large variation between the high and low estimates reflect the divergence between the planned Allowable Sale Quantity (ASQ) of timber from Forests in the PAA and the actual harvest volume which has occurred in recent years (see Table 3-11).

Livestock grazing presently occurs at very low densities within the recovery zone and is not expected to be impacted by the implementation of this alternative. Grazing occurs predominantly in the

southern portion of the BE (Figure 3-8, Table 3-13). Consequently, at recovered grizzly population levels and current livestock stocking rates, impacts to livestock would be expected to be similar to levels occurring in portions of the NCDE and the YE. In 65-125+ years grizzly bears would likely be present within the southern portion of the BE. Projections indicate that at a grizzly bear population level of 400 bears in the recovery zone, yearly livestock losses to depredation from bears could range from 12-27 cattle and 41-355 sheep. Management activities would try to preempt livestock problems. The Scientific Committee would evaluate areas with recurring incidents and recommend solutions to aid in recovery.

Recreation impacts in the form of permanent trail closures within the wilderness would likely not occur. Temporary closures of trails may occur in response to a dangerous situation that might result in human injury or bear mortality (e.g., grizzly on a carcass in a trail). However, even in Glacier National Park where grizzly bear and human densities are greater than would likely ever occur in the BE, less than 5% of the trails are temporarily closed at one time. Trails are rarely closed in the NCDE outside of the park. In the NCDE where a minimum population of about 325 grizzly bears currently exists, only one trail was closed on national forest lands because of grizzly bears in the last 10 years. Sanitation concerns in the BE must be addressed, such that backcountry users properly store food and garbage to reduce potential conflicts with bears. Under this alternative, backcountry users would be required to make food, garbage and livestock feed unavailable to bears. This would necessitate hanging foods and garbage or placing it in containers to make it unavailable to bears. Front country campgrounds would install bear resistant garbage containers as soon as possible. An intensive education campaign regarding food storage and garbage handling would be instituted for all residents and visitors. Based on what is currently known about bear behavior in the NCDE and YE, nuisance bear incidents would likely range between 0 and 105 per year at recovered population levels.

Mineral extraction could be altered due to grizzly bear concerns in and by themselves. Recommendations may be made by the USFWS to reduce potential impacts if the need arises.

Impacts of grizzly bear reintroduction to big game populations would likely be insignificant. Studies from similar ecosystems with high densities of both bears and ungulates indicate that predation rates range from almost none to low levels of predation. Based on the current population of big game animals in the central Idaho analysis area (260,000 post-harvest), impacts of between 1-400 grizzly bears over a 50 year period whose diets consist of 90% vegetable matter, would likely not be measurable. In many locations, animal matter may not constitute a major annual diet item, but may be seasonally vital to bears (Mattson et al. 1991). An expected predation rate of 0.3-0.54% of the ungulate population in the area occupied by bears in the BE could occur. Using Mattson's (1997) estimate of 1.4 or 5.8 ungulates per year for adult female and male bears respectively, a population of 400 bears would be expected to prey upon 720 ungulates per year across the BE. The loss of 720 ungulates to a recovered grizzly bear population would represent approximately 0.15% of estimated pre-harvest populations of ungulates in the PAA. Grizzly bear predation is not expected to result in measurable or observable changes in ungulate populations. Potential long-term impacts to black bear

population dynamics is unclear, but felt to be minimal. Overall impacts of a recovered population of grizzly bears on other wildlife populations are expected to be minimal. It should not be necessary to adjust hunting seasons to compensate for grizzly bear predation on other wildlife. Any restrictions on black bear hunters or other hunting opportunities to reduce the likelihood of mistaken identity kills or to address other potential conflicts could be recommended by the USFWS, but would have to be acceptable and implemented by the IDFG and MDFWP. Under this alternative, the USFWS could evaluate the need to eliminate baiting and hound hunting of black bears within the Selway-Bitterroot Wilderness, Lochsa drainage, and upper North Fork of the Clearwater drainage. These hunting techniques could be eliminated if authorized by the Idaho Fish and Game Commission.

3. *How much will implementation cost?*
The present cost estimate for capturing a minimum of 25 grizzly bears, transplanting bears to the central Idaho recovery area, and monitoring and management of the grizzly bears over a 5-year period of reintroductions is $278,632 annually. The Scientific Advisory Committee would meet about 4-6 times annually during the early period of the project and less frequently later. Travel expenses and associated costs would amount to an estimated $15,000 dollars per year. In addition to costs involved in the transplanting, monitoring, and management of bears, there is also a cost associated with sanitation, information and education, and law enforcement activities conducted by the USFS within the recovery area. This cost would be approximately $150,000 annually. Total annual cost for the 5-year reintroduction period would be approximately $428,632/year, and total 5-year implementation cost would be approximately $2,143,160 (Appendix 7). Annual costs for monitoring and management would be approximately $188,000 for each year beyond the 5-year reintroduction period. See the economic analysis for Alternative 4A (Chapter 4) for an assessment of costs other than those associated with implementation.

4. How does this alternative address linkage zones?
Restoration of grizzly bears in the Bitterroot Ecosystem will increase concern about the possible linkage between existing areas with grizzly bears and the BE. The USFWS intends to complete a linkage zone analysis that will detail the possible linkage areas between the existing ecosystems, and between the BE and existing ecosystems. The linkage zone analysis is a Geographic Information System (GIS) computer modeling effort that looks at the levels of human impact and activity in the intervening areas between ecosystems and identifies the best linkage areas based on this human activity. This linkage zone analysis is a separate Grizzly Bear Recovery Plan Task and will be completed regardless of which FEIS alternative is selected for the BE. Maintenance of linkage zones is maintenance of the opportunity for grizzly bears and other wildlife species to move between the existing large blocks of public lands in order to maintain demographic and genetic health. A key factor in the maintenance of such linkage zones in the high-speed highways between these areas and how accommodations can and will be made to allow large animals such as bears the opportunity to cross these highways. In the long-term, the opportunity for bears to move between these ecosystems will improve the health of these populations. In the near term, restoration of a grizzly bear population in the BE will require placement of bears rather than waiting for eventual dispersal into this area, due to the limited number of movements of bears outside of existing range to date. Data from more that

550 different radio-collared grizzly bears since 1975 shows no movement between any grizzly bear ecosystems.

Under this alternative, USFWS would continue to coordinate research studies to determine the need for and location of linkage zones, and to identify specific habitat management guidelines necessary to maintain suitable habitat within linkage zones. If research determines that linkage zones are necessary for recovery, and that changes in habitat management within the identified zones are necessary, then the USFWS would recommend appropriate management actions.

5. *Are habitat quality and size of the recovery zone sufficient for recovery?*
The recovery zone is 21,645 square miles and is larger than either the NCDE or the YE at approximately 9,500 square miles each. The roadless and wilderness lands are approximately 15,845 square miles. This area is of sufficient size to allow for grizzly bear recovery.

Habitat quality has been studied extensively. A number of different studies have been conducted within the BE that have direct applicability to the potential for grizzly bear recovery (see Appendix 3). Appendix 21 contains results from current research studies on habitat capability of the BE to support grizzly bears. Habitat quality varies throughout the recovery zone. At one time grizzly bears were present in high densities throughout the BE. Salmon and whitebark pine, two important grizzly bear foods, were common during the peak of grizzly bear populations. Salmon have been virtually eliminated along the Clearwater drainage due to dams that block their migration. Whitebark pine has been reduced to about 20-40% of its historical abundance in the BE, and now is most prevalent in the southern half of the ecosystem. The species is expected to decline to approximately 5-10% of its historic abundance level before increasing again (Keene and Arno 1996).

However, studies indicate that a great variety of preferred grizzly bear foods are present in the ecosystem. A wide variety of all season foods are present including good quantities of several key berry species, forbs and grasses, as well as historically high levels of ungulates to provide carrion during the fall and spring months. Food habits of black bears are quite similar to those of grizzly bears. Healthy populations of black bears live within the PAA, and annual hunter harvest totals about 1,000. Grizzly bears relocated to the BE would likely come from areas where neither salmon nor whitebark pine are plentiful. A recovered population of 300-500 grizzly bears should find sufficient high quality forage within the recovery zone. Although bear densities may not recover to their historical levels during the peak of the salmon and whitebark pine era, the population should achieve densities similar to those found in other interior ecosystems where those food sources are not present. The key to recovery in the BE would likely be due to effective management including limitation of human-caused mortality rather than quantity or quality of habitat.

6. *How will grizzly bears and their habitat be managed?*
Primary grizzly bear management responsibility would reside within the USFWS and include active participation by federal land management agencies, the states of Idaho and Montana, and the Nez Perce Tribe. An interagency committee of managers (similar to other grizzly bear recovery areas)

would be responsible for management decisions. A ten-member Scientific Advisory Committee would be appointed by the Secretary of Interior in cooperation with the National Academy of Sciences to recommend procedures for additional research, reintroduction of bears, and monitoring results of the program. The Scientific Advisory Committee would advise the USFWS and interagency management committee on other issues as directed. Habitat would still be managed by the land management agencies through management plans.

Nuisance bears would be controlled following the IGBC (1986) nuisance grizzly bear management guidelines (Appendix 15). Response to human or livestock/grizzly bear conflicts must occur rapidly after notification of USFWS or state fish and wildlife management agency. Grizzly bears could not be harassed or harmed by the public, except to protect human life or safety.

7. Where will grizzly bears be obtained, reintroduced, and recovered?

Grizzly bears obtained for reintroduction purposes would likely originate in the U. S. and Canada where current grizzly bear populations are healthy enough to sustain removal of a few bears per year over a 5-year period, but plans for this effort would be developed in cooperation with the Scientific Advisory Committee. Only bears with no history of conflict with humans and livestock, and most likely subadults, would be reintroduced. Grizzly bears determined to be "nuisance" under IGBC Nuisance Bear Guidelines would not be reintroduced to the BE. The donor population should come from habitat as similar as possible to that found in the BE. Three sources of bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) in northwest Montana, and the Yellowstone Ecosystem (YE) population.

No female bears would be removed from YE or NCDE recovery zones or from within the buffer area 10 miles outside the recovery zone boundaries. No bears would be removed from either U.S. ecosystem if such removal would exceed mortality limits. If the NCDE or YE populations exceed existing mortality limits in any year, then the placement of grizzly bears to the BE from these ecosystems would be suspended for the following year. This would not preclude the movement of bears from Canada. However, as 5 bears may not be available from Canada in a given year, this may extend the time period for reintroduction. Further, the actual capture of the necessary bears is dependent upon access to areas with such bears, and significant effort by capture crews. Capture of desired bears is not assured, even with intensive effort. It may require more than 5 years to obtain the desired minimum of 25 bears to initiate a new population in the BE. This should be made clear to the public and to cooperating agencies at the outset.

There would be no significant detrimental effects to the health of source populations because mortality limits in the Grizzly Bear Recovery Plan (USFWS 1993) and British Columbia grizzly bear management criteria (B.C. Min. Environ., Lands, and Parks 1995) would be met during implementation of this alternative. Further, since no bears would be removed from the YE or NCDE if the mortality limits would be exceeded, and no female bears would be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE would be nonexistent.

The British Columbia government may have representation on both the Scientific Advisory and interagency management committees. Release sites would be within the Selway-Bitterroot Wilderness.

The recovery zone totals 21,645 square miles and is 98.1% federal land, 0.3 % state lands (Idaho and Montana), and 1.6% private land (Figure 2-9). The federal lands are 30% Wilderness and 43% roadless areas. The Scientific Advisory Committee would extend the habitat mapping and evaluation effort that has already been conducted in the northern portion of the recovery zone (Davis and Butterfield 1991). This analysis would be the basis for any adjustment of recovery zone boundaries or linkage zone designation.

A SUMMARY AND COMPARISON OF THE IMPACTS OF THESE ALTERNATIVES AND IDENTIFICATION OF THE FISH AND WILDLIFE SERVICE PREFERRED ALTERNATIVE

This section briefly describes the six alternatives that were considered in detail and compares them in terms of how well each one meets the recovery goal of the USFWS and the public concerns that were identified during scoping. Table 2-1 summarizes the six alternatives and the expected actions associated with them. Figure 2-10 compares the proposed Bitterroot Grizzly Bear Recovery Area for Alternative 1 with the proposed Bitterroot Grizzly Bear Recovery Zones for Alternatives 1A, 2, 4, and 4A. Table 2-2 summarizes the general impact of implementation of each alternative on big game resources, hunter harvest, domestic animals, land-use restrictions, visitor use, and economics. For a more detailed analysis of the alternatives and associated effects, please see Chapter 4, Environmental Consequences.

Alternative 1, Restoration of a Grizzly Bears as a Nonessential Experimental Population with Citizen Management (the proposed action) has been identified as the preferred alternative by the USFWS because it best meets the purpose and need (Chapter 1), and the criteria used to evaluate and compare the alternatives (Chapter 4). The USFWS believes that this alternative would be the most efficient and likely to result in the recovery of grizzly bears in the Bitterroot Ecosystem.

Alternative 1A, Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Management was not selected as the preferred alternative because the USFWS chooses to maximize the probability of success by involving citizens in the management of the restored population. Alternative 2, The No Action Alternative - Natural Recovery was not selected as the preferred alternative because it is very unlikely that grizzly bears could be restored in the Bitterroot Ecosystem through natural recovery as prescribed under this alternative. Alternative 3, the No Grizzly Bear Alternative was not selected as the preferred alternative because it does not fulfill the purpose of the FEIS. Alternative 4, Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration, was not selected as the preferred alternative because the management actions proposed by Alternative 4 are beyond what is necessary to fulfill the purpose of the FEIS. The road management plan to obliterate a large number of roads to achieve a road density of 0.25 mi./sq.mi., and the elimination of timber harvest in all roadless areas under this alternative are not necessary actions to achieve grizzly bear recovery, and thus decrease the efficiency with which this alternative could achieve recovery in the Bitterroot Ecosystem. Alternative 4A, Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management, was not selected as the preferred alternative because it is unlikely that grizzly bear restoration in the Bitterroot Ecosystem would succeed without local citizen involvement in grizzly bear management.

Table 2-1. Alternatives and Expected Actions Associated with Them.

Expected Actions / Alternatives	What is the risk to human safety?	Land-uses altered solely for grizzly bears?	Cost estimate for implementation?[a]	How are linkage zones addressed?	Are habitat quality/size sufficient for recovery?	How would grizzly bears and their habitat be managed?	Where would grizzly bears be obtained and recovered?	Legislation needed to implement?
Alternative 1 - Restoration of Grizzly Bears as a Nonessential Experimental Population with Citizen Management (Proposed Action)	Minimal before recovery. At recovered grizzly popn. levels, less than 1 injury per year and less than 1 human mortality every few decades.	None expected. To be determined by the Citizen Management Committee (CMC), if need for land-use restrictions arises.	Reintroduction phase (first 5 years) = $2,168,160 Annual monitoring and management thereafter = $193,000 per year.	No linkage zones designated.	Yes	IDFG/MDFWP in consultation with USFWS and the Nez Perce Tribe would manage and implement rules, policies, plans of CMC. Current land management agencies would continue to manage habitat.	Bitterroot Grizzly Bear Recovery Area (Figure 2-1) = 5,785 square miles. Bears likely moved from existing popns. in U.S. and Canada and released into Selway-Bitterroot Wilderness.	Publish Special Rule in Federal Register to establish nonessential experimental population.
Alternative 1A - Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Managemt.	Minimal before recovery. At recovered grizzly popn. levels, less than 1 injury per year and less than 1 human mortality every few decades.	None expected. To be determined by the USFWS if need for land-use restrictions arises.	Reintroduction phase (first 5 years) = $2,068,160 Annual monitoring and management thereafter = $173,000 per year.	No linkage zones designated.	Yes	Federal (USFWS) with active participation by IDFG, MDFWP and the Nez Perce Tribe. Current land management agencies would continue to manage habitat.	Bitterroot Grizzly Bear Experimental Area (Figure 2-4) = 25,140 square miles. Bears likely moved from existing popns. in U.S. and Canada and released into Selway-Bitterroot Wilderness.	Publish Special Rule in Federal Register to establish nonessential experimental population.
Alternative 2 - The No Action Alternative - Natural Recovery	No risk unless bears move from other ecosystems to occupy the BE. Minimal risk until recovery, then same as Alt. 1.	Few expected. To be determined by USFWS, if illegal killing, research, or ESA Section 7 consultation warrants. Triggered on grizzly bear presence in BE.	Annual cost of monitoring and management for natural recovery = $140,000 per year.	No linkage zones designated.	Yes	Federal (USFWS) would have authority for grizzly bear recovery. Current land management agencies would continue to manage habitat.	Bitterroot Grizzly Bear Recovery Zone (Figure 2-6) = 5,500 square miles. No bears would be moved or released. Bears allowed to naturally recolonize from other existing populations.	None
Alternative 3 - No Grizzly Bear	Nonexistent.	None for grizzly bears.	Minimum total cost to develop legislation = $2,000,000.	No linkage zones designated.	N/A	No agency management for recovery of grizzly bears.	Nowhere	Modify state (MT & ID) and federal laws. Change ESA.
Alternative 4 - Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration	Minimal before recovery. At recovered grizzly bear population levels, less than 1 injury per year and less than 1 human mortality every few decades.	No timber harvest or road constructn. in roadless areas of recovery zone. Road densities reduced to <0.25 mi/sq.mi. in recovery zone. Other restrictions per Science Committee recommendation, and ESA Section 7 consultation.	Reintroduction phase (first 5 years) = $2,143,160 Annual monitoring and management thereafter = $188,000 per year.	Linkage zone designated between Bitterroot Ecosystem and Cabinet-Yaak Ecosystem.	Yes	Federal (USFWS) with active participation by IDFG, MDFWP and the Nez Perce Tribe, and in consultation with Scientific Committee. Current land management agencies would continue to manage habitat.	Bitterroot Grizzly Bear Recovery Zone (Figure 2-7) = 21,645 square miles. Bears likely moved from existing populations in U.S. and Canada and released into Selway-Bitterroot Wilderness or roadless areas north of Lochsa River.	Laws that govern land managemt agencies on federal lands will have to be changed for USFWS to implement this alternative.
Alternative 4A - Restoration of Grizzly Bears as a Threatened Popn, with Full Protection of the ESA and USFWS Managemt.	Minimal before recovery. At recovered grizzly bear population levels, less than 1 injury per year and less than 1 human mortality every few decades.	To be determined by USFWS, if illegal killing, research, or ESA Section 7 consultation warrants.	Reintroduction phase (first 5 years) = $2,143,160 Annual monitoring and management thereafter = $188,000 per year.	No linkage zones designated.	Yes	Federal (USFWS) with active participation by IDFG, MDFWP and the Nez Perce Tribe. Current land management agencies would continue to manage habitat.	Bitterroot Grizzly Bear Recovery Zone (Figure 2-9) = 21,645 square miles. Bears likely moved from existing populations in U.S. and Canada and released into Selway-Bitterroot Wilderness.	None

[a] See Appendix 7 for further explanation of cost estimates.

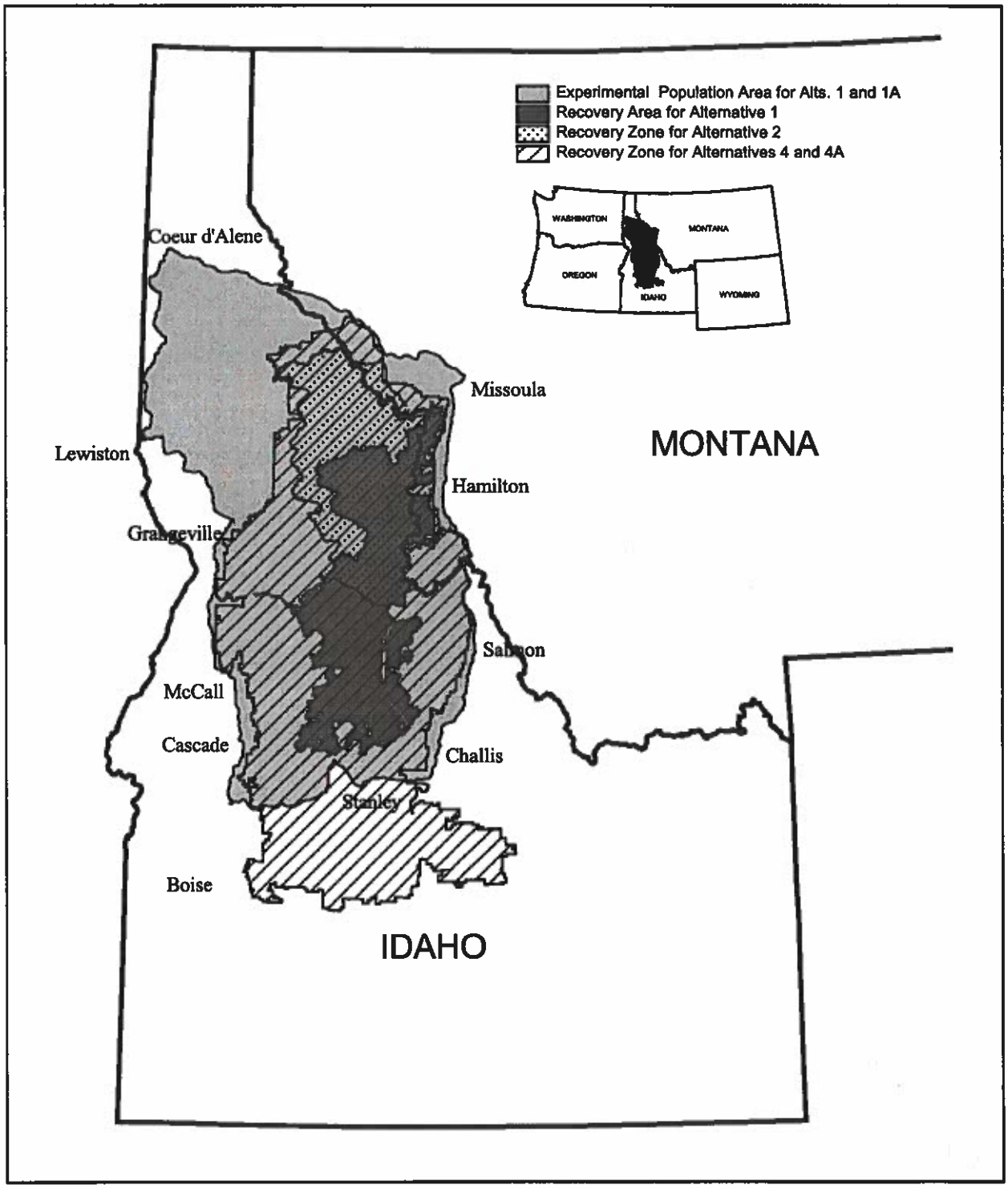


Figure 2-10. Comparison of the Bitterroot Grizzly Bear Recovery Area for Alternative 1, Experimental Area for 1A, and Bitterroot Grizzly Bear Recovery Zones for Alternatives 2, 4, and 4A.

Table 2-2. Expected Impacts of a Recovered Grizzly Bear Population by Alternative.

IMPACT ALTERNATIVES	Impact on human health and safety	Impact on source grizzly bear populations	Impact on land-use activities to include: timber harvest, domestic livestock, and minerals extraction	Impact on wildlife populations	Impact on public access and recreational use	Social Impacts	Economic Impacts[a]
Alternative 1 - Restoration of Grizzly Bears as a Nonessential Experimental Population with Citizen Management	Minimal risk of injury before recovery (50-110+ years). At recovery (280 bears) less than 1 injury per year, and less than 1 mortality every few decades.	Removal of bears from source populations would adhere to all management guides to protect source popn. health. Thus no impact to source popn. health.	No expected impacts to timber harvest or mining. At recovered population level (280 bears), 4-8 cattle and 5-44 sheep lost per year. Nuisance incidents = 0-74 per year.	Minimal impacts to wildlife. At recovered population levels, 280 bears would kill approximately 504 ungulates per year.	No road/trail closures expected. Changes to hunting seasons could occur due to possible conflicts.	Hardship due to nuisance incidents and sanitation requirements. Mixed impact due to knowledge of grizzly presence. Positive impact to Native American culture by recovering grizzlies.	Livestock loss: $2,720-$8,568/yr. Grizzly existence value: $40.5-$60.6 million per year. Reintroduction cost: $433,632/year for first 5 yrs. Management cost: $193,000 per year after first 5 yrs.
Alternative 1A - Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Managemt.	Minimal risk of injury before recovery (50-110+ years). At recovery (280 bears) less than 1 injury per year, and less than 1 mortality every few decades.	Removal of bears from source populations would adhere to all management guides to protect source popn. health. Thus no impact to source popn. health.	No expected impacts to timber harvest or mining. At recovered population level (280 bears), 4-8 cattle and 5-44 sheep lost per year. Nuisance incidents = 0-74 per year.	Minimal impacts to wildlife. At recovered population levels, 280 bears would kill approximately 504 ungulates per year.	No road/trail closures expected. Changes to hunting seasons could occur due to possible conflicts.	Hardship due to nuisance incidents and sanitation requirements. Mixed impact due to knowledge of grizzly presence. Positive impact to Native American culture by recovering grizzlies.	Livestock loss: $2,720-$8,568/yr. Grizzly existence value: $40.5-$60.6 million per year. Reintroduction cost: $413,632/year for first 5 yrs. Management cost: $173,000 per year after first 5 yrs.
Alternative 2 - The No Action Alternative - Natural Recovery	If bears recolonize, risk minimal until recovery (150+ years), then same as Alternative 1.	Bears would not be relocated under Alternative 2. No impact.	If bears recolonize, Section 7 consultation could reduce timber harvest and mining. At recovery (280) bears, 1-3 cattle & 1-6 sheep lost per yr. Nuisance incidents = 0-74/yr.	If recolonization occurs, minimal impact until recovery, then same as Alternative 1.	If bears recolonize, possible road/trail closures due to Section 7. Hunting season changes could occur also.	If recolonization occurs, then same as Alternative 1. Also negative impact of jobs lost to local communities.	If bears recolonize, possible loss of 55-264 timber jobs. No existence value. Management cost until recovery = $140,000/ year.
Alternative 3 - No Grizzly Bear	No impact.	Bears would not be relocated under Alt. 3. No impact.	No impact.	No impact.	No impact.	No impact to local communities. Negative impact to Native Americans	Total cost of $2 million over several years to change federal and state laws.
Alternative 4 - Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration	Same as Alternative 1, except time to recovery is minimum 65-70 years, and likely more than 125 years.	Same as Alternative 1. Thus no impact to source population health.	ESA Section 7 consultation required. No road building or timber harvest on USFS roadless areas. Timber harvest & mining reduced. At 400 bears, 12-27 cattle & 41-355 sheep lost / yr. Nuisance incidents = 0-105 per year.	Minimal impacts to wildlife. At recovered population levels, 400 bears would kill approximately 720 ungulates per year.	Closure and reclamation of 3500 miles of roads. Other closures likely due to Sectn. 7. Hunting season changes, especially black bear.	Same as Alternative 1. Additional negative impact of lost jobs to local communities.	Hunting loss: $288,700/yr. Livestock loss: $10,552-$47,915/year. Jobs lost: 117-1,136. Existence value: $40.5- $60.6 million/year. Reintrod. cost: $428,632/yr. for first 5 years. Mgmt. cost: $188,000/year after first 5 yrs
Alternative 4A - Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and USFWS Management	Same as Alternative 1, except time to recovery is minimum 65-70 years, and likely more than 125 years.	Same as Alternative 1. Thus no impact to source population health.	Sectn. 7 consultation could reduce timber harvest and mining. At population of 400 bears, 12-27 cattle & 41-355 sheep lost per year. Nuisance incidents = 0-105 per year.	Minimal impacts to wildlife. At recovered population levels, 400 bears would kill approximately 720 ungulates per year.	Possible road/trail closures due to Section 7. Hunting season changes could occur also.	Hardship due to nuisance incidents and sanitation reqs. Mixed impact due to knowledge of grizzly presence. Positive impact to Native American culture by recovering grizzlies.	Livestock loss: $10,552-$47,915/year. Jobs lost: 215-504. Existence value: $40.5-$60.6 million/year. Reintroduction cost: $428,632/year for first 5 years. Management cost: $188,000/year after first 5 years.

[a] See Appendix 7 for further explanation of cost estimates.

CHAPTER III

AFFECTED ENVIRONMENT

BITTERROOT ECOSYSTEM OF CENTRAL IDAHO AND WESTERN MONTANA: THE REGION

Both Idaho and Montana are large, sparsely populated, and mostly rural northwestern states (Table 3-19). The two states cover nearly 147 million acres (229,688 mi^2). Of Idaho's nearly 53 million acres (82,813 mi^2), almost 64% are federal lands. The USDA Forest Service (USFS) and U.S. Bureau of Land Management (BLM) manage over 20 million (31,250 mi^2) and 11 million acres (17,188 mi^2), respectively, in Idaho. Of Montana's nearly 94 million acres (146,875 mi^2), nearly 29% are federal lands. The USFS and BLM manage nearly 17 million acres (26,563 mi^2) and over 8 million acres (12,500 mi^2) respectively in Montana.

In 1996, combined population for the two states was 2.07 million people or an average of 9.0 people per square mile (Table 3-19). In Idaho, the state population grew approximately 67% over a 26 year period from 713,015 people in 1970 (8.7 people/mi^2) to 1,187,597 people (14.3 people/mi^2) in 1996. Montana's population grew approximately 10% in a six year period from 799,065 people in 1990 (5.4 people/mi^2) to 876,684 people in 1996 (6.0 people/mi^2).

About 43% of Idaho's population is rural. Most of the population occurs in the southern, more developed part of Idaho. Boise, Idaho's capital, is the largest city with a 1996 population of 152,737 people, followed by Pocatello (51,344 people) and Idaho Falls (48,079 people). Montana also has a predominantly rural population (48%). Billings is the state's largest city with a 1996 population of 91,195 people, followed by Great Falls (57,758 people) and Missoula (51,204).

The Bitterroot Grizzly Bear Primary Analysis Area (PAA) is that area potentially affected by grizzly bear recovery in the Bitterroot Ecosystem (BE) of Idaho and Montana (Figure 3-1). The heart of the PAA is centered around the Wilderness Areas of central Idaho, while a small portion extends over the crest of the Bitterroot Mountains.

The PAA includes about 16,686,596 acres (26,072 mi^2) of contiguous national forest lands in central Idaho and western Montana (Figure 3-2). These include the Bitterroot, Boise, Challis, Clearwater, Nez Perce, Payette, Sawtooth, Salmon, and Panhandle National Forests in Idaho, and the Bitterroot and Lolo National Forests in western Montana. A few scattered parcels of private and state land are interspersed throughout this area, but the total acreage is minor.

The center of the PAA is characterized by 3 wilderness areas covering a contiguous area of 3,902,912 acres (6,098 mi^2). These include the Frank Church-River of No Return (2,361,767 acres; 3,690 mi^2), the Selway-Bitterroot (1,340,681 acres; 2,095 mi^2), and the Gospel Hump (200,464 acres; 313 mi^2) Wilderness Areas (Figure 3-3).

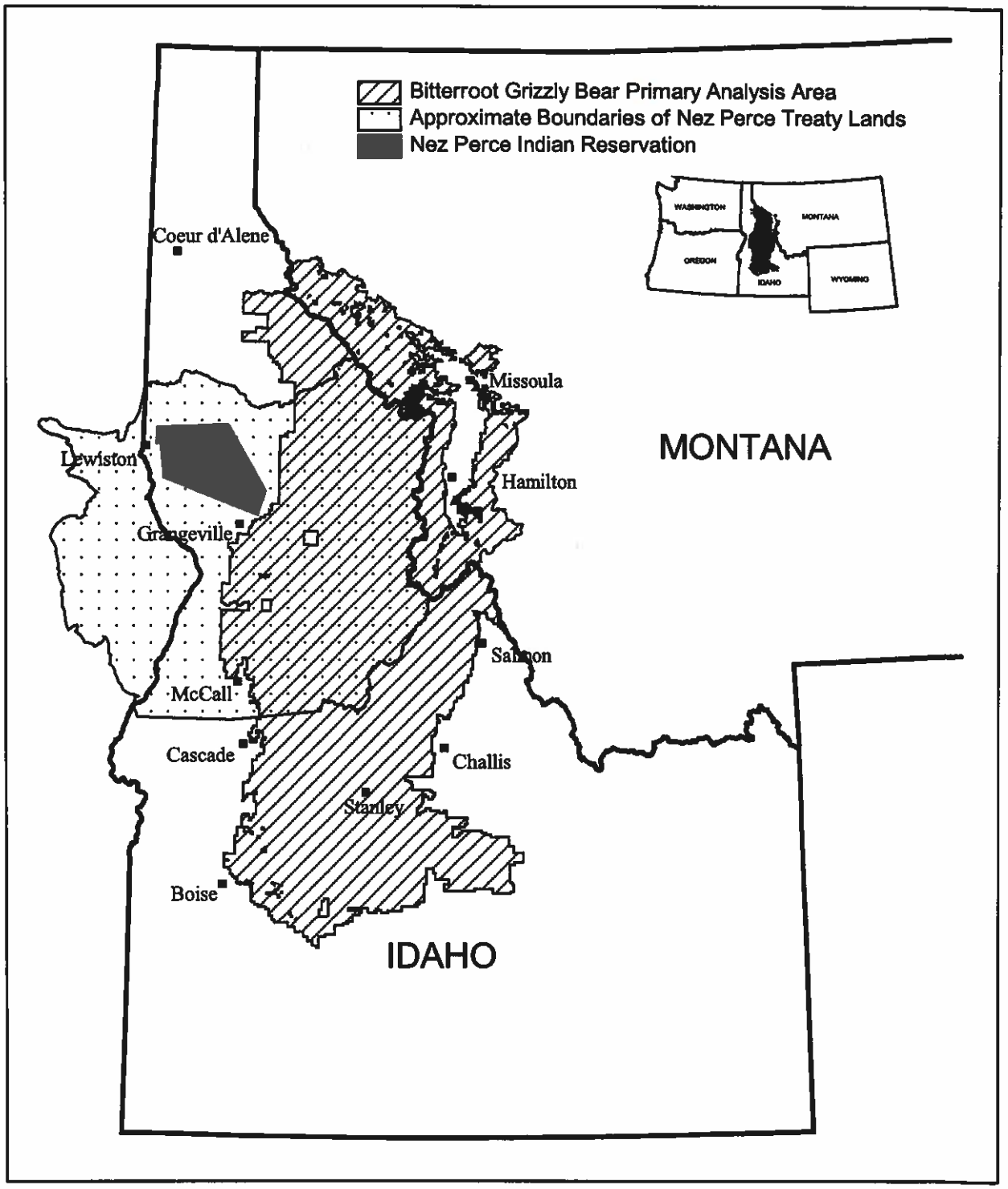


Figure 3-1. Location of the Bitterroot Grizzly Bear Primary Analysis Area, Nez Perce Indian Reservation, and approximate boundaries of Nez Perce treaty lands in Idaho.



Figure 3-2. Ten contiguous national forests comprising the Bitterroot Grizzly Bear Primary Analysis Area.

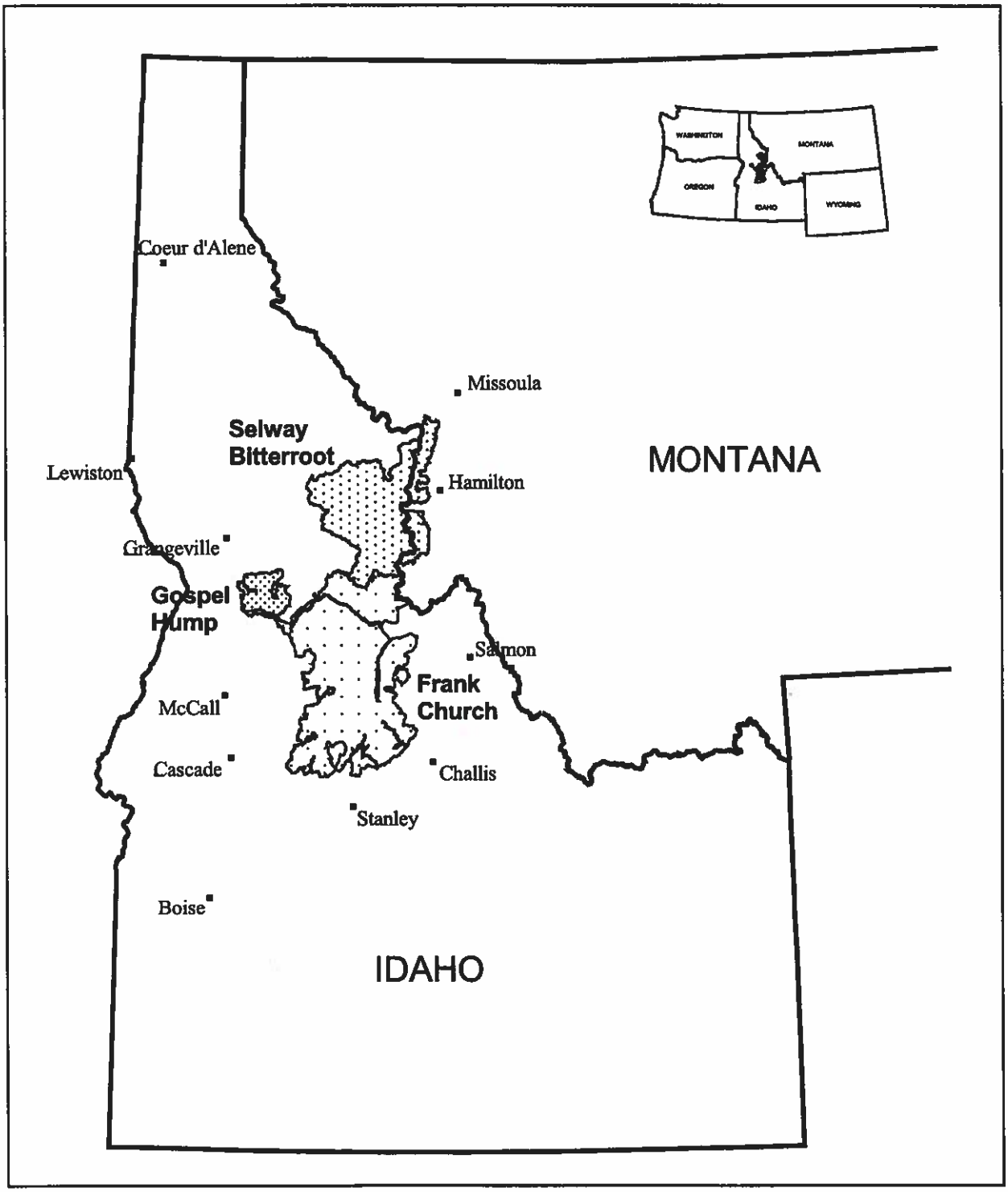


Figure 3-3. The three wilderness areas within the Bitterroot Grizzly Bear Primary Analysis Area: Selway-Bitterroot, Frank Church-River of No Return, and Gospel Hump Wilderness Areas.

The River of No Return Wilderness Area covers parts of Custer, Idaho, Lemhi, and Valley counties and is administered by 6 national forests, including the Bitterroot, Nez Perce, Boise, Challis, Payette, and Salmon. The Selway-Bitterroot Wilderness Area covers parts of Idaho and Clearwater counties in Idaho and parts of Missoula and Ravalli counties in Montana; and is administered by the Nez Perce, Clearwater, and Bitterroot National Forests. The Gospel Hump Wilderness Area is contained entirely within Idaho County and the Nez Perce National Forest.

Ten counties in central Idaho encompassing 22,687,424 acres (35,449 mi^2) and four counties in western Montana encompassing 5,740,560 acres (8,970 mi^2) are included in the PAA (Figure 3-4). Within this 14-county area, 18,489,989 acres (28,891 mi^2; 65%) are managed by the USFS, 3,066,749 acres (4,792 mi^2, 11%) are managed by the BLM, and 5,582,892 acres (8,723 mi^2; 20%) are privately owned (Table 3-1).

Table 3-1. Land ownership estimates, in acres, by county in the Bitterroot Grizzly Bear Primary Analysis Area[a].

County	USDA Forest Service	U.S. Bureau of Land Management	Private	State	Other[b]	Total
Idaho						
Blaine	491,115	796,272	319,014	60,321	26,013	1,692,736
Boise	873,345	31,744	194,676	86,393	31,442	1,217,600
Camas	323,546	120,490	216,419	25,075	2,470	688,000
Clearwater	792,191	12,677	490,128	233,713	46,715	1,575,424
Custer	2,123,657	813,041	159,549	53,805	2,332	3,152,384
Elmore	783,196	530,313	415,382	124,338	116,563	1,969,792
Idaho	4,429,429	93,319	825,210	75,817	6,753	5,430,528
Lemhi	2,073,219	579,405	228,783	37,869	1,876	2,921,152
Shoshone	1,199,775	70,100	344,256	68,474	3,155	1,685,760
Valley	2,029,724	5,093	202,993	75,342	40,896	2,354,048
Montana						
Mineral	646,889	0	113,847	21,984	-	728,720
Missoula	693,027	14,295	886,360	85,678	-	1,679,360
Ravalli	1,116,162	0	371,239	38,126	-	1,528,320
Sanders	914,714	0	815,036	64,564	-	1,804,160
Totals	18,489,989	3,066,749	5,582,892	1,051,499	278,215	28,427,984

[a] Idaho information from 1995 Idaho Department of Commerce data. Montana information from 1994 Montana Department of Natural Resources data.
[b] Includes: Bureau of Reclamation, United States Air Force, National Park Service, U.S. Army Corp of Engineers, USFWS, county, Tribal, and municipal lands.

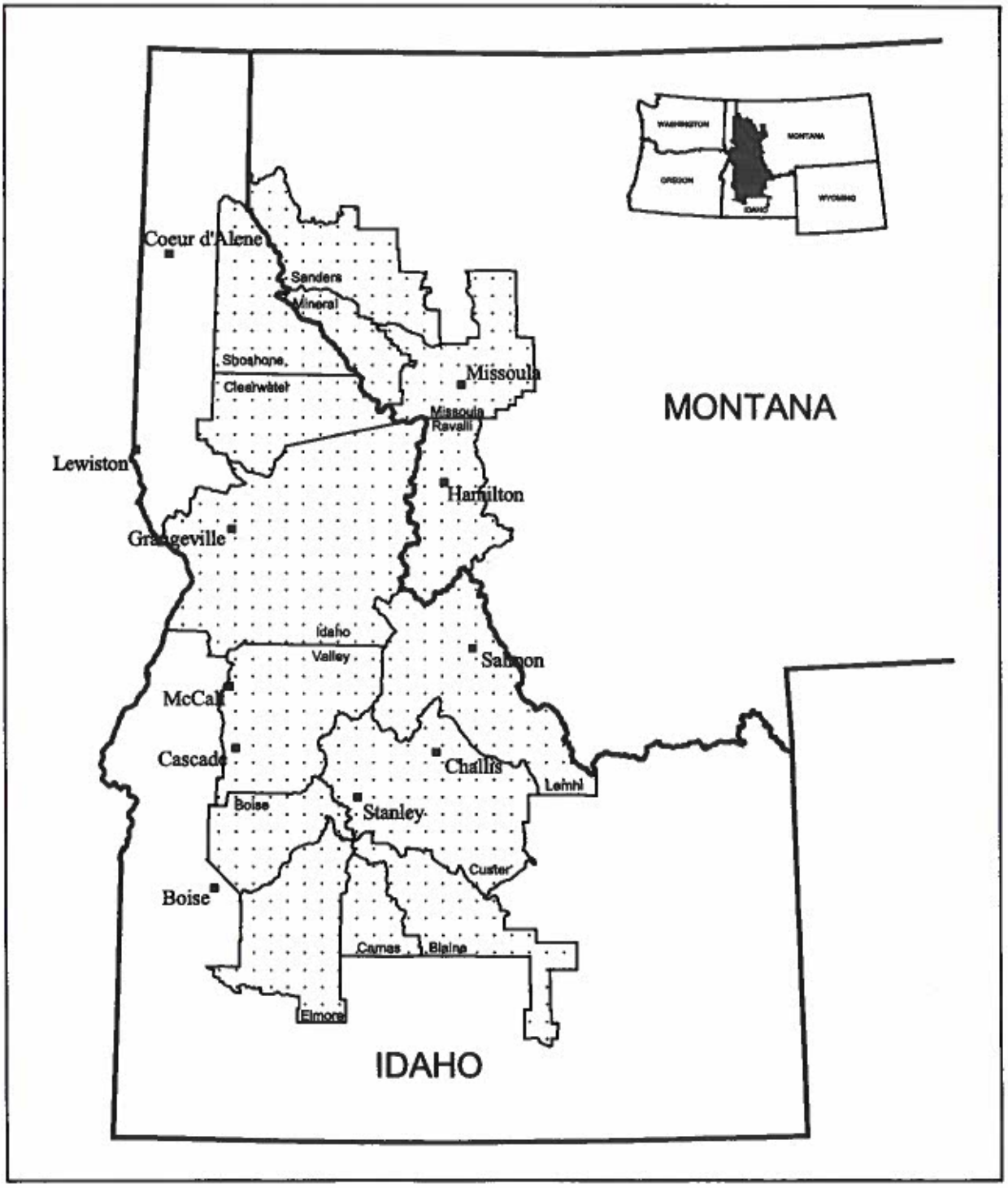


Figure 3-4. Fourteen counties in central Idaho and western Montana that are all or partly included in the Bitterroot Grizzly Bear Primary Analysis Area (the "fourteen-county area").

The 14 counties support a population of 240,928 people at an average density of 5.4 people/mi^2 (Table 3-2). With the exception of Elmore County in Idaho, populations in all Idaho counties are >50% rural; and Boise, Valley, Camas, and Custer County populations are all considered 100% rural. The 14-county area supports 4,327 farms covering 2,751,743 acres (4,300 mi^2; Table 3-2).

Table 3-2. Number and density of people and farms in 14 counties covering the Bitterroot Grizzly Bear Primary Analysis Area in central Idaho and western Montana.[a]

Counties	Area (mi^2)	Population	Density/mi^2	Percent rural	Total farms	Total acres in farms
Idaho						
Blaine	2,645	16,966	6.4	53.0	195	214,985
Boise	1,903	4,908	2.6	100.0	78	45,461
Camas	1,075	876	0.8	100.0	98	127,514
Clearwater	2,461	9,444	3.8	63.4	210	73,103
Custer	4,926	4,357	0.9	100.0	268	147,913
Elmore	3,078	23,778	7.7	58.4	301	355,590
Idaho	8,485	14,879	1.8	77.9	661	649,851
Lemhi	4,564	8,094	1.8	56.0	308	196,584
Shoshone	2,634	13,975	5.3	100.0	44	4,100
Valley	3,678	7,957	2.2	65.6	119	64,282
Montana						
Mineral	1,223	3,719	3.0	-	71	16,329
Missoula	2,618	88,271	33.7	-	482	262,419
Ravalli	2,400	33,550	14.0	-	1,080	183,647
Sanders	2,790	10,154	3.6	-	412	409,965
Totals	44,480	240,928			4,327	2,751,743

[a] Idaho information from 1998 Idaho Department of Commerce data (for year 1996). Montana population information from 1998 Montana Department of Commerce data (for year 1996). Montana and Idaho farm information from 1997 Montana and Idaho State Census of Agriculture data (USDA National Agricultural Statistics Service).

A large proportion of the PAA lies within the ceded area of the Nez Perce Tribe (Figure 3-1). The Nez Perce Tribe is a federally recognized Indian tribe with a special trust relationship with the United States government and legal rights defined by treaties, federal statutes, court decisions and the U. S. Constitution.

The Tribe's original land base covered about 13,200,000 acres in north central Idaho, northeast Oregon, and southeast Washington. Most of the original land base was ceded to the U. S.

government through treaties in 1855 and 1863. In those treaties, however, the Tribe retained the exclusive right of taking fish in all the streams running through or bordering the reservation, the right of taking fish at all usual and accustomed places in common with citizens, and the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land.

Many of the resources still available to the members are on USFS or BLM lands within the ceded area. Tribal members, approximating 3,500, actively exercise their treaty rights throughout this area. Much of these treaty resources still available to tribal members sustain their culture and lifestyle.

Landscape

The Northern Rocky Mountain physiographic province includes the mountain ranges of central Idaho and western Montana. The PAA contains 3 major mountain ranges; the Salmon River Mountains (south of the Salmon River), the Clearwater Mountains which extend from the Salmon River north to the upper Clearwater River drainage, and the Bitterroot Mountains which form the eastern border of the PAA along the Idaho-Montana border.

Most of the PAA is characterized by rugged terrain and steep slopes. Elevations range from about 1,500 feet along the Clearwater River in the northern portion to 12,662 feet on Borah Peak in the Challis National Forest near the southeastern portion of the PAA.

The area varies from deeply incised canyons formed by rivers cutting through rock, to rolling basin lands at higher elevations. Soils throughout the area are characterized predominantly by the Idaho batholith, a highly erosive and course-grained granite.

The southern half of the PAA drains water to the Salmon and Snake Rivers, while the northern half drains primarily into the Clearwater River. Both the Salmon and Clearwater Rivers empty into the Snake River along the western border of Idaho before the Snake empties into the Columbia River near Pasco, Washington. In total, the PAA provides over 19 million acre feet of water to the Columbia River system annually.

Climate

Topography is the major modifying influence on climate throughout the PAA. Climate varies from the warm, dry Salmon River breaks to cool, moist subalpine areas. Annual precipitation varies from less than 8 inches at lower elevations to nearly 100 inches at high elevations. Most precipitation occurs during late fall through early spring. Precipitation at higher elevations is mostly in the form of snow.

Summers are dry with temperatures often exceeding 100°F, and winters are long with sub-zero temperatures common. Extremes of -50°F are occasionally reached.

Mean annual precipitation increases from the southern to the northern portions of the PAA. Highest annual precipitation (about 100 inches) is found on the Bitterroot Divide along the Idaho-Montana border in the Clearwater National Forest.

Vegetation

Mountains of the PAA are covered by 3 major vegetation community types. The wide elevational range and accompanying climatic variations result in diverse flora. The grand fir/Douglas-fir, Engelmann spruce, subalpine fir habitat type is the most common, and occurs throughout central Idaho (Idaho Parks and Recreation 1989). The western red cedar-western hemlock type is more frequent in the northern portions of the area, and the ponderosa pine type exists intermittently throughout the PAA.

Vegetation varies by terrain, soils, aspect, elevation, and other factors. Below 4,000 feet, open slopes with brome, bluebunch wheatgrass, and Idaho fescue are common. Near 4,000 feet, grass types begin to give way to open ponderosa pine types. Subalpine fir and several types of lodgepole pine begin to appear at 5,000 feet to 6,000 feet. Near-alpine habitat is found in the highest elevational areas.

Wildlife

Central Idaho and western Montana contain a wide variety of habitats and wildlife species. Approximately 400 species of mammals, birds, amphibians, and reptiles inhabit the 40 game management units in the primary analysis area (Figure 3-5). Major big game and species in the primary analysis area include post harvest populations of approximately 92,908 elk, 114,456 mule deer, an average of 75,881 (range is 67,631-84,131) white-tailed deer, 1,610 bighorn sheep, 1,751 mountain goats, 1,700 moose, and an average of 13,460 (range is 7,980-18,940) black bears (Table 3-3). Mountain lions, coyotes, bobcats, lynx, fishers, martens, wolverines, and river otters are other carnivores present. Small numbers of grizzly bears and mountain caribou occur in the Idaho panhandle just north of the PAA. The Idaho Department of Fish and Game (IDFG) continues to receive infrequent reports (175 from 1900-1986) of grizzly bears in the State, however no reports have been confirmed in the PAA since 1932. Presently, wildlife management agencies, both state and federal, believe the BE does not support a grizzly bear population.

Since January 1995, in an effort to restore endangered wolf populations in the northern Rocky Mountains, USFWS has released 35 wolves from Canada into central Idaho. These wolves are now distributing themselves and have formed packs across the PAA. As of May 1995, the recovering wolf population in central Idaho numbers over 100 individuals.

Big game ungulates such as elk and deer winter in lower elevations along river bottoms of most major drainages in the PAA including the Clearwater, Lochsa, Selway, Salmon, Clark Fork, and Bitterroot drainages. During summer and fall these ungulates are distributed throughout the PAA; elk and mule deer at higher elevations, and white-tailed deer at lower and mid-elevations. Trophy ungulates such as bighorn sheep, mountain goats, and moose, are more localized in distribution and can be found throughout the PAA wherever favorable habitats are found.

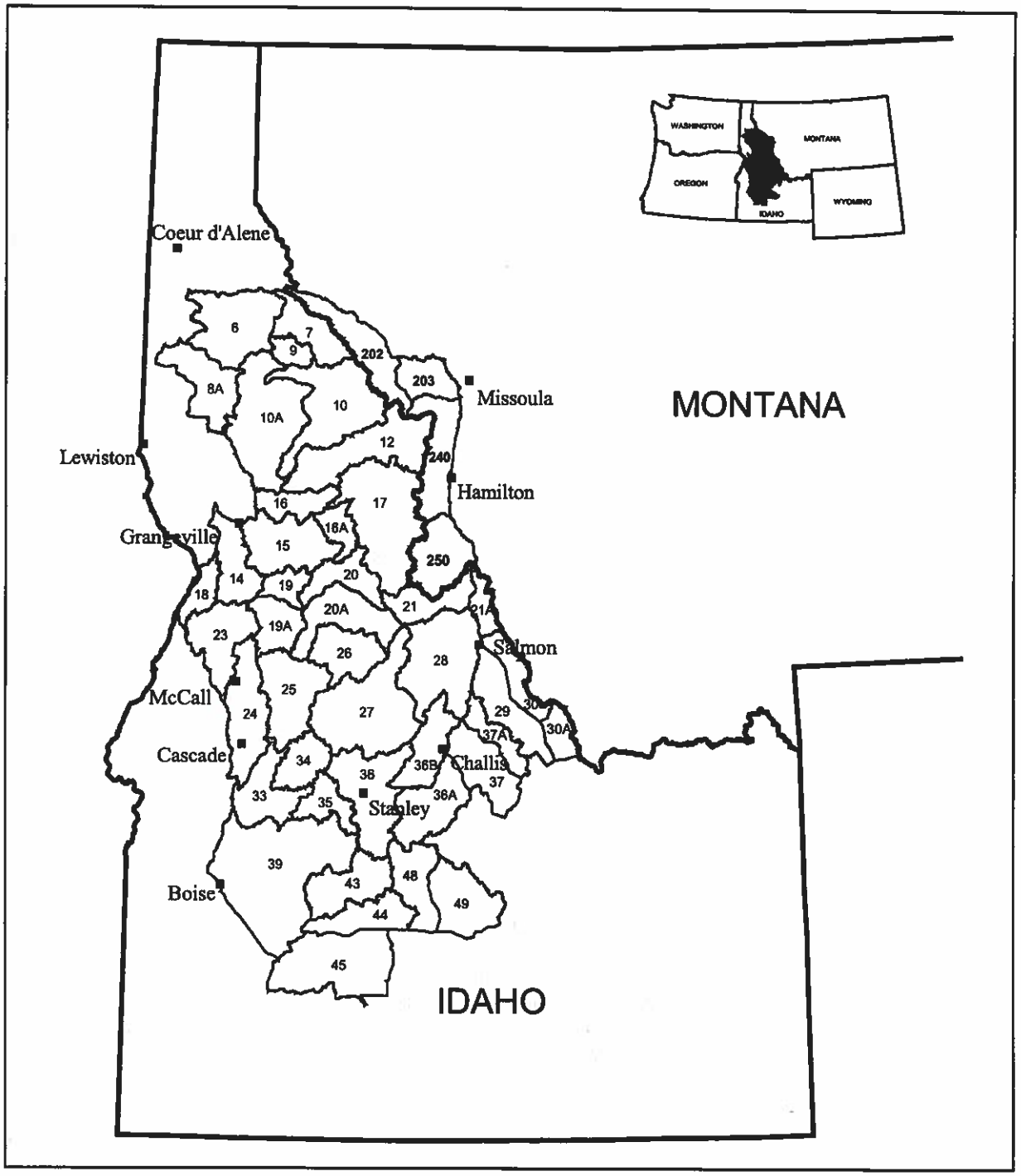


Figure 3-5. Central Idaho and western Montana big game management units analyzed to estimate ungulate and black bear numbers and harvest in the Bitterroot Grizzly Bear Primary Analysis Area. Not all units were used to calculate estimates for all species (see Table 3-3).

Hunting is a major influence on dynamics of ungulate populations. In 1997, Idaho and Montana (Montana data is 1995) hunters harvested about 28,023 ungulates, which represents an average of 10% of the pre-harvest population, in the 46 big game management units in the PAA (Table 3-3).

Table 3-3. Estimated population parameters and harvest numbers of elk, mule deer, white-tailed deer, bighorn sheep, mountain goats, moose, and black bear by in and adjacent to the Bitterroot Grizzly Bear Primary Analysis Area[a].

	Population numbers (Postharvest)[b]				Estimated harvest[b]		
Species	Male	Female	Young	Total	Male	Female	Total
Idaho							
Elk	13,592	57,962	16,493	88,047	5,325	824	6,149
Mule deer	-	-	-	110,337	7,187	2,018	9,205
White-tailed deer	-	-		50,000-66,500	5,655	2,324	7,979
Bighorn sheep	302	864	161	1327	33	0	33
Mountain goats	1,342		231	1,573	15	12	27
Moose	-	-	-	1,700	180	2	182
Black bear	-	-	-	7,500-17,500	574	309	883
Montana					[c]		
Elk	469[c]	3,353[c]	1,039[c]	4,861[c]	463[c]	471[c]	934[c]
Mule deer	-	-	-	4,119[c]	540[c]	119[c]	659[c]
White-tailed deer	-	-	-	17,631[c]	1,549[c]	1,272[c]	2,821[c]
Bighorn sheep	-	-	-	280	2	7	9
Mountain goats	-	-	-	178	10	2	12
Moose	-	-	-	-	-	-	13
Black bear	-	-	-	480-1440	41	21	62

[a] Big game population and harvest estimates are calculated from data available for Idaho big game units (6-49) and Montana hunting districts (202, 203, 240, & 250) in and adjacent to the Bitterroot Grizzly Bear Primary Analysis Area. For Idaho and Montana estimates, information for all species was not available for all units. Data availability depended on the geographic distribution or occurrence of each species within the primary analysis area, as well as hunting effort expended within each unit for a particular species. Estimates for a particular species reflects those units in which the species occurs and for which population and harvest information is available. All data from 1997 except as noted in "c" below.

[b] Population and harvest estimates are derived from many Idaho Department of Fish and Game (Boise, ID) and Montana Department of Fish, Wildlife, and Parks (Helena, MT) data. Specific sources are available in the planning record for this document available from U.S. Fish and Wildlife Service, Missoula, MT.

[c] Data for Montana population and harvest estimates for elk, mule and white-tailed deer are 1995 data. Current data are not available.

Grizzly Bear Population Status

Although little quantitative information exists, there are numerous historical accounts and more recent field surveys to provide an accurate history of the population status of grizzly bears in the BE. Historical evidence is provided by accounts of early explorers and memories of longtime area residents. Information regarding current population status of grizzly bears consists of four surveys conducted between 1984 and 1991 by the IDFG.

Historical Status. Grizzly bears are thought to have been common in the Clearwater drainage and the Selway-Bitterroot Mountains up to the turn of the century. Lewis and Clark were the first to document the presence of grizzly bears in the Clearwater drainage in 1806 and described frequent encounters. The Lewis and Clark expedition recorded killing at least 7 grizzly bears, including a female with cubs, and encountering several more while traveling up the Clearwater drainage on their way over Lolo trail (Thwaites 1959). Based on their account, the grizzly bear was more common than the black bear along the Clearwater River during their travels. Wright (1909, as cited by Melquist 1985) also reported that grizzly bears were common in the Clearwater and the Selway-Bitterroot Mountains in the late 1800's recounting numerous grizzlies taken on hunting expeditions. Moore (1984, 1996) researched the history of the grizzly bear in the Selway-Bitterroot Mountains and concluded that based on "conservative estimates", trappers near the turn of the century harvested 25 to 40 grizzly bears annually.

Around the turn of the century there is evidence that grizzly bear populations declined from excessive killing. Hunting, trapping, predator control programs, and possibly the decline of anadromous fish stocks lead to the virtual extirpation of the grizzly bear in the BE by the 1950's (Moore 1984, 1996, Melquist 1985). Merriam (1922) indicated that grizzly bears were still "fairly plentiful" in extreme northern Idaho but restricted to the Bitterroot, Clearwater, Lolo, and Salmon River Mountains in the Bitterroot Range in the early 1920's. Moore (1984, 1996) recounted personal encounters with grizzly bears during 1930 and 1931. Space (1979) and Moore (1984, 1996) reported the last known grizzly bear in the North Fork of the Clearwater River was killed in 1926, and that grizzly bears remained in the upper Lochsa drainage until about 1946. Moore (1984, 1996) saw several grizzly bear hides hanging in sheep herder camps in 1932. These were the last documented grizzly bears killed in the Bitterroot Range.

Current Status. Current evidence demonstrates that the BE no longer supports any grizzly bears, and thus does not support a grizzly bear population. Although the IDFG and the USFWS continue to receive sporadic reports of grizzly bears, none have been confirmed. In an effort to create a definition of a population for use in determining the feasibility of experimental population status for the Bitterroot Ecosystem, the USFWS solicited input from 54 scientists familiar with bear populations. Thirty-seven scientists responded and as a result of this Delphi analysis, the USFWS adopted a definition (Appendix 25). The definition of a grizzly bear population, as used to define a minimal existing grizzly bear population in the Bitterroot, follows: "A grizzly bear population is defined by verified evidence within the previous six years, consisting of photos within the area, verified tracks and/or sightings by reputable scientists or agency personnel, of at least two different female grizzly

bears with young or one female seen with different litters in two different years in an area geographically distinct from other grizzly bear populations. Verifiable evidence of females with young, to be geographically distinct, would have to occur greater than 10 miles (U.S. Fish and Wildlife Service 1993, page 171) from the nearest non-experimental grizzly bear population recovery zone boundary." Research data from the Cabinet-Yaak Ecosystem indicates the average home range size of an adult female grizzly bear when converted to a circle, has a radius of 10 miles (Kasworm and Servheen 1995).

The listing of the grizzly bear as a threatened species under the Endangered Species Act in 1975 and the subsequent inclusion of the BE as a potential recovery area in the Grizzly Bear Recovery Plan, has spurred interest in determining the population status of the bear. Melquist (1985) conducted a preliminary survey to determine status of the grizzly bear in the Clearwater National Forest. The survey consisted of ground and aerial searches, soliciting new grizzly bear observation reports, and compiling and evaluating 88 reports of grizzly bears recorded from 1900-1984. The survey failed to provide conclusive evidence of grizzly bears presence in the Clearwater National Forest. No sign of grizzly bears were found during aerial or ground searches and no observation reports received during the survey could be verified. In reviewing the 88 records of grizzly bear observations, Melquist reported two confirmed grizzly bear reports; one in 1909 in the Grangemont area and one in 1956 along Colt Creek in the White Sands River drainage near Powell. Subsequent verification efforts have shown that the 1956 report was not of a grizzly bear and that the last confirmed grizzly bears killed in the Bitterroot Mountains were those previously reported by Moore (1984, 1996) in 1932.

Groves (1987) continued Melquist's (1985) original work by compiling and reviewing a total of 175 historical grizzly bear reports for central and northern Idaho up through 1986. Groves compiled 77 reports of grizzly bears from within the "Bitterroot Grizzly Bear Recovery Area" including all National Forests except the Sawtooth and the Bitterroot National Forests. The majority (62) of reports were received for the Clearwater National Forest. Grove's efforts could not document additional evidence for confirmed grizzly bear reports.

In addition to compilation and evaluation of grizzly bear observation reports, Servheen et al. (1990) and Kunkel et al. (1991) conducted two consecutive summer field seasons (May - September) surveying for grizzly bears in the upper tributaries to the North Fork Clearwater drainage using remote cameras. During a total of 480 camera days, 559 photographs of wildlife were taken. No photographs of grizzly bears were taken during either field season. Although both authors cautioned that their efforts did not confirm the absence of bears in the BE because of the small area surveyed and low camera density (1/110 mi^2) used, Kunkel (1991) concluded that the results of the two year effort indicated that if grizzly bears occurred in the North Fork Clearwater drainage, they existed in extremely low numbers. The USFWS has reviewed this data and concluded no grizzly bears inhabit the area.

A letter clarifying interpretation of the four studies results, written by Dr. Wayne Melquist, State Endangered Wildlife Coordinator, Idaho Department of Fish and Game is included as Appendix 23.

Melquist indicates the results reported in Melquist (1985), Groves (1987), Servheen et al. (1990) and Kunkel et al. (1991) do not conclusively prove grizzly bears do not exist in the Bitterroots, "however, for all practical purposes, they provide pretty good evidence that grizzlies have probably been absent from the area for at least the past 50 years."

Grizzly Bear Habitat Suitability

The Grizzly Bear Recovery Plan (USFWS 1993) identified the need to evaluate the BE to determine its suitability as a grizzly bear recovery area. Three past studies have been undertaken to evaluate portions of the BE for grizzly bears (Scaggs 1979, Butterfield and Almack 1985, Davis and Butterfield 1991). All three of these studies have concluded that the BE contains suitable habitat essential to the maintenance of a grizzly bear population.

Habitat Studies. Butterfield and Almack (1985), and Davis and Butterfield (1991) evaluated suitability of habitats in the BE based on the essential grizzly bear habitat criteria of Craighead et al. (1982): space, isolation, sanitation, food, denning, vegetation types, and safety. Butterfield and Almack's (1985) study concluded the BE rated as an "ecologically superior area for grizzly bear recovery" and "the BE more than satisfies these habitat criteria". Davis and Butterfield (1991) conducted the most comprehensive study of grizzly bear habitat in the BE. Their analysis focused on a large portion of the BE they called the Bitterroot Grizzly Bear Evaluation Area (BEA) (Figure 3-6). The BEA encompassed 5,500 square miles centered around the Frank Church-River of No Return Wilderness north of the Salmon River, the Selway-Bitterroot Wilderness, and Roadless areas north of the Selway-Bitterroot Wilderness mostly in the North Fork Clearwater drainage to the crest of the Mallard Larkins Mountains. These authors concluded: "The BEA appears to meet many of the habitat criteria defined by Craighead et al. (1982) for grizzly bear habitat. The biological factors related to space, isolation, denning, vegetation and food appear adequate for grizzly bear recovery. Sanitation problems are minor and should be easily rectified with education and regulatory programs. The major obstacles to successful grizzly bear recovery in the BEA are related to potential human-caused mortality. Those mortality sources are primarily associated with hunting, poaching, and conflicts associated with U.S. Highway 12. Successful grizzly bear recovery in the BEA will depend on addressing these potential mortality sources through education, enforcement, and regulatory changes" (Appendix 3).

Vegetation Types and Foods. Concerns regarding the absence of anadromous fish stocks and the decline of whitebark pine, both important grizzly bear foods, and the potential effects on habitat suitability in the BE have been raised. Anadromous fish stocks, particularly chinook salmon, are thought to have provided an important food source, during adult spawning migrations at migration impediments and through spawner carcasses for grizzly bear populations in the BE (Hilderbrand et al. 1996, Brostrom 1996). Current runs of anadromous fish would no longer provide a readily abundant food source and would be supplemental at best. Brostrom (1996) indicated that although salmon are no longer widely available in the BE, other fish species such as cutthroat trout and kokanee salmon may provide supplemental food for grizzly bears (Appendix 3).

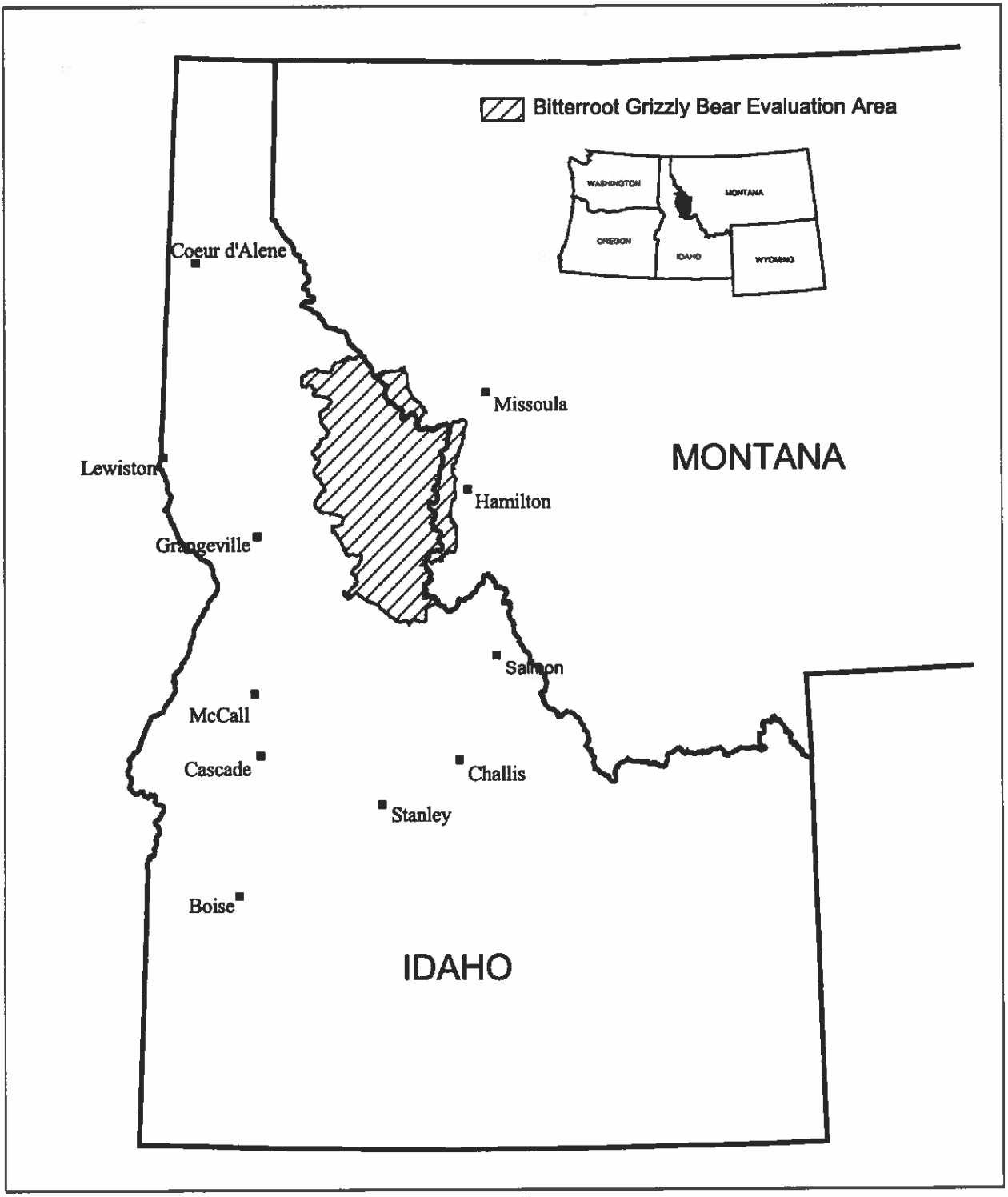


Figure 3-6. The Bitterroot Grizzly Bear Evaluation Area as described by Davis and Butterfield (1991).

The importance of maintaining whitebark pine (*Pinus albicaulis*) as a food source for grizzly bears in the BE was discussed by Keane and Arno (1996). Historically, whitebark pine was a major species on 12-15% of the forest landscape. Whitebark pine populations were reduced by a mountain pine beetle infestation between 1909 and 1940. Also, white pine blister rust which was introduced to the western U. S. around 1920, has killed most of the mature whitebark pine in the northern and western portions of the Selway-Bitterroot Wilderness. Current levels have been estimated at 20-40% of historic levels (Keane and Arno 1996). Davis and Butterfield (1991) found whitebark pine consistently present in the non-riparian subalpine habitats and suggested that whitebark pine may still be an important fall food source for grizzly bears in the BEA. Despite the changes in habitat quality associated with reduction of whitebark pine and salmon, Butterfield and Almack (1985), and Davis and Butterfield (1991) identified a wide variety of vegetation types comparable to occupied habitat in other grizzly bear ecosystems, well distributed throughout the BEA. These authors concluded these habitats would support adequate sources of known grizzly bear foods including elk and deer, small mammals, herbaceous vegetation and tubers, and fruits and nuts. These studies demonstrated that over 60% of known herbaceous, and nearly 80% of known fruit and nut food items consumed by grizzly bears occurred in the BEA.

Technical Review and Habitat Management. In 1991, a Technical Review Team (Servheen et al. 1991) comprised of grizzly bear biologists and habitat specialists reviewed Davis and Butterfield's 1991 study along with other pertinent information and concluded the BEA contained adequate habitat to sustain a grizzly bear population of 200-400 animals.

In 1995, the USFWS issued interim direction for the management of suitable but unoccupied grizzly bear habitat in the BE, to be followed until a final grizzly bear recovery EIS is completed. Interim direction urged compliance of big game standards as outlined in USFS Forest Plans. Big game standards and guidelines for habitats overlapping the BE and contained within the Clearwater and Nez Perce National Forests were reviewed and deemed sufficient to protect potential grizzly bear habitat (Appendix 10).

A primary consideration in delineation of the BEA was to include USFS management areas with minimal road densities that provide quality grizzly bear habitat (Appendix 10, Figure 6-3). On the Clearwater National Forest, 631,700 acres within the BEA are allocated to wilderness, managed for natural resource values other than timber (with timber management as a secondary consideration), or removed from the timber base. A smaller proportion, about 120,000 acres, is allocated for optimizing timber production. The open road densities for the combined Clearwater and Nez Perce portions of the BEA are 0.43 mi/mi^2 in roaded/developed areas and 0.14 mi/mi^2 in unroaded/essentially undeveloped areas. The total road densities (open and restricted roads) for the same area are 0.60 mi/mi^2 in roaded/developed and 0.20 mi/mi^2 in unroaded/essentially undeveloped areas (Appendix 10). Within the Nez Perce Forest portion of the BEA, there are approximately 60 mi^2 (38,400 acres) that have a total road density exceeding 2 mi/mi^2. The Clearwater Forest portion of the BEA has approximately 12 mi^2 (7,500 acres) where the total road density exceeds 2 mi/mi^2.

The PAA is much larger than the BEA and has higher road densities. The open road densities within the entire PAA (0.44 mi/mi^2), and within the non-Wilderness portion of the PAA (0.58 mi/mi^2) are relatively low. The total road densities (which includes open and restricted system roads) within the PAA (1.00 mi/mi^2), and within the non-Wilderness portion of the PAA (1.32 mi/mi^2), are somewhat higher. Similarly, the open trail densities within the entire PAA (0.29 mi/mi^2), and within the non-Wilderness portion of the PAA (0.38 mi/mi^2) are relatively low. The total trail densities (which includes open trails and trails closed to motorized use) within the PAA (0.57 mi/mi^2), and within the non-Wilderness portion of the PAA (0.75 mi/mi^2) are somewhat higher.

Current Research on Grizzly Bear Habitat Suitability in the Bitterroot Ecosystem. Public comment received on the Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem indicated substantial concern about the amount and quality of habitat included in the Bitterroot area and the contribution of a restored grizzly bear population in the Bitterroot to the recovery and continued existence of grizzly bears south of Canada. Some commenters indicated they thought the designated recovery area was too small and did not provide sufficient habitat for the needs of a recovered population of bears. Other comments questioned the number of bears that could be supported by habitat within the wilderness and multiple use lands identified in the alternatives.

Four reports apply the best available scientific approaches to answer these questions, and are presented in Appendix 21. Together, these reports present significant new information on the capability of the Bitterroot Ecosystem to support grizzly bears, the distribution and abundance of the foods grizzly bears would use in this area, and the level of improvement that would occur in grizzly survival south of Canada if grizzly bears were restored in the Bitterroot Ecosystem.

Habitat Capability and Estimation of Carrying Capacity. The first report, "Relating Populations to Habitats using Resource Selection Functions" (Appendix 21A), details a methodology to relate habitat to population size utilizing grizzly bears as an example. This methodology was specifically developed for this Bitterroot project and it has subsequently been accepted for publication in a peer reviewed scientific journal. This new method to relate habitat quality to how many animals can be expected to live in that habitat, was the basis for the estimate of the carrying capacity of the Bitterroot Ecosystem for grizzly bears.

The second report, "The Application of Resource Selection Function Analysis to Estimate the Number of Grizzly Bears that Could be Supported by Habitats in the Bitterroot Ecosystem" (Appendix 21B), applies the methodology developed in the first report (Appendix 21A) to the Frank Church-River of No Return and Selway-Bitterroot Wilderness areas, and non-wilderness public lands to the north. The result is an estimate of the number of grizzly bears that can be expected to be supported by the habitat in these areas. The report estimates that at full carrying capacity, between 234-247 grizzly bears could be expected to live in the Selway-Bitterroot and the Frank Church-River of No Return Wilderness areas, and an additional 74 grizzly bears could be expected to live in the public lands north of the Selway-Bitterroot Wilderness in the upper North Fork of the Clearwater

River drainage in Idaho. It is estimated that it would take at least 80-100 years for the population to reach this full carrying capacity number if 25 bears were reintroduced.

The carrying capacity estimate of 308-321 bears for the Bitterroot Ecosystem is 10-15% higher than the tentative recovery goal estimate in the Draft Environmental Impact Statement (USFWS 1997). The USFWS expected the number of bears to be lower in the southern ½ of the Bitterroot Ecosystem because generally the habitats are dryer and less productive than northern portions of the ecosystem. Yet, portions of the Yellowstone Ecosystem are also relatively dry and support bears. Even though the forb and berry production in these dry habitats is relatively low, the southern ½ of the Bitterroot Ecosystem contains substantial stands of whitebark pine as well as populations of elk and deer that can provide food for grizzly bears. Certainly the remoteness of the area and the paucity of roads will help to ensure that a viable population of grizzly bears can persist in the Bitterroot Ecosystem of Idaho and Montana.

Effect of the Bitterroot Reintroduction on the Persistence of Grizzly Bears in the Lower 48 States. The third report, "Metapopulation Analysis for the Bitterroot Grizzly Bear Population" (Appendix 21C), describes the changes in the probability of existence of grizzly bears south of Canada with and without a restored Bitterroot population. One of the early tenets of conservation biology is that population viability is enhanced by maintaining multiple populations of a species (Soulé 1987). The report quantifies the reduced probability of extinction for grizzly bears in the Rocky Mountains of the United States by adding the proposed Bitterroot population. The probability of extinction for recovered population levels of the four existing populations (Yellowstone, Northern Continental Divide, Selkirk, and Cabinet-Yaak Ecosystems) and the proposed Bitterroot reintroduced population is very low, being smaller 3/1,000. These estimates should be viewed cautiously because there is great uncertainty in the estimates (Ludwig 1999). There is also a question of whether the probability of extinction is an appropriate measure to consider in a conservation context. In fact, resource managers already are committed to manage to achieve viable populations of grizzly bears larger than exist now (U.S. Fish and Wildlife Service 1993). The modeling results predict the addition of the Bitterroot population will reduce the probability of extinction by 88-99%, depending on different growth rate variances used in the model. In all cases examined in the report, there is a significant reduction in the probability of extinction for grizzly bears in the United States with a restored Bitterroot population. The addition of population areas (such as the proposed Bitterroot population) causes a geometric decline in extinction probability, and greatly improves the probability of existence and therefore the effectiveness of conservation for the grizzly bear.

Important Food Producing Habitats for Grizzly Bears. The fourth report, "Synopsis of Portions of, and Excerpts from the Report, '*Abundance and Spatial Distribution of Grizzly Plant-Food Groups in the Salmon-Selway Ecosystem: A Preliminary Analysis and Report*' (Hogg, Weaver, and Craighead et al. 1999)" (Appendix 21D), presents detailed habitat maps showing the distribution and abundance of major grizzly bear foods in the Bitterroot Ecosystem in east-central Idaho. The Craighead Wildlife-Wildlands Institute (CWWI) of Missoula, Montana initiated a vegetation-based inventory and analysis of grizzly bear habitat in the Bitterroot Ecosystem in the fall of 1995 partially

in response to the USFWS Notice of Intent and Scoping for a proposal to recover grizzly bears in the Bitterroots. Part of the goal was to determine spatial distribution and abundance of grizzly bear food plants habitat for the entire ecosystem. Existing habitat studies including Scaggs (1979), Butterfield and Almack (1985), and Davis and Butterfield (1991) evaluated only portions of the ecosystem and used different methods. The USFWS approached the CWWI about incorporating some of their results into the Final EIS, and worked with CWWI researchers to share information, and review preliminary analyses and results. The following discussion and tables contain information summarized from the CWWI report, and Appendix 21D is a synopsis of portions of their report pertinent to the FEIS.

Landsat Thematic Mapper satellite imagery and botanical survey have been used to develop all-purpose vegetation maps for the Salmon-Selway region of central Idaho (Hogg, Weaver, Craighead et al. 1999). These authors then used these maps and plant species lists from the botanical surveys to estimate the abundance and spatial distribution of food-plant groups important to bears. The USFWS used the text, Tables 6-22, 6-23 and 6-24, and Figures 6-15, 6-16 and 6-17 (see Chapter 6, Appendix 21) from that report to produce the following summary statistics and comments regarding important food producing habitats for grizzly bears. The two Landsat scenes used in the CWWI analysis are referred to here as the North and South Scenes (see Figure 6-15). The edge-match boundary between the two scenes lies just south of the Salmon River. The CWWI analyzed several areas within the Bitterroot Ecosystem, including the recovery zone boundaries for Alternatives 1, 2, and 4. Since the Alternative 4 recovery zone boundary roughly approximates the Final EIS Primary Analysis Area (PAA) boundary, the results from analysis of alternatives will be presented here to maintain consistency with other data presented for the PAA in Chapter 3. Summaries for Alternative 4 can also be substituted for the experimental area of Alternative 1 and 1A because the boundaries are similar. Alternative 4 and Alternative 4A have the same recovery zone boundaries.

Summary comments provided here focus on results from the CWWI report related to whitebark pine nuts and several berry producing shrubs because these species provide a major contribution to annual energy demands for bears (Interagency Grizzly Bear Committee 1987). Major berry producing species (referred to as "primary berry species" in the CWWI report) considered included species of huckleberry (*Vaccinium*), serviceberry, cherry, elderberry, buffaloberry, and mountain ash. Secondary berry species included other species producing berries eaten by grizzly bears (Hogg, Weaver, and Craighead et al. 1999).

Whitebark pine nuts are most abundant in the vegetation complex labeled mixed whitebark pine forest (Table 3-4, and Table 6-22). The estimated total area covered by this complex is 1180 square miles, with 222 square miles in the north scene and 959 square miles in the south scene. Estimated areas of mixed whitebark pine forest within the boundary of each alternative were: 401 square miles in Alternative 1, 101 square miles in Alternative 2, and 1106 square miles in Alternative 4. The authors of the CWWI report built predictive models for the areal coverage of white bark pine tree canopies (Hogg, Weaver, and Craighead et al. 1999). Total areas predicted by this model to be covered by whitebark pine canopies within each alternative were; 63 square miles in Alternative 1, 22 square miles in Alternative 2, and 171 square miles in Alternative 4 (Table 3-5).

Huckleberry species (*Vaccinium sp.*) are expected to be the dominant berries consumed by grizzly bears in the Bitterroot Ecosystem, but other prominent berry producing species exist such as buffaloberry, serviceberry, mountain ash, and cherry. These major berry species had high coverages in the non-forest vegetation complex labeled mesic shrublands (Table 3-4, Table 6-22 and Figure 6-15) and in the understory of certain timber types (Table 6-23). The CWWI classifications of forested areas resulted in maps of both the forest cover type and the understory vegetation complex. The following summary is limited to comments regarding the estimated amount of forest land belonging to a given understory complex to those understory vegetation complexes expected to have the highest coverages of huckleberry species other than grouse whortleberry (i.e., understory vegetation codes 40 and 60 in Table 3-4). These two understory complexes will be referred to as timber/huckleberry vegetation types. Total area covered by mesic shrublands was predicted to be 1733 square miles, with 1005 square miles in the north scene and 728 square miles in the south scene. Area of mesic shrublands within the boundary of each alternative was predicted to be 235 square miles in Alternative 1, 587 square miles in Alternative 2, and 1147 square miles in Alternative 4. Total area covered by timber/huckleberry vegetation types was predicted to be 5568 square miles, with 2943 square miles in the north scene and 2624 square miles in the south scene. Area of timber/huckleberry vegetation types within the boundary of each alternative was predicted to be 1777 square miles in Alternative 1, 1305 square miles in Alternative 2, and 4480 square miles in Alternative 4. Major berry species occur in significant amounts in several other non-forest and forest-understory vegetation complexes, although coverage of huckleberry species (*Vaccinium sp.*) other than grouse whortleberry is probably lower. The preceding estimates of area covered by vegetation complexes supporting major berries are therefore likely conservative. Furthermore, these area totals emphasized vegetation complexes expected to support relatively high densities of huckleberry species other than grouse whortleberry. Grouse whortleberry can in some years produce a significant crop of berries, but typically is less productive than other species of huckleberry. Grouse whortleberry is often associated with habitats that are drier or cooler, which are more commonly represented in the southern portions of the BE particularly south of the Salmon River .

In addition to whitebark pine (above), the authors of the CWWI report built predictive models for the collective areal coverage of plant species assigned to two other grizzly bear food-plant groups: primary and secondary berries (Hogg, Weaver, and Craighead et al. 1999). Huckleberry, buffaloberry, serviceberry, mountain ash, and cherry were classified as primary berry species. Numerous other plant species such as kinnikinnick, currant, gooseberry, and raspberry also produce a berry crop that is available to bears. All other such berry producing species were classified as secondary berry species. Total coverage of primary berries within each alternative was predicted to be 724 square miles in Alternative 1, 718 square miles in Alternative 2, and 2059 square miles in Alternative 4. Total coverage of secondary berries within each alternative was predicted to be 193 square miles in Alternative 1, 268 square miles in Alternative 2, and 742 square miles in Alternative 4 (Table 3-5).

In summary, results of Hogg, Weaver, and Craighead et al. (1999) indicate bear foods in the form of primary and secondary berries are present in biologically significant amounts in both the northern and southern portions of the ecosystem, but generally decline in abundance moving from north to south

through the Bitterroot Ecosystem (Appendix 21, Figures 6-16 and 6-17). This north-south decline in abundance is likely most marked for species of huckleberry other than grouse whortleberry. However, coverage for this sub-group of primary berry species (excluding grouse whortleberry) was not separately estimated by Hogg, Weaver, and Craighead et al. (1999). Grouse whortleberry could potentially provide a significant seasonal food source in some years. Particularly significant berry distribution occurs north of the Selway-Bitterroot Wilderness area in the North Fork of the Clearwater River drainage and throughout much of the Lochsa and Selway River drainages (Appendix 21, Figures 6-16 and 6-17). Whitebark pine and associated nut crops tend to follow the opposite pattern with greater abundance and distribution south of the Salmon River and a general decline through the northern portions of the Bitterroot Ecosystem (Appendix 21, Figure 6-15).

Table 3-4. Area of specific grizzly bear food producing habitat in the Bitterroot Ecosystem of western Montana and central Idaho (summarized from data in Hogg, Weaver, and Craighead et al. 1999).

Vegetation Complex	North Scene (Square Miles)	South Scene (Square Miles)	Alternative 1 (Square Miles)	Alternative 2 (Square Miles)	Alternative 4 (Square Miles)
Mixed Whitebark Pine	222	959	401	101	1,106
Mesic shrublands	1,005	728	235	587	1,147.
Timber / huckleberry [a]	2,943	2,624	1,777	1,305	4,480

[a] This category includes understory vegetation complex code 40 and 60 (Hogg, Weaver, and Craighead et al. 1999).

Table 3-5. Estimates of the collective areal coverage of plant species in the grizzly bear food groups (summarized from data in Hogg, Weaver, and Craighead et al. 1999). See Appendix 21D for information on methods and additional data.

Grizzly Bear Food Group	Alternative 1 (Square Miles)	Alternative 2 (Square Miles)	Alternative 4 (Square Miles)
Whitebark pine (nuts)	63	22	171
Primary berries [a]	724	718	2059
Secondary berries [b]	193	268	742

[a] This category includes several species of huckleberry, serviceberry, cherry, elderberry, buffaloberry, and mountain ash.

[b] This category includes all other species of berry producing shrubs not identified as primary berries.

Grizzly Bear Source Populations

The origin of grizzly bears that would be reintroduced to the BE would have to be from areas having similar habitats to those in the BE. Three sources of grizzly bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population in northwest Montana, and the Yellowstone Ecosystem (YE) population (see Figure 2-5). Each of these areas have habitats similar to those found in the BE. Habitats in southeast British Columbia and the NCDE are more similar to habitats in the northern half of the BE, north of the Salmon River. YE habitats are likely to be more similar to those in the central and southern part of the BE such as those in the Selway River drainage and south of the Salmon River. These habitat comparisons are general, however, and there is much variation in habitats within and between all areas.

The NCDE and YE Source Populations. The NCDE contains 9,600 mi^2 of occupied grizzly bear habitat. It includes Glacier National Park, parts of the Flathead and Blackfeet Indian Reservations, parts of five national forests (Flathead, Helena, Kootenai, Lewis and Clark, and Lolo), Bureau of Land Management lands, and a significant amount of State and private lands. Four wilderness areas (Bob Marshall, Mission Mountains, Great Bear, and Scapegoat) and one wilderness study area (Deep Creek North) are included. The NCDE is contiguous to Canadian grizzly bear populations and interchange of bears has been documented. The minimum grizzly bear population estimate for the NCDE was calculated from sightings of females with cubs during 1998 as specified in the Recovery Plan (USFWS 1993) to be approximately 325 bears.

Grizzly bears presently occupy over 9,500 mi^2 of mountainous terrain in and surrounding Yellowstone National Park. The YE includes Yellowstone National Park, Grand Teton National Park, John D. Rockefeller Memorial Parkway, significant contiguous portions of the Shoshone, Bridger-Teton, Targhee, Gallatin, Beaverhead, and Custer National Forests, Bureau of Land Management lands, and over 86 mi^2 of State and private lands in Montana, Wyoming, and Idaho. The minimum grizzly bear population estimate for the YE was calculated from sightings of females with cubs during 1998 as specified in the Recovery Plan (USFWS 1993) to be approximately 328 bears.

The reintroduction of grizzly bears into the BE would require capture and relocation of a minimum of 25 bears over a period of 5 years from the identified source populations. These relocated bears would be lost from these populations and this loss would be a man-caused loss equivalent to a mortality. Some of these removals could be compensatory to other mortalities. Losses of bears from populations through human-caused actions are regulated and limited to assure the health of these populations. Mortality limits are in effect in both the NCDE and YE (USFWS 1993). Current mortality data for these ecosystems are presented in Tables 3-6 and 3-7. These mortality limits are currently set based on a formula that allows no more than 4% human-caused mortality of the minimum population estimate based on a running 6-year average. Of this 4% limit, no more than 30% can be females.

Table 3-6. Annual **Northern Continental Divide Ecosystem** grizzly bear population and known, human-caused mortality data based on 1993 Grizzly Bear Recovery Plan criteria. Data from known, human-caused mortalities, minimum unduplicated counts of females with cubs, and distribution of females with young.

Year	Annual Unduplicated Females with Cubs	Known Annual Adult Female Mortality	Known Annual All Female Mortality	Known Annual Total Mortality	4% Total Mortality Limit[a]	30% All Female Mortality Limit	Annual Total Mortality 6 Yr. Average	Annual Female Mortality 6 Yr. Average
1987	29	4	7	11				
1988	25	4	7	9				
1989	37	1	5	12				
1990	14	2	5	14				
1991	21	0	1	5				
1992	22	3	9	15	12.2	3.7	11.0 (66/6)	5.7 (34/6)
1993	21	1	1	5	14.1	4.2	10.0 (60/6)	4.7 (28/6)
1994	27	1	3	6	15.2	4.6	9.5 (57/6)	4.0 (24/6)
1995	35	2	6	12	18.5	5.6	9.6 (58/6)	4.2 (25/6)
1996	17	2	4	10	17.3	5.2	8.8 (53/6)	4.0 (24/6)
1997	13	1	5	12	14.6	4.4	10.0 (60/6)	4.7 (28/6)
1998	33	3	8	19	13.9	4.2	10.7 (64/6)	4.5 (27/6)

Table 3-7. Annual **Yellowstone Ecosystem** grizzly bear population and known, human caused mortality data based on 1993 Grizzly Bear Recovery Plan criteria. Data from known, human-caused mortalities, minimum unduplicated counts of females with cubs, and distribution of females with young.

Year	Annual Unduplicated Females with Cubs	Known Annual Adult Female Mortality	Known Annual All Female Mortality	Known Annual Total Mortality	4% Total Mortality Limit[a]	30% All Female Mortality Limit	Annual Total Mortality 6 Yr. Average	Annual Female Mortality 6 Yr. Average
1987	13	2	2	3				
1988	19	0	3	5				
1989	16	0	0	2				
1990	25	4	6	9				
1991	24	0	0	0				
1992	25	0	1	4	10.2	3.1	3.8 (23/6)	2.0 (12/6)
1993	20	2	2	3	9.8	2.9	3.6 (23/6)	2.0 (12/6)
1994	20	4	4	11	8.6	2.6	4.8 (29/6)	2.2 (13/6)
1995	17	3	7	17	7.0	2.1	7.3 (44/6)	3.3 (20/6)
1996	33	3	4	9	9.8	2.6	7.3 (44/6)	3.0 (18/6)
1997	31	3	4	8	10.5	3.2	8.5 (52/6)	3.7 (22/6)
1998	35	1	1	1	13.4	4.0	8.2 (49/6)	3.7 (22/6)

[a] Calculated as 4% of the minimum population estimate for the most current year which is based on the minimum number of females with cubs seen over the past three years.

For the YE, these data show for 1996 and 1997 the annual total human-caused mortality limit as measured on a running 6-year average was not exceeded, and the female mortality limit as measured on a running 6-year average was exceeded in both years. In 1998, both the total and female mortality limits were not exceeded for the YE. To exceed the Recovery Plan (USFWS 1993) parameters, these limits must be exceeded for two consecutive years. The YE annual total mortality limit was not exceeded in 1997 and 1998, and annual female mortality limit was exceeded in 1997 and not exceeded in 1998. For the NCDE, human-caused annual total and female grizzly bear mortality limits were not exceeded in 1996. In 1997 and 1998, the annual total mortality limit was not exceeded and the female mortality limit was exceeded. These data are updated each year and any removal of bears from either ecosystem would be predicated on achievement of the mortality limits.

Southeast British Columbia. Southeast British Columbia has similar habitats to those found in the northern Bitterroot Ecosystem. Southeast British Columbia is composed of two Grizzly Bear Zones as defined by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC)(Banci 1991). These two zones are the "Cool Dry Mountains" consisting of the Rocky Mountain core north of Glacier Park and the Whitefish range in the U.S. and including both British Columbia and Alberta (Waterton Park) areas on both sides of the continental divide; and the "Cool Moist Mountains" which include most of the rest of the southeast portion of the province. Population estimates for grizzly bears in these zones are shown in Table 3-8.

Table 3-8. Population size and status of grizzly bear populations in southeast British Columbia and adjacent areas of southwest Alberta (Banci 1991).

Grizzly Bear Zone	Area (sq mi)	Current potential population	Estimated current population	Population status[a]
Cool dry mountains	20,077	1,120	930	not at risk
Cool moist mountains	49,923	4,700	2,540	vulnerable

[a] Per COSEWIC as defined in Banci (1991).

Southeast British Columbia is within the Kootenay management region as defined by the British Columbia Ministry of Environment, Lands, and Parks (Figure 3-7). A recent report by Simpson et al. (1995) analyzes the grizzly bear status and management approach for the Kootenay region. The grizzly bear population in the Kootenay Region is estimated at 2177 grizzly bears divided into 15 different grizzly bear management units (GBMUs). Average annual harvests in the Kootenay Region for the past 19 years (1976-1994) in the 15 GBMUs varies by unit and totals 55.7 bears/year for an average harvest rate of 2.56%/year. The management objective recommended in the Simpson et al. (1995) report is a 4% human-caused kill limit of male grizzly bears and a 2% female limit.

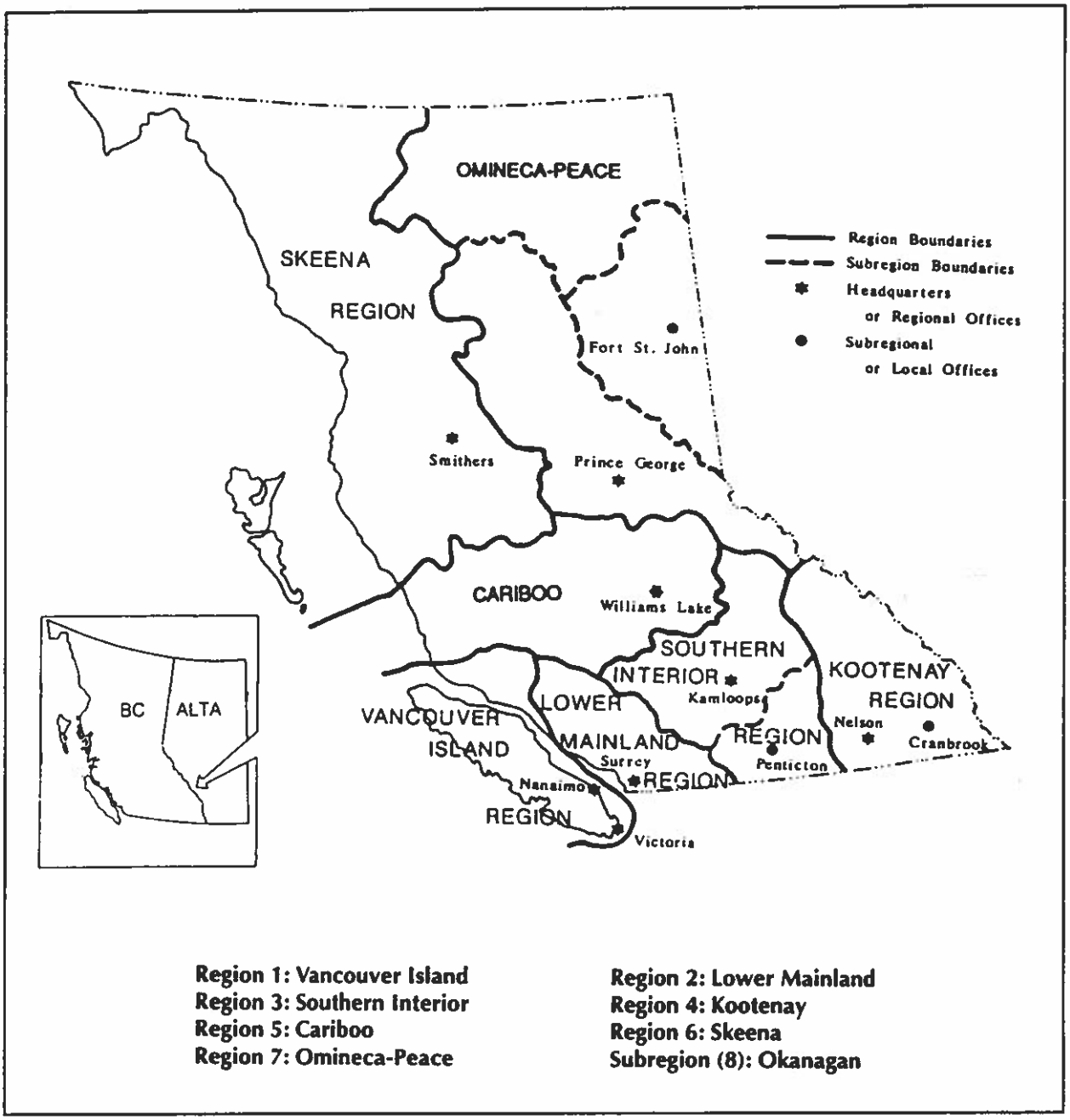


Figure 3-7. Administrative regions of the British Columbia Ministry of Environment, Lands, and Parks, including the Kootenay Region of southeast B.C. (B.C. Min. of Env., Lands, and Parks 1995).

In British Columbia, grizzly bear mortality is managed (B.C. Min. Environ., Lands, and Parks 1995) so that:

a. the maximum harvest throughout the province will be no more than 4% of the total population, including kills from all sources;
b. the maximum sex ratio of the harvest should be no greater than 1 female to 2 males (33% females);
c. the unreported kill (natural mortality, accidental, illegal) is included in estimates of the total kill and standardized at 50% of the legal kill unless documentation indicates otherwise; and
d. hunting seasons are not permitted in management units that support 25 or less grizzly bears unless such populations are contiguous with other populations.

BITTERROOT ECOSYSTEM OF CENTRAL IDAHO AND WESTERN MONTANA: LAND USES

The 14 counties included in the PAA cover a total of 28,427,984 acres (44,419 mi^2). This area is dominated by 18,489,989 acres (28,891 mi^2) of contiguous USDA Forest Service lands in the center of the 14 counties. Within the core of the USFS lands lie the Frank Church-River of No Return, the Selway-Bitterroot, and Gospel Hump Wilderness Areas, covering 3,902,912 acres (6,098 mi^2) in the heart of the PAA.

The Forest and Rangeland Renewable Resources Planning Act of 1974, as amended by the National Forest Management Act (NFMA) of 1976, specifies that land and resource management plans shall be developed for units of the National Forest System. Forest plans and accompanying environmental impact statements have been finalized for every national forest in the PAA. These plans provide for multiple use and sustained yield of goods and services from the National Forest System in a way that maximizes long-term net public benefits in an environmentally sound manner.

Forest Plans occur within a hierarchical framework of planning. The national assessment and program for forests and rangelands, as required by the Forest and Rangeland Renewable Resources Planning Act, sets broad strategic guidance for national forest lands. Forest Supervisors consider key elements of the program during forest plan implementation, monitoring, and evaluation. Regional Guides address regional issues and concerns and establish regional management standards and guidelines.

The Multiple Use-Sustained Yield Act of 1960 directed the management of national forests under the principles of multiple use, specifically endorsing wilderness as a proper use. Most of the Frank Church-River of No Return and the Selway-Bitterroot Wilderness areas were managed as primitive areas beginning in the 1930s. The Wilderness Act of 1964 created the National Wilderness Preservation System and gave statutory wilderness designation to the Selway-Bitterroot area and required that other primitive areas and adjacent lands be studied regarding their suitability for wilderness designation. The Wilderness Act of 1964 states that wilderness areas shall be administered

"for the use and enjoyment of the American people in such a manner as will leave them unimpaired for future use and enjoyment as wilderness, and so as to provide for the protection of these areas, the preservation of their wilderness character...."

The Endangered American Wilderness Act of 1978 created the 200,464 acre (313 mi^2) Gospel Hump Wilderness Area. The Central Idaho Wilderness Act of 1980 established the 2,361,767 acre (3,690 mi^2) River of No Return Wilderness and added approximately 105,600 acres (165 mi^2) to the Selway-Bitterroot Wilderness (bringing the total Selway-Bitterroot Wilderness acreage to 1,340,681 acres; 2,095 mi^2). The name "Frank Church" was legislatively added to the River of No Return Wilderness Area in 1984.

Timber Harvest

Idaho and Montana national forests included in the PAA contain about 5,990,162 acres (9,360 mi^2) of forested land classified as suitable for timber production (Table 3-9). According to current USFS Forest Plans, timber will be harvested on about 57,986 acres (91 mi^2) annually in central Idaho during the first decade of implementation (Table 3-9). Under the existing USFS Forest Plans, expected annual volume of timber to be harvested in central Idaho and western Montana ranges from 695.9 million board feet during the first decade of Forest Plans to 1,204.9 million board feet during the fifth decade of Forest Plans (Table 3-10).

Most National Forests now believe that the trends in projected future harvest levels presented in their current 10-year Forest Plans are overestimated. Current timber harvest levels are also below those projected in the Forest Plans on some Forests. Table 3-11 lists the projected annual timber harvest (from the current Forest Plans), and the actual timber volume sold for the Forests (or portions of Forests) that occur within the PAA. The expected annual timber volume to be harvested on USFS lands within the PAA (from current Forest Plans) is estimated at 448.9 million board feet. The average timber volume sold within the PAA during the years 1992-1998 is approximately 191 million board feet (Table 3-11). The average annual USFS acreage harvested within the PAA during 1992-1998 is approximately 44,710 acres (70 mi^2).

Timber harvests have a significant effect on the physical and biological environment. The extent of these impacts depends on specific methods of harvest, the area where the timber is harvested, and the rate at which it is harvested. Timber harvest activities may be restricted or modified because of standards designed to achieve specified fishery or wildlife objectives on the Forest.

Table 3-9. Land-use activities in central Idaho and western Montana national forests. Information from current USFS 10-year Forest Plans. Projections cover the period from the middle 1980s to the middle-late 1990s.

	Number of acres			
National Forest	Livestock grazing	Suitable for timber	Proj. mean annual harvest	Proj. mean annual harvest (MMBF)[a]
Idaho				
Boise	843,000	656,114	10,527	85.0
Clearwater	180,000	987,700	11,309	173.0[b]
Payette	757,848	821,021	6,869	80.9
Nez Perce	606,000	911,669	4,770	108.0
Salmon Challis	1,162,488	502,916	4,562	24.1
Sawtooth	910,674	99,211	1,392	10.5
Panhandle[c]	7,561	409,200	4,939	74.0
Bitterroot	0	0	0	0.0
Montana				
Bitterroot	160,900	363,331	3,118	33.4
Lolo	187,500	1,239,000	10,500	107.0
Totals	4,815,971	5,990,162	57,986	695.9

[a] MMBF = Million board feet. Current annual harvest levels for most national forests are below projected levels.
[b] A lawsuit settlement resolving The Wilderness Society v. Robertson was signed by the USFS in 1993 and it establishes an interim annual maximum timber sale level of 80 MMBF for the Clearwater Forest until the Forest Plan revision is complete.
[c] St. Joe portion only.

Table 3-10. Projected annual timber harvest (million board feet) in central Idaho and western Montana national forests over the next 5 decades. Information from current USFS 10-year Forest Plans.[a]

	Timber harvest (million board feet)				
National Forests	Decade 1	Decade 2	Decade 3	Decade 4	Decade 5
Idaho					
Boise	85.0	81.0	81.7	82.0	82.4
Clearwater	173.0[b]	212.0	273.9	356.3	440.4
Payette	80.9	82.6	85.1	83.2	81.4
Nez Perce	108.0	138.0	180.0	210.0	210.0
Salmon Challis	24.1	24.1	30.7	31.7	32.7
Sawtooth	10.5	11.2	11.5	11.5	11.5
Panhandle[c]	74.0	95.8	124.9	113.4	181.8
Bitterroot	0	0	0	0	0
Montana					
Bitterroot	33.4	33.0	32.7	42.3	42.7
Lolo	107.0	122.0	122.0	122.0	122.0
Totals	695.9	799.7	942.5	1,052.4	1,204.9

[a] Most forests now feel that the trend in projected future harvest levels given in current 10 year plans are overestimated. For instance during the first decade, only the Boise national forest has met projected timber harvest levels. Actual harvest levels may continue to be lower than projected in the future.

[b] A lawsuit settlement resolving The Wilderness Society v. Robertson was signed by the USFS in 1993 and it establishes an interim annual maximum timber sale level of 80 MMBF for the Clearwater Forest until the Forest Plan revision is complete.

[c] Projected data not available for Avery Ranger District, Panhandle National Forest, decades 3 through 5.

Table 3-11. Projected annual timber harvest from current Forest Plans, and actual annual timber volume sold (million board feet) for USFS lands within the PAA in central Idaho and western Montana during 1992-1998 (USFS, unpubl. data 1999).[a]

National Forests	Projected annual harvest for USFS area within PAA	Actual timber volume sold (million board feet)							Average timber sold 1992-1998
		1992	1993	1994	1995	1996	1997	1998	
Idaho									
Boise	51.0	55.3	158.3	52.7	158.6	44.9	33.9	22.0	75.1
Clearwater[b]	135.0	47.2	14.5	24.0	11.5	42.7	35.8	30.2	29.4
Payette	9.0	8.1	5.6	6.3	28.0	33.2	13.0	9.8	14.9
Nez Perce	100.0	17.2	29.0	10.3	4.4	20.6	34.4	22.4	19.8
Salmon/Challis	13.5	10.0	7.5	7.5	4.8	11.9	5.2	6.0	7.6
Sawtooth	1.0	0.7	1.2	0.8	7.2	4.9	1.3	2.5	2.7
Panhandle[c]	31.0	30.1	15.0	1.0	3.0	2.6	18.6	10.1	11.5
Bitterroot	0	0	0	0	0	0	0	0	0
Montana									
Bitterroot	33.4	7.0	8.7	4.7	8.1	6.1	10.0	12.0	8.1
Lolo	75.0	33.9	20.0	13.3	11.9	14.9	41.1	18.5	21.9
Totals	448.9	209.5	259.8	120.6	232.8	181.8	193.3	133.5	191

[a] The timber volumes presented in this table are estimates of harvest volume planned (from current Forest Plans) and timber volume actually sold (from 1992-1998) within the Forest or portion of the Forest that occurs within the boundaries of the grizzly bear primary analysis area (Randy Gay, Frank Roth pers. comm. 1999).

[b] A lawsuit settlement resolving TWS v. Robertson was signed by the USFS in 1993 and it establishes an interim annual maximum timber sale level of 80 MMBF for the Clearwater Forest until the Forest Plan revision is complete.

[c] St. Joe Ranger District only.

National forest lands within the PAA contain about 26,164 miles of system roads (Table 3-12). Most roads have been developed as the direct result of timber harvest. Besides serving timber harvest, roads are also used for general forest administration, mineral exploration, fire protection, and recreation. Approximately 11,562 miles of these roads are open to unrestricted motorized travel year-round. The other 14,603 miles are subject to a variety of seasonal or yearly restrictions to motorized travel. Most restrictions are for the protection of wildlife habitat and water quality. Other restrictions are for the prevention of road and trail damage during spring runoff, protection of administrative sites and other public facilities from vandalism, protection of the public from unsafe conditions, and for reduction in cost of road maintenance.

Table 3-12. Miles of open and restricted system roads on national forest lands in the Bitterroot grizzly bear primary analysis area (USFS, unpubl. data 1995).

	Miles of roads		
National Forests	Open system road	Restricted system road	Totals
Idaho			
Boise	759	3,274	4,033
Clearwater	1,345	2,054	3,399
Payette	690	280	970
Nez Perce	1,141	2,492	3,633
Salmon Challis	1,823	821	2,644
Sawtooth	772	57	829
Panhandle	840	683	1,522
Bitterroot	78	3	81
Montana			
Bitterroot	1,716	1,407	3,123
Lolo	2,398	3,532	5,930
Totals	11,562	14,603	26,164

Livestock Grazing

Livestock grazing is permitted on approximately 4,815,971 acres (7,525 mi^2) on national forests in central Idaho and western Montana (Table 3-9; Figure 3-8). Permits restrict type of livestock, stocking rate, and season of use. Outfitter and guide permits also allow seasonal grazing of horses. Temporary grazing of recreational horses is allowed on national forest lands throughout the central Idaho area. Restrictions on livestock grazing sometimes occur near riparian areas. Livestock are usually restricted from grazing for about 5 years in areas with newly replanted trees.

Approximately 36,216 adult cattle and 104,176 adult sheep are permitted on active national forest grazing allotments in the PAA each year (Table 3-13). Although the actual numbers of livestock using allotments during any one season varies from year to year, in general, actual numbers average about 90% of permitted numbers. It is assumed that 90% of the cows have calves (90 calves:100 cows), and sheep have an average of 1.2 lambs per ewe (120 lambs:100 ewes). The proportion of lambs to adult sheep was assumed higher than the proportion of calves to cows because sheep produce more sets of twins, offsetting adults who have not produced or have lost offspring. Total calves and lambs on allotments are estimated to be 32,595 calves and 125,012 lambs (Table 3-13). Calves and lambs are born in late winter or early spring, before adults are turned onto allotments on national forest lands.

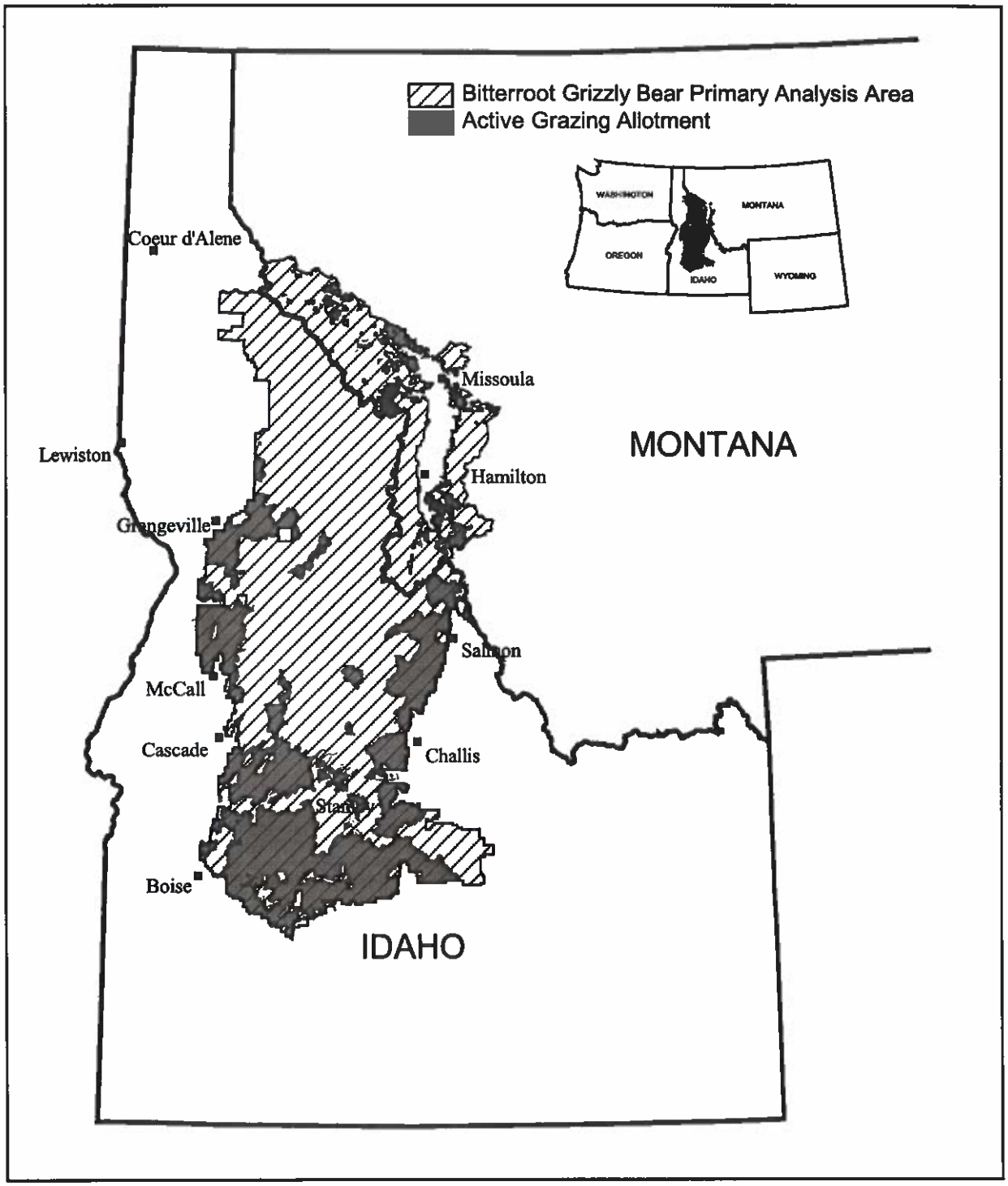


Figure 3-8. Active Idaho and Montana grazing allotments on federal lands in the Bitterroot Grizzly Bear Primary Analysis Area.

Table 3-13. Number of permitted cattle, sheep, and horses on active livestock allotments on national forest lands in the Bitterroot grizzly bear primary analysis Area (USFS, unpubl. data 1995)[a].

National forest	Adult cattle	Calves[b]	Adult sheep	Lambs[c]	Horses
Idaho					
Boise	4,925	4,433	30,568	36,682	575
Clearwater	336	302	0	0	0
Payette	1,330	1,197	12,117	14,540	200
Nez Perce	3,161	2,845	2,304	2,765	0
Salmon Challis	17,538	15,784	7,678	9,214	93
Sawtooth	6,704	6,034	51,509	61,811	52
Panhandle	0	0	0	0	10
Bitterroot	0	0	0	0	25
Montana					
Bitterroot	1,287	1,158	0	0	0
Lolo	935	842	0	0	9
Totals	36,216	32,595	104,176	125,012	964

[a] Data represents numbers of animals permitted. Actual numbers of livestock on an allotment during any one season may vary substantially from year to year. Generally actual numbers average about 90% of permitted numbers.
[b] Assume 90 calves per 100 cows.
[c] Assume 120 lambs per 100 ewes.

Eighty-five percent of all cattle and sheep graze seasonally on the 3 southern Idaho national forests in the PAA, including the Boise, Sawtooth, and Salmon-Challis (Table 3-13). Cattle and sheep are present on most allotments in the PAA some time between May 1 to October 31. Livestock grazing on all allotments on the Sawtooth, Salmon-Challis, and Payette National Forests falls into this period. About 700 head of cattle are on the Boise National Forest as early as April, and over 1,000 head graze in November, and 350 head remain until December 15. On the Nez Perce National Forest, about 3,000 sheep graze one allotment from October 20 to January 15. Another 1,500 sheep begin grazing in the same allotment on April 1. About 500 cattle are present on Nez Perce National Forest allotments in November and 10 cattle are on 1 allotment throughout the year.

During winter, most livestock are maintained on 5,582,892 acres (8,723 mi^2) of private land within the 14-county area surrounding the block of public land in the PAA. During the summer grazing season, a portion of the cattle and most of the sheep are moved to public land. In addition, several thousand sheep are moved in from out-of-state areas to be grazed on central Idaho national forests during the summer grazing season.

A total of 391,527 cattle and 47,520 sheep are distributed across the 14 counties of the PAA (Table 3-14). In addition to cattle and sheep, a minimum of 4,221 hogs and 3,390 chickens are present in the 14 counties (Table 3-14).

Table 3-14. Number of cattle, sheep, hogs, and chickens in 14 central Idaho and western Montana counties in the Bitterroot Grizzly Bear Primary Analysis Area[a].

Counties	No. cattle	No. sheep	No. hogs	No. chickens
Idaho				
Blaine	26,849	31,267	28	0
Boise	5,351	-[b]	-	-
Camas	7,445	0	0	0
Clearwater	3,963	92	30	-
Custer	42,004	4,208	65	-
Elmore	123,306	-	173	491
Idaho	41,393	3,520	3,045	945
Lemhi	54,102	2,002	109	-
Shoshone	207	-	-	-
Valley	14,347	598	21	-
Montana				
Mineral	1,100	128	26	-
Missoula	13,103	1,023	55	438
Ravalli	37,234	4,357	596	1,516
Sanders	21,123	325	73	-
Total	391,527	47,520	4,221	3,390

[a] Sources: Montana and Idaho farm information from 1997 Montana and Idaho State Census of Agriculture data (USDA National Agricultural Statistics Service).
[b] Data not available.

Recreation Use

Idaho and Montana provide a diversity of high quality outdoor recreation resources enjoyed by both residents and nonresidents. The 1986/87 Pacific Northwest Outdoor Recreation survey provided estimates of annual "activity occasions" by Idaho residents for a variety of recreational activities (Idaho Department of Parks and Recreation 1989). Nature study, hiking, walking, and camping activities were all projected to experience moderate to high growth to the year 2010. Hunting activities were projected to experience low growth to the year 2010 (Idaho Department of Parks and Recreation 1989).

In 1991, an estimated 396,000 residents and 311,000 nonresidents fished in Idaho and Montana. An estimated 316,000 residents and 100,000 nonresidents hunted in Idaho and Montana. In addition, 367,000 residents and 572,000 nonresidents participated in nonurban (nonresidential, nonconsumptive) activities in Idaho and Montana (U. S. Department of Commerce 1991, Table 3-15).

In 1991, residents spent an estimated 2,659,000 days fishing in Idaho and Montana and nonresidents spent 840,000 days fishing in these two states (Table 3-15). Residents of Idaho and Montana also spent 3,881,000 days hunting and nonresidents hunted 877,000 days in these two states. Residents spent 3,362,000 days participating in nonresidential activities in Idaho and Montana while nonresidents spent 4,394,000 days participating in nonresidential activities in these two states (U. S. Department of Commerce 1991, Table 3-15).

The primary analysis area contains about 14,789 miles of trails (Table 3-16). Trails provide for a variety of activities, including hiking, bicycling, motorcycling, horseback riding, nature study, backpacking, and four-wheeling. All of these activities are expected to have moderate to high growth to the year 2010 (Idaho Department of Parks and Recreation 1989). A 1994 "Idaho Department of Parks and Recreation User Survey" indicated increasing demand by user groups for multiple and single-use trails (Idaho Department of Parks and Recreation 1997). Trails exist on national forests both in wilderness and non-wilderness. Those in wilderness areas are restricted to nonmotorized, nonmechanized travel.

National forest lands in the PAA contain 493 developed recreation sites and provide over 13,268,395 Recreation Visitor Days (RVDs) annually (Table 3-17). Excluding the Sawtooth and Panhandle National Forests in Idaho (because RVD records for these Forests are not comparable to the other Forests), about 15% of the RVDs are associated with developed areas while about 85% of the RVDs are associated with dispersed (nondeveloped) and wilderness settings. RVDs are expected to continue to grow annually across the central Idaho primary analysis area. In 1992, 10,000 people floated the Main and Middle Forks of the Salmon River through central Idaho wilderness areas. A total of 9,171 people signed in at trail heads in the Frank Church-River of No Return Wilderness Area. USFS personnel met 21,230 visitors in the Frank Church-River of No Return Wilderness Area. Use in the Frank Church-River of No Return Wilderness Area has increased rapidly in recent years. RVDs are also expected to continue to grow annually within the Montana portions of the primary analysis area.

The outfitter and guide industries in Idaho and Montana offer a wide variety of outdoor recreation activities. Some of these activities include big game hunting, whitewater rafting, trophy fishing experiences, backcountry pack trips, and backpacking. There continues to be a steady increase in participation, and in Idaho there has been a notable increase in the boating segment of the industry (Idaho Department of Parks and Recreation 1997).

Table 3-15. Number of days and number of participants in fishing, hunting, and nonresidential nonconsumptive activities in Idaho and Montana in 1991[a].

Participants	fishing	hunting	nonresidential nonconsumptive	Totals
Idaho				
Resident participants	232,000	158,000	194,000	584,000
Nonresident participants	133,000	35,000	188,000	356,000
Total participants	365,000	193,000	382,000	940,000
Resident days	2,495,000	1,941,000	1,722,000	6,158,000
Nonresident days	662,000	226,000	1,717,000	2,605,000
Total days	3,157,000	2,168,00	3,439,000	8,764,000
Montana				
Resident participants	164,000	158,000	173,000	495,000
Nonresident participants	178,000	65,000	384,000	627,000
Total participants	342,000	223,000	558,000	1,123,000
Resident days	1,872,000	1,940,000	1,640,000	5,452,000
Nonresident days	1,284,000	651,000	2,677,000	4,612,000
Total days	3,156,000	2,591,000	4,317,000	10,064,000

[a] Information from: U.S. Department of Commerce, Bureau of Census. 1991. National survey of fishing, hunting, and wildlife associated recreation. U. S. Government Printing Office. Washington, D.C.

In the 46 big game management units covering the primary analysis area (Figure 3-5), 171,799 hunters spent 1,166,658 days in the field harvesting 55,606 elk and deer during general and controlled hunts during the 1994 season. One hundred twenty-five outfitters and guides operate in the 42 big game management units in the central Idaho portion of the primary analysis area. In 1991, 102 of these outfitters and guides provided big game tags to 4,614 nonresidents and 465 residents (Table 3-18). Most tag sales were for nonresident deer and elk hunters. Fifty-one hunting outfitters operate in the 4 big game management units in the western Montana portion of the primary analysis area (Units 240 and 250 = 45, Unit 202 = 6, Unit 203 = 0). The total number of outfitters that operate within the 46 big game management units comprising the PAA of Idaho and Montana is 176.

Table 3-16. Miles of recreational trails on national forest lands in the Bitterroot grizzly bear primary analysis area (USFS, unpubl. data 1995).

	Miles of trails		
National Forests	Open	Closed to motorized vehicles	Total
Idaho			
Boise	846[a]	249	1,095
Clearwater	1,115	384	1,539[b]
Payette	613	822	1,435
Nez Perce	1,205	2,001	3,206
Salmon Challis	1,075	1,647	2,422
Sawtooth	706	850	1,556
Panhandle	513	83	596
Bitterroot	0	590[c]	590
Montana			
Bitterroot	584	271	855
Lolo	890	605	1,495
Total	7,547	7,502	14,789

[a] Includes 150 miles of cross-country ski trails and 400 miles of snowmobile trails.
[b] About 25% of trails are in wilderness.
[c] All trails are in wilderness area.

Table 3-17. Recreation Visitor Days (RVDs) and number of developed recreation sites on national forest lands in the Bitterroot grizzly bear primary analysis area (USFS, unpubl. data 1995).

	RVDs				
National Forests	Developed	Dispersed	Wilderness	Total	Number of Developed Recreation Sites
Idaho					
Boise	432,093	1,229,802	0	1,661,895	75
Clearwater	243,100	1,503,500	35,400	1,782,000	26
Payette	75,000	465,000	122,000	662,000	21
Nez Perce	115,000	451,100	241,000	807,000	64
Salmon Challis	372,700	481,600	447,400	1,297,700	49
Sawtooth	1,674,900[a]	13,200	90,100	1,778,200	160
Panhandle[b]				215,300	17
Bitterroot	50,200	258,700	64,000	372,900	8
Montana					
Bitterroot	315,600	3,031,800	72,000	3,419,400	34
Lolo	138,000	1,131,000	3,000	1,272,000	39
Totals[c]	1,741,693	8,552,502	984,800	13,268,395	493

[a] Includes Dispersed RVDs for the Ketchum District and Sawtooth National Recreation Area (records for Dispersed RVDs are not kept separate from Developed RVDs for these areas).
[b] Avery district only. Only Total RVDs available.
[c] Developed, Dispersed, and Wilderness RVD Totals do not include the Sawtooth and PanhandleForest data.

Table 3-18. Number of big game tags provided by 102 outfitters and guides in 36 big game management units in the central Idaho portion of the Bitterroot Grizzly Bear Primary Analysis Area. Numbers from 1991 license year (IDFG, unpubl. data 1991).

Species Tags	Idaho Residents	Nonresidents	Total Tags
Deer	198	1,763	1,961
Elk[a]	219 (210)	2,202 (2,032)	2,421 (2,242)
Bear	46	637	683
Mountain Lion	2	12	14
Totals	465	4,614	5,079

[a] Parentheses indicate 1992-1996 average for elk tags.

Minerals Extraction

The PAA contains 3 wilderness areas covering a contiguous area of 3,902,912 acres (6,098 mi^2). These include the Frank Church-River of No Return (2,361,767 acres; 3,690 mi^2), the Selway-Bitterroot (1,340,681 acres; 2,095 mi^2), and the Gospel Hump (200,464 acres; 313 mi^2) Wilderness Areas. Mining activities were allowed in wilderness areas to the same extent as in non-wilderness until January 1, 1984. At this time, minerals in wilderness areas (excluding valid existing mineral rights) were withdrawn from all forms of appropriations under existing mining laws and amendments. The Wilderness Act of 1964 gives private property owners the right of access and mining claim owners the right of egress and ingress.

The PAA includes about 16,686,596 acres (26,072 mi^2) of contiguous national forest lands in central Idaho and western Montana (Figure 3-2). These include the Bitterroot, Boise, Challis, Clearwater, Nez Perce, Payette, Sawtooth, Salmon, and Panhandle National Forests in Idaho, and the Bitterroot and Lolo National Forests in western Montana. A few scattered parcels of private and state land are interspersed throughout this area, but the total acreage is minor. There are 12,783,684 acres of USFS lands within the PAA and outside of designated wilderness areas that are managed under the principles of multiple use (as directed by the Multiple Use-Sustained Yield Act of 1960), to include minerals extraction.

The minerals activity on USFS lands within the PAA is summarized in 3 categories (Jim Shelden and Tom Buchta, pers. comm. 1996). "Active claims" are those that have been filed and fees paid, but have no activity to date. "Operations" are those claims that have approved operating plans, with activities that range from core drilling, backhoe holes, small pits, and suction dredging, to small scale mining with 1-2 pieces of equipment and 2 acres or less in size. "Abandoned mines" are either inactive, or have cleanup activity occurring that ranges from small mines to superfund sites.

The total number of active claims in the PAA on Region 1 Forests (Bitterroot, Idaho Panhandle, Clearwater, Lolo, and Nez Perce) is 3,445 claims over 51,850 acres. There is one large claim block not included in the above totals. These are lode claims (hard rock) for 90,000 acres on the Montana/Idaho border of the Clearwater and Lolo National Forests. The block of claims was filed in 1990 and are in the exploration stage now. With the addition of this claim block, the Region 1 total is 3,446 claims over 141,350 acres. The total number of active claims in the PAA on Region 4 Forests (Sawtooth, Boise, Challis, Salmon, and Payette) is approximately 18,697 unpatented claims over approximately 336,546 acres. Thus the total number of active claims for the USFS lands in the PAA is approximately 22,143 claims over 477,896 acres.

The total number of operations for the Region 1 Forests is approximately 394, including 152 notices of intent and 125 plans of operation administered. There are no large scale operations in Region 1. The largest are open pits or placer mines with a maximum of 25 acres of land disturbed in the pits and dumps. There is one operation permitted on the Bitterroot Forest for vermiculite, which, if developed could be 60-80 acres. The total number of operations in Region 4 is approximately 754, including

494 notices of intent and 260 plans of operation administered. There are 8 large scale operations within the PAA in USFS Region 4. Approximately 5,000 acres of public and private lands within the boundaries of National Forests are disturbed by these large mines that range from 150 to 2,500 acres each. The total number of operations on USFS lands in the PAA is approximately 1148.

The total number of abandoned mines in the PAA on Idaho Forests in Region 1 (Nez Perce, Clearwater, and Avery District of the Idaho Panhandle) is 1,485. The number of abandoned mines on Region 1 Forests in Montana is not known, but 17 have been identified as hazardous and targeted for cleanup activity. Idaho abandoned mines have not been assessed for hazard, but most are not hazardous (Jim Shelden, pers. comm.). In 1995, some remediation work was done on 7 Idaho mines. Region 4 Forests in the PAA have three large cleanup projects in progress on abandoned mines. These include the Stibnite mine (Payette Forest), Cinnabar mine, and Blackbird mine (Salmon Forest) which is a superfund cleanup site.

BITTERROOT ECOSYSTEM OF CENTRAL IDAHO AND WESTERN MONTANA: SOCIO-ECONOMICS AND CULTURAL PERSPECTIVE

Population

In 1996 the combined population of Idaho and Montana was 2.09 million people (Table 3-19). While the population in the region grew at a rate of about 2.3 percent in the 1970's, it was nearly constant in the 1980's. This region is sparsely populated. There was an average of 9.0 people per square mile in 1996; compared to over 75 people per square mile in the United States as a whole. About 12.3 percent of the population in the 2 states is age 65 or older. This component of the population is expected to grow dramatically relative to other age groups in the United States as a result of relatively low fertility rates and longer life expectancies (U.S. Dept. of Commerce 1984).

Idaho and Montana are rich in outdoor recreation opportunities; the region boasts national and international recognition for its National Parks, extensive wilderness areas, and high quality hunting, fishing, and wildlife viewing opportunities. Not surprisingly, residents of the region value outdoor recreation highly. In a 1993 study, the USFWS (1993) found that 79 percent of regional (Idaho and Montana) residents participated in outdoor recreation activities, compared to 69 percent of people nationwide. Residents of the region had higher rates of participation in fishing (67 percent, compared to 46 percent nationwide), viewing wildlife (83 percent, compared to 67 percent), and hunting (51 percent, compared to 19 percent).

The fourteen counties in the PAA had a combined population of 240,928 in 1996 (Table 3-19). Population growth of counties within the PAA has followed the same trend as the population in the region over the past two decades. The population of these 14 counties accounts for about 12 percent of the population of the 2 state region. About 12.2 percent of the people in the recovery area are aged 65 or older. These 14 counties are very sparsely populated with an average of 5.4 people per square mile (Table 3-19). This average is compared to an average of 9.0 people per square mile for the two state region. The sparse population in the PAA is in a large part due to two factors: the

ruggedness and inaccessibility of much of the land in the area, and the large percentage of public land in the area which is administered by federal or state agencies.

Table 3-19. Population trends in Idaho and Montana and the Bitterroot grizzly bear primary analysis area from 1970 to 1996.[a]

	Population				1996 Density	Acres
Area	1970	1980	1990	1996	(sq. mi.)	(millions)
Idaho and Montana	1,415,000	1,738,000	1,812,000	2,065,000	9.0	146.9
14-county area	165,000	208,000	209,000	240,928	5.4	28.4

[a] Primary information source: 1998 data from Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System.

Economy

Average per capita personal income for Idaho and Montana was $19,481 in 1996 (Table 3-20). In real dollars it grew at a rate of about 1.6 percent per year during the 1970's and 1.1 percent per year during the 1980's. Between 1990 and 1996 real per capita personal income grew at a rate of 2.8 percent per year.

Total personal income in the region was $40.5 billion in 1996. Personal income in central Idaho and western Montana stems from a variety of economic sectors (Table 3-20). Farm income and agricultural services accounted for only 3.2 percent of the total, declining from about 12 percent in the early 1970's. Livestock accounted for 54.5 percent of the value of farm products sold in the region in 1987 (U.S. Dept. of Commerce 1992). Local services (local transportation and utilities; retail trade; finance; insurance; real estate; and state, local, and federal civilian government) have consistently generated about 40 percent of total personal income over the past three decades. Other industry (forestry, fisheries, mining, construction, manufacturing, other transportation and freight, wholesale trade, and federal government military enterprises) accounted for about 23.5 percent in 1996, declining from 28.3 percent in the 1970's. The remaining 32 percent is income other than earnings. This category, which includes dividends, interest, rent, transfer payments (primarily from retirement programs and medical payments), and an adjustment to wealth from changes in the value of residential housing, has steadily increased in importance over the past two decades from about 20 percent in the early 1970's. This trend reflects the increasing relative importance of "footloose income" (Power, 1991) in the regional economy. This income follows people who choose where they want to live based on the perceived "quality of life" and may be positively correlated with such amenity values as the existence of healthy wildlife populations, lack of crime, clean air, etc. Because

the age group to whom this income is primarily attached, 55 years of age and older, is expected to grow in relative importance in the population as a whole, this trend should continue.

Tourism is an important "industry" to both states in the region. Visitors from outside the region visit Montana and Idaho in large numbers, in all seasons, in order to see parks and wilderness areas, ski, float rivers, fish, hunt, and simply enjoy scenery. These visitors spend large amounts of money when they visit the region, and these expenditures, in turn, have a large impact on incomes and employment in the region. As an example, Duffield (1992) found that visitors to Yellowstone National Park who came from outside the three state region spent an average of $840 in the region during their trips. Tourism has become a significant and growing industry for Idaho during the past 10 years, and this growth is expected to continue. Estimates made for 1987 and again for 1993 indicate about 60% of outdoor recreation participation and leisure travel in Idaho is attributable to out-of-state visitors to Idaho. The outfitting and guiding industry benefits from increased tourism, and although it is not the largest economic sector in Idaho and Montana, it plays a significant role in many rural communities and counties (Idaho Department of Parks and Recreation 1997).

Per Capita income in the fourteen-county area (Figure 3-4) of the PAA for 1996 was $19,191 (Table 3-20). Total personal income was $4.7 billion in 1996. This represents approximately 11.5 percent of the 2 state regional total personal income. In 1996 income from farming sources and agricultural services accounted for approximately 0.7 percent of the total personal income in this 14-county area (Table 3-21). This 1996 percentage has declined from about 3.8 percent in 1993 and 5.5 percent in 1970. Livestock accounted for about 72 percent of the value of farm products sold in these counties in 1987. This percentage is somewhat higher than the 54.5 percent livestock share for the 2 state region. This greater reliance on livestock in the farming sector is likely due to generally rough topography and high altitude of central Idaho which makes cropping impractical in much of this area. The source of personal income which showed growth in the period 1970-1990 was income other than earnings (which increased from 15.7 percent in 1970 to 33.5 percent in 1990). Other industry, in general, has become relatively less important as a component of personal income in the last two decades, falling from 40.3 percent in 1970 to 21.4 percent in 1996 of total personal income. Mining, manufacturing, and construction have all decreased as a percentage of total personal income during this time period.

Table 3-20. Per capita income trends for Idaho and Montana and the Bitterroot grizzly bear primary analysis area from 1970 - 1996.[a]

	Per capita income			
Area	1970	1980	1990	1996
Idaho and Montana	13,007.00	15,023.00	16,643.00	19,481.00
14-county area	12,459.00	14,794.00	16,476.00	19,191.00

[a] Primary information source: 1998 data from Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System. Dollar figures are adjusted to 1996 price levels.

Table 3-21. Major economic sectors as a percentage of total personal income for Idaho and Montana and the Bitterroot grizzly bear primary analysis area.[a]

	Percent of total personal income			
Area	1970	1980	1990	1996
Idaho and Montana				
Farm	12.0	3.7	6.0	3.2
Local services	39.6	39.8	39.0	41.4
Other industry	28.3	29.3	24.1	23.5
Non-earnings	20.1	27.2	30.9	31.9
14-county area				
Farm	5.5	3.0	4.1	0.7
Local services	38.6	36.7	37.6	41.5
Other industry	40.3	35.5	25.3	21.4
Non-earnings	15.7	24.9	33.1	36.5

[a] Primary information source: 1998 data from Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System.

Native American Cultural Perspective on Grizzly Bears

The grizzly bear holds a prominent role in the culture of many Northwest Indian Tribes. Native American Cultures are closely tied to the environments around them because of dependence upon natural resources for their livelihoods. The importance of this connectedness and dependence upon nature is reflected in the deliberate weak distinction between animals and humans. A central theme of Native American mythology is that the natural order of things along with the full compliment of animals species existed long before humans arrived. Mythology of northwest Indians is set in this time before the arrival of humans where animals were just like people leading human like lives and dealing with human like problems and concerns. Social and cultural lessons were taught and perpetuated through telling of these age old myths whose lessons were embedded in stories about the lives and activities of these "animal people". Cultures of interior northwest Indian Tribes have evolved and are perpetuated through these oral teachings. Because of the direct link between people and animals in Native American Cultures, it becomes circular reasoning to try and distinguish between animals with human abilities and humans with spiritual powers derived from animals. In the setting of myths, before people "arrived", animals lead distinctive human lives. After the "arrival" of people, humans took on religious and cultural significance from animals.

The Bitterroot Grizzly Bear Experimental Population Area encompasses aboriginal homelands of several Inland Northwest Indian Tribes including the Salish, Kootenai, Nez Perce, Shoshone, and Bannock. For many of these Tribes, the grizzly bear was respected for its great size, demeanor, and strength (Antoine Incashola, Flathead Cultural Committee, pers. comm.). Grizzly bears were seldom killed for food and killing a grizzly was considered a great feat equivalent to killing two of ones enemies (Thwaites 1959). The grizzly bear also was admired for his abilities as a hunter, tracker, and fisherman (Allen Slickpoo Sr., Nez Perce Cultural Resources Program, pers. comm., Antoine Incashola, Flathead Cultural Committee, pers. comm.). Many of those who excelled in these skills choose the grizzly bear as their wiyakin; receiving their spiritual power from the grizzly bear. Many names of leaders, warriors, and prominent families of these Indian Tribes were connected to the grizzly bear. Such names include Little claw of the Grizzly, Standing Grizzly Bear, Grizzly Bear Tracks, Four Grizzlies, and Door of the Lodge Grizzly Bear (Allen Slickpoo Sr., Nez Perce Cultural Resources Program, pers. comm., Antoine Incashola, Flathead Cultural Committee, pers. comm.). Families of those who acquired their spiritual power or took their name from the grizzly, held the grizzly in deep respect and did not kill grizzly bears.

Nez Perce Treaty lands encompass a large portion of the PAA (Figure 3-1). The land in the PAA north of the Salmon river, particularly within the Clearwater drainage has provided the backdrop for Nez Perce culture for many thousands of years. In Nez Perce mythology, xaxats, or the grizzly bear, was a central figure representing a complicated if not opposing set of characteristics.

In contrast to being respected for its great size, strength and hunting abilities, xaxats is also often portrayed as a large strong brute with a perpetual bad demeanor and someone to be avoided. The grizzly bear was also more than a little gullible (Aoki 1973, Aoki and Walker 1989). In many stories the grizzly bear was respected and avoided if possible. However, in most stories recounting unavoidable dealings with xaxats, grizzly bear was always fooled and taken advantage of and always lost out in the end; a moral message regarding the inappropriateness of such traits in Nez Perce Society.

The grizzly bear is prominent in Nez Perce mythology and history playing a role in many of the major mythological and historical milestones. In the creation myth, grizzly bear is a character specifically mentioned when the monster eats all of the animal people. Grizzly bear is present inside the monster angry and confused as ever, confronting coyote as coyote comes to the rescue and through his plan destroys the monster and from it creates all of the races of people (Indian Tribes).

Preparing for the arrival of humans, it was grizzly bear and chipmunk who could not agree on the proper day length to give to the humans. As usual, grizzly bear lost out and now, thanks to chipmunk, we have a 48 hour day and night cycle (Alex Pinkham, pers. comm.). After the arrival of the humans, it was the grizzly bear who took in and cared for a young boy lost in the mountains and showed him the way through the Bitterroot Mountains over Lolo Trail (Clark 1966).

It was also grizzly bear who looked over and protected Watkuese, a Nez Perce woman who was venturing back to her people after being captured and sold to white people back east (Clark 1966). As history has recorded it, Watkuese is the woman who saved the lives of the Lewis and Clark expedition in the Weippe Prairie by convincing the Nez Perce leaders not to harm the expedition party because white people had helped her start on her journey back home.

Even after 50 years of absence, the grizzly bear is prominent in keeping Nez Perce culture alive; as Nez Perce culture has kept the spirit of the grizzly bear alive through song, stories, and name giving.

Table 3-22. A summary of the key characteristics of the Bitterroot Grizzly Bear Primary Analysis Area (PAA) which could potentially be affected by grizzly bear recovery.

Characteristic		Central Idaho	Western Montana
Land (in the 14-county area that encompasses the PAA)			
Acres		22,687,424	5,740,560
% Federal Ownership		80	59
% Private ownership		15	38
% National Park, Wilderness, or Wildlife Refuge		17	trace
Public land uses[a]			
Recreational visits/year to national forest lands in the PAA		8,576,995	4,691,400
Acres open to grazing on national forests included in the PAA		4,467,571	348,400
Acres suitable for timber harvest in national forests included in the PAA		4,387,831	1,602,331
Acres of timber projected for harvest annually on national forests included in the PAA		44,368	13,618
Total miles of system roads on national forest lands in the PAA		17,111	9,053
Miles of year-round open system roads on national forest lands in the PAA		7,448	4,114
Miles of closed or restricted access system roads on national forest lands in the PAA		9,664	4,939
Total miles of recreational trails on national forest lands in the PAA		12,439	2,350
Miles of recreational trails open to motorized vehicles in the PAA		6,073	1,474
People/Land Economy (in the 14-county area)			
Population (numbers)		105,234	135,694
Population (people/mi.^{2})		3.0	15.1
Total personal income for Idaho and Montana portions of the PAA (billions of dollars)		4.6	
Average per capita income for Idaho and Montana portions of the PAA ($)		17,465.00	
Farm income for Idaho and Montana combined (% of total personal income)		0.7 (72% of this comes from livestock)	
Local services income for Idaho and Montana combined (% of total personal income)		41.5	
Other Industry income for Idaho and Montana combined (% of total personal income)		21.4	
Other non-earned[b] income for Idaho and Montana combined (% of total personal income)		36.5	
Livestock			
Numbers of cattle in the 14-county area (spring) of the PAA		318,967	72,560
Number of sheep in the 14-county area (spring) of the PAA		41,687	7,358
Number of livestock on national forest allotments in the PAA (May through October)			
Adult cattle and calves		64,589	4,222
Adult sheep and lambs		229,188	0
Horses		95	9
Total livestock		294,732	4,231
Estimated current livestock mortality in the PAA and surrounding counties from all causes per year based upon spring cattle and sheep numbers[c]:	cattle	12,314 3.3% loss (69% calf)	
	sheep	9,366 16.8% loss (~72% lambs)	
	horses	unknown, very low	

Continued

Characteristic	Central Idaho	Western Montana
Ungulate Populations (postharvest estimates)		
Elk	88,047	4,861
Deer (mule & white-tailed)	>160,337	21,750
Moose	1,700	-
Bighorn Sheep	1,330	280
Mountain goat	1,573	178
Total ungulate population	252,987	27,069
Ungulate Annual Harvest		
Elk	6,149	934
Deer (mule & white-tailed)	17,184	3,480
Moose	182	13
Bighorn sheep	33	9
Mountain goat	27	12
Total ungulate harvest	23,575	4,448
Percent of ungulate population harvested	9	16
Estimated ungulates dying/year (all causes)[d]	182,509	16,977
Percent of mortality attributable to hunting	13.0	26.0

[a] A wide variety of land-use restrictions (seasonal and permanent) are employed on public lands throughout the PAA for protection of natural resources and public safety including: on motorized vehicles, construction of structures, animal damage control activities, big game winter range, calving areas, security and migration habitat, raptor nest sites, endangered species, erosion control, wetland protection, to provide a variety of outdoor experiences (motorized or nonmotorized, wilderness or developed, etc.).

[b] Non-earned income represents investments, entitlements, and retirement income that often does not depend on where a person lives. The growth of this segment of the economy over the last 2 decades results from people with this type of income moving into central Idaho and western Montana because these areas are perceived to have a lifestyle that people want to participate in (wild spaces, abundant wildlife, less crowding, low crime, clean air, etc.).

[c] Source: U.S. Fish and Wildlife Service. 1994. The reintroduction of gray wolves to Yellowstone National Park and central Idaho. Final Environmental Impact Statement. U.S. Fish and Wildlife Service, Helena, MT.

[d] Including hunting, crippling loss, poaching, road kill, predation, disease, starvation, drowning, winter kill, accidents, fighting, etc.

CHAPTER IV

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter of the Final EIS discusses the analysis and prediction of the environmental consequences associated with the selection and implementation of each of the six alternatives described in Chapter 2. In the analysis of environmental consequences, the impacts of each alternative are presented separately.

ENVIRONMENTAL CONSEQUENCES ALTERNATIVE 1. RESTORATION OF GRIZZLY BEARS AS A NONESSENTIAL EXPERIMENTAL POPULATION WITH CITIZEN MANAGEMENT(THE PREFERRED ALTERNATIVE)

Impacts on Human Health and Safety

To identify actual risk factors, it would be best to compare areas of similar habitat, human population and recreational activities, and grizzly bear densities, both projected for recovery and expected during the implementation phase. The Northern Continental Divide Ecosystem (NCDE), outside of Glacier National Park, has habitats similar to those in the northern portion of the BE, has grizzly bear population densities of about 1 bear per 20-30 square miles (similar to projected recovered grizzly bear densities for the BE), and has human recreation consisting of hiking, fishing, camping, horseback riding, and big game hunting. Glacier National Park annually receives approximately 2-3 million visitors, does not allow hunting, and has grizzly bear population densities estimated at about 1 bear per 8 square miles. The Yellowstone Ecosystem (YE) which is comprised of Yellowstone Park and surrounding National Forests, receives more visitation than Glacier Park and has an increasing grizzly bear population estimated at 1 bear per 30-50 square miles. Consequently, it would be more comparable to estimate risk to human safety based on habitat and bear densities that occur in the NCDE and YE outside of the national parks, because conditions in these areas most closely resemble those that would occur over time in the BE.

Within the NCDE (outside of Glacier National Park) there has been one bear-inflicted human mortality and one injury since 1950. The injury rate in the YE outside of Yellowstone Park has increased over the last two decades and averages about one injury per year outside the Park, until 1997 when 6 people were injured outside the Park. Within the YE (outside Yellowstone Park) there have been three grizzly bear-inflicted human mortalities in the last 159 years. Gunther (pers. comm. 1998) believes bears, elk, and hunters are concentrating in the residual timber stands following the extreme fire season of 1998. Bears are learning to search for elk and deer carcasses and viscera piles left by hunters.

Although risks of encounters with bears resulting in injury do exist, they are frequently exaggerated. Risks in the BE after bear recovery (a minimum of 50, and likely more than 110 years) would probably mimic those incurred in the NCDE (outside of Glacier National Park). Grizzly populations in the NCDE estimated at a minimum of 325 bears in 1998 are presently about one-and-one-half times the levels expected in the BE within 50-110 years. In the NCDE, only two known bear inflicted injuries have occurred since 1950 outside of Glacier Park. In the Bob Marshall Wilderness in 1956, a hunter shot and injured a grizzly bear that responded by mortally injuring the hunter. In 1985, a bird hunter in the Mission Valley shot and wounded a grizzly that responded by injuring the hunter. National Forests keep some statistics of visitor use called Recreational Visitor Use Days (RVDs). RVDs estimated for the Bob Marshall Wilderness since the last injury occurred in 1956, indicate that the chance of injury in the Bob Marshall Wilderness would be a maximum estimate of

1 injury per 4.5 million RVDs (1956-1994). Similar data were not available for the YE, but due to the injuries of 1997, the rate would be higher.

Presently, the human population levels within and surrounding the NCDE and the YE are greater than those in the BE. Because more than 98% of the BE occurs on national forest lands, resident human populations will likely not increase substantially. However, visitation would likely increase over the recovery period, until saturation of recreation use has occurred, or wilderness managers limit use to reduce impacts. Presently, visitation to the Selway-Bitterroot and Frank Church-River of No Return Wilderness Areas is approximately 1% of that occurring in Glacier and Yellowstone Parks. It is likely that human use of the national forest lands in central Idaho will increase within a few decades, but will likely never reach visitation levels presently occurring in or near Glacier or Yellowstone National Parks.

During the first several decades following reintroduction, the chance of injury caused by grizzly bears would be exceedingly small due to the low density of bears in the area. For instance, in the Selkirk and Cabinet/Yaak ecosystems where there is a low density recovering populations of grizzly bears, there have not been any recorded injuries in at least the last 20 years. Similar injury rates would be expected in the Bitterroot Ecosystem until bear and human densities increased beyond those presently occurring in the SE and CYE. Using human injury rates in the NCDE and YE, and recognizing a net increase in human visitation, projections for human injury, once bears are recovered 50-110+ years in the future would likely average less than one injury per year, and less than one bear-induced human mortality every few decades.

Under Interagency Grizzly Bear Committee (IGBC) guidelines (IGBC 1986), grizzly bears posing problems to camps, cabins, individuals and stock may be relocated or removed. Other potential management options also may be used, such as aversive conditioning techniques that train individual bears to avoid humans or human properties. Radio telemetry collars would be placed on all bears released in the wilderness. This would allow for surveillance of the animals' movements, and allow for preemptive management actions should a bear be in an area where they may come into conflict with humans. A proactive information and education program would increase the awareness of the general public and backcountry users about grizzly bears, allowing for improved and safer food storage and use of stock in and around hunting, fishing, and other recreational campsites. These monitoring controls should further reduce the risk factors to humans using the wilderness and surrounding national forests. Whether grizzly bears would be recovered as a nonessential experimental population or a threatened population would also dictate management flexibility and perhaps subsequent associated risk of injury.

Humans that act in self-defense or defense of others would continue to be allowed to kill a grizzly bear. In addition, new technologies such as repellants, proper sanitation procedures, aversive conditioning, monitoring, and preemptive management, as well as educating humans how to react during an encounter would reduce chance of injuries. See Appendix 11 for more information on risks to human safety.

Conclusions.— During the first several decades following reintroduction, chance of injury caused by grizzly bears would be exceedingly small due to the low density of bears in the area. Under this alternative populations are estimated to achieve recovery levels of approximately 280 bears in a minimum of 50 years, and could likely take more than 110 years. Using human injury rates in the NCDE and YE, and recognizing a net increase in human visitation, projections for human injury, once bears are recovered 50-110+ years in the future, are less than one injury per year and less than one grizzly bear-induced human mortality every few decades.

Impacts on Source Populations of Grizzly Bears

Under ESA Section 10(j), the Secretary of Interior may authorize the release of any population of an endangered or threatened species outside the current range of such species if the Secretary determines that the release will further the conservation of the species, and the population is wholly separate geographically from nonexperimental populations of the same species (See Appendix 12). Reintroduction of grizzly bears into the BE would require capture and relocation of a minimum of 25 bears over a 5-year period from other areas. Some undetermined level of mortality is expected among the transplanted bears. Every effort would be taken to minimize this, but mortalities are expected to occur. Any transplanted bears that died or were removed as a result of human action could be replaced. Such replacements would be in addition to the original minimum of 25 bears.

Three sources of bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population in northwest Montana, and the Yellowstone Ecosystem (YE) population. An equal contribution of bear numbers would be made from Canada and the United States. MDFWP has stated their willingness to use grizzly bears from the NCDE to augment populations elsewhere or reintroduce the species where recovery areas have been identified (Dood and Ihsle Pac 1993, page 107). An attempt was made to transplant a grizzly bear to the Cabinet Mountains from the NCDE in 1992 but trapping efforts to capture a subadult female were not successful (Kasworm et al. 1993).

The relocated bears would be lost from these populations and this loss would be a man-caused loss similar to a mortality. Losses of bears from populations through human-caused actions are regulated and limited to assure the health of these populations. Any captures and removals of bears from source populations would have to be factored into these human-caused mortality limits. Any removal of grizzly bears from within the NCDE or YE recovery zones or within 10 miles of the recovery zone boundary would count against the mortality quota. Some mortality in subadults would be compensatory. If the NCDE or YE populations exceed existing mortality limits in any year, then the placement of grizzly bears to the BE from these ecosystems would be suspended for the following year.

Current mortality data for the YE show for 1996 and 1997 the annual total human-caused mortality limit as measured on a running 6-year average was not exceeded, and the female mortality limit as measured on a running 6-year average was exceeded in both years. In 1998, both the total and

female mortality limits were not exceeded for the YE (Table 3-6). To exceed the Recovery Plan (USFWS 1993) parameters, these limits must be exceeded for two consecutive years. The YE annual total mortality limit was not exceeded in 1997 and 1998, and annual female mortality limit was exceeded in 1997 and met in 1998. For the NCDE, human-caused annual total and female grizzly bear mortality limits was not exceeded in 1996. In 1997, the annual total mortality limit was not exceeded and the female mortality limit was exceeded (Table 3-7). Since these data are updated each year, it is necessary to recalculate mortality levels for both the NCDE and YE prior to making a decision on the origin of any relocated bears. The specific number of grizzly bears that could be obtained from the NCDE or YE is unknown at this time. The female contribution would be designed to minimize impacts on the source population and no female grizzly bears would be removed from within the NCDE or YE recovery zone boundary or from within 10 miles outside the boundary. The male contribution could be a higher number because population increase is affected little by removal of subadult males (USFWS 1993, Eberhardt et al. 1994). Since no bears would be removed from the YE or NCDE if the mortality limits would be exceeded, and no female bears would be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE would be nonexistent.

It should be stressed that any contribution of bears will be based on the current mortality levels. These mortality levels change and the mortality limits are recalculated annually. Contributions of bears to the BE from both the NCDE and the YE would be based on the results of this annual mortality recalculation, and the potential for contribution could change.

Impacts to YE and NCDE Source Populations.— Removals of bears from within either the NCDE or YE recovery zones or within 10 miles of the recovery zones for purposes of transplanting to the Bitterroot area, must be accounted as mortalities in the annual calculations under Recovery Plan standards. Summaries of mortality for the NCDE and YE are shown in Tables 3-6 and 3-7. Recovery Plan standards for mortality are based on 6 year averages of total mortality and female mortality. These averages were first calculated in 1992 and are complete through 1998. In the NCDE, average female mortality limits were exceeded in 4 of the last 7 years but average total mortality limits were not exceeded in any of the years from 1992 to 1998. In the YE, average female mortality limits were exceeded in 3 of the last 7 years and average total mortality limits were exceeded in 1 of the last 7 years. Counts of females with cubs are used to estimate minimum populations (USFWS 1993). Removals of adult female grizzly bears from either recovery zone or the 10 mile area surrounding each recovery zone may also affect minimum population estimates by reducing the number of potential females with cubs that could be observed. Total mortality limits are calculated from minimum population estimates and any reduction in females could indirectly affect these limits and grizzly bear recovery in these ecosystems. Therefore, USFWS has determined that removal of any females from the NCDE or YE recovery zones or within 10 miles of those recovery zones for the Bitterroot reintroduction program will not occur. Removal of male bears does not affect the population estimates which are based on sightings of females with cubs, though these removals must still be accounted under total mortality as a bear lost from the recovery zone. If one male bear had been removed from the NCDE each year, total mortality limits would not have been

exceeded in any of the 7 years from 1992 through 1998. Total mortality limits would have been exceeded in 1 year if 2 male bears had been removed from the NCDE each year. If one male bear had been removed from the YE each year, total mortality limits would have been exceeded in 1 of the 7 years from 1992 through 1998. Total mortality limits would have been exceeded in 2 years if 2 male bears had been removed from the YE each year.

Several researchers have noted polygamous breeding structure in grizzly bears whereby males may breed with several females and females may breed with several males within a single breeding season (IGBC Compendium 1987). This breeding structure should minimize any adverse effects from removal of males from the population. Adult males are most commonly involved with breeding, therefore removal of subadult males would be less likely to affect courtship and breeding structures.

Removal of bears from the area more than 10 miles from recovery zones would not affect recovery criteria as these animals are not counted toward Recovery Plan standards (USFWS 1993). Either males or females could be used as transplant stock for the Bitterroot reintroduction effort. Removal of either adult or subadult females from the area greater than 10 miles from the recovery zone, could however still affect the population of bears living in this area because of less reproductive effort in subsequent years. Removal of males, particularly subadult males would be much less likely to affect the population because they contribute less to breeding than adult males.

Impacts to British Columbia Source Populations.— A minimum of 25 bears would be introduced over a 5-year period with an equal contribution of bear numbers coming from the U. S. and Canada. To estimate potential effects, the following scenario was analyzed. If, for example, the total reintroduction of a minimum of 25 bears over a period of 5 years (estimate at least 5 bears/year) is implemented and the NCDE and/or YE together contribute 3 bears/year, then 3 bears/year would probably come from British Columbia's Kootenay Region. If the long-term harvest average in the Kootenay Region is 55.7 bears/year as it has been in the past, then 3 additional bears removed for reintroduction into the BE would result in an increase in the harvest in the Kootenay Region to 58.7 bears/year for 5 years. This would result in an increase in the average harvest rate from 2.56%/year to 2.70%/year for the next 5 years. This appears to be within the management objectives of the British Columbia Ministry of Environment, Lands, and Parks, however meeting these objectives is dependent upon which of the 15 GBMUs (grizzly bear management unit) provide the bears for reintroduction. If it is not acceptable to add the removal of 3 bears per year to the existing harvest level, then there could be a reduction in existing harvest in those GBMUs where the 3 bears would be removed. That decision would be made by British Columbia management authorities. As Simpson et al. (1995) and others (USFWS 1993) stress, the percentage of the female harvest is critical to population rate of change and is much more important to limit than male mortality levels.

Simulations of the growth rate of the reintroduced population have assumed an initial population having 15 female bears (see Figure 2-3). Additional males may not be contributing to reproductive output, but additional males may be necessary to assure having adequate males present at the start

of population growth because males are more likely to travel farther and will likely be subject to higher mortality levels.

The ability of southeast British Columbia to contribute bears to the BE is dependent upon agreement by the British Columbia provincial government that such removal of bears from British Columbia is compatible with their management objectives, and the support of local citizens and sportsmen for such management actions.

Conclusions.—It appears that source areas for reintroduction of grizzly bears into the BE could be both the NCDE and/or YE (based on mortality levels) in Montana and the Kootenay Region in British Columbia, Canada. These areas have habitat similar to the BE and have sufficient numbers of bears to be a source area. Agreement to supply grizzly bears is not an assurance that bears having history of no conflict with humans, and proper age and sex will be available to the BE reintroduction program. The actual capture of the necessary bears is dependent upon access to areas with such bears, and significant effort by capture crews. Capture of desired bears is not assured, even with intensive effort. It may require more than 5 years to obtain the desired minimum of 25 bears to initiate a new population in the BE. This should be made clear to the public and to cooperating agencies at the outset. There would be no significant detrimental effects to the health of source populations because mortality limits in the Grizzly Bear Recovery Plan (USFWS 1993) and British Columbia grizzly bear management criteria (B.C. Min. Environ., Lands, and Parks 1995) would be met during implementation of this alternative. Further, since no bears would be removed from the YE or NCDE if the mortality limits would be exceeded, and no female bears would be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE would be nonexistent.

Impacts on Land-Use Activities

The preferred alternative includes the reintroduction of a population of grizzly bears to be designated "experimental" and "nonessential" (refers to an experimental population whose loss would not likely reduce the survival of the species in the wild) under the ESA amendment 10(j). Federal agencies would only have to confer with the USFWS on activities that are likely to jeopardize the species. Grizzly bear management under the preferred alternative would allow for resource extraction activities to continue without compliance with Section 7 consultation or Section 9 "takings" provisions under the ESA. No constraints on private land management actions and private lands are included in Alternative 1, and none would be included in the Special Rule if Alternative 1 is selected.

Alternative 1 indicates that the CMC would review any potential impacts to land uses and assure that resource extraction activities would be maintained in the BE. Alternative 1 also indicates that existing USDA Forest Service (USFS) Forest Plan standards and guidelines, as amended, would be deemed adequate pending review by the CMC. The CMC would be responsible for recommending changes in land-use standards and guidelines as necessary for grizzly bear management. It is

anticipated that laws and regulations in the BE, in effect at the time of issuance of this FEIS, and governing land management activities would promote grizzly bear recovery.

Impacts on Timber Harvest.— It is expected that timber harvest is an activity that can be compatible with grizzly bear recovery as long as it meets the existing standards and guidelines of the USFS Forest Plans. Road density guidelines presently in effect in the Clearwater and Nez Perce National Forest Plans outside the wilderness areas are assumed to be adequate for grizzly bear recovery (see Appendix 10). If this alternative is implemented, the special rule would allow the CMC to make recommendations for changes to agency management plans. The CMC could make recommendations to land and game management agencies regarding changes to plans and policies, but the final decision on implementation of those recommendations would be made by those agencies, and the requirements of NEPA could apply. Changes to the Forest Plans should be reviewed by the CMC and agency biologists to determine potential impacts.

Impacts on Minerals Extraction.—Mineral extraction would likely not be altered due to grizzly bear concerns in and by themselves. Recommendations would be made by the CMC to reduce potential impacts if the need arises.

Impacts on Domestic Livestock.— Elements of the preferred alternative that would likely influence impacts on domestic livestock include: 1) reintroduction of grizzly bears into central Idaho, with management as a nonessential experimental population under Section 10(j) of the ESA; 2) intensive monitoring of grizzly bears to identify potential conflict sites; 3) control by public agency personnel of any bears depredating on livestock; 4) the option allowing private landowners to harass or kill grizzly bears that are depredating livestock on private land (following permit and protocol), when agency personnel are not able to resolve the problem.

Grizzly bears would be released in areas of central Idaho that have low densities of livestock. During the first few decades after this alternative is implemented, bear numbers and depredations of livestock are expected to be very low. Following grizzly recovery, grizzly bears would be removed from ESA protection and the states of Idaho and Montana would continue to manage bears.

Most livestock depredations by grizzly bears in the 14 county PAA are expected to occur in the 18,489,989 acre block of contiguous USDA Forest Service land. In addition, depredations could occur in a thin band of surrounding private land.

During the summer grazing period, approximately 30,344 cattle and calves and 40,064 adult sheep and lambs are distributed on public grazing leases across the experimental population area (Table 3-13). Some livestock on private land surrounding public lands may be susceptible to grizzly bear predation.

Grizzly depredation on livestock is highly variable between years and among areas. Projection of depredation rates from other areas is difficult because terrain, vegetation, size of farms, livestock husbandry practices, and food abundance will differ among areas. The following mathematical equation was developed by wolf biologists (USFWS 1994) and is being applied here to standardize depredation rates from the Yellowstone (YE) and Northern Continental Divide Ecosystems (NCDE) in relation to total livestock and recovered bear numbers in the Bitterroot (280 bears) and estimate livestock losses.

$$\frac{\text{Number of cattle/sheep (Bitterroot Ecosystem)}}{\text{Number of cattle/sheep (Other Ecosystem)}} \times \frac{\text{Number of grizzly bears (Bitterroot)}}{\text{Number of grizzly bears (Other Ecosystem)}} \times \text{Mean annual depredations (Other Ecosystem)} = \text{Estimated annual depredations in Bitterroot}$$

Livestock present in the Yellowstone Ecosystem during 1992 were 146,000 cattle and 265,000 sheep (USFWS 1993). Livestock losses from the YE averaged 35 cattle per year during 1994-97 (Gunther et al. 1995, 1996, 1997, 1998). Sheep losses attributable to grizzly bears in the YE averaged 29 sheep per year during 1994-97 (Table 4-1). The YE grizzly bear minimum population estimate used for calculating livestock depredations was 245 bears (Eberhardt and Knight 1996) because the population estimate applied to the time period analyzed. Application of the equation to these data from the YE results in an estimate of 8 cattle and 5 sheep taken annually by a recovered grizzly bear population (280 bears) in the BE (Table 4-2).

Table 4-1. Cattle and sheep losses and incident reports involving grizzly bears from the Yellowstone Ecosystem, 1994-1997 (Gunther et al. 1995, 1996, 1997, 1998).

Year	Cattle Losses	Sheep Losses	Indicents[a]	Human Injuries
1994	19	0	135	9
1995	41	0	101	3
1996	30	47	24	2
1997	51	69	36	8
Average 1994-1997	35	29	74	5.5

[a] Incidents include property damages, and conflicts involving human foods, garbage, gardens, orchards, and beehives.

Numbers of livestock grazing on public lands within the NCDE is less than either the YE or BE and allotments occur largely on the east side of the NCDE. However, livestock losses also occur on private lands within and adjacent to the NCDE in addition to those occurring on allotments. Losses of livestock to grizzly bears in the NCDE and peripheral lands including the Blackfoot Indian Reservation have averaged 8 animals per year from 1986-94 (Madel 1996, D. Carney, pers. comm.

1996). Losses of sheep to grizzly bears in the NCDE including the Blackfoot Indian Reservation have averaged 17 animals per year from 1986-94 (Madel 1996, D. Carney, pers. comm. 1996). Estimates for total cattle were based on grazing allotments and numbers from the Blackfoot Indian Reservation. Estimates for total sheep were based on grazing allotments, numbers from the Blackfoot Indian Reservation, and numbers on private lands adjacent to public lands along the East Front. Livestock totaled 34,841 cattle and 8,500 sheep. The minimum grizzly bear population for the NCDE was calculated from sightings of females with cubs during 1993-1995 as specified in the Recovery Plan (USFWS 1993) to be 516 bears. This minimum population estimate was used for calculating livestock depredations because it was applicable to the time period analyzed. Application of the formula to standardize depredation results in an estimated loss of 4 cattle and 44 sheep annually in the BE when grizzly bear populations are fully recovered at a population of 280 (Table 4-2). Because livestock are in low numbers in the northern portion of the recovery area where bears are expected to exist in highest densities, livestock depredations could be less than either the NCDE or the YE. These predictions are statistical in nature and are not intended to show exact depredation expected in the BE, but should provide an indication of what may occur based on other ecosystems. Livestock losses have been reduced significantly in the last 3 years through modifications in animal husbandry practices such as the use of electric fences, removal of livestock carcasses, use of guard dogs, and conscientious herding practices (Madel 1996).

Table 4-2. Estimated livestock losses in the Bitterroot Ecosystem based on cattle numbers, grizzly bear numbers and rate of loss due to grizzly bears in the Yellowstone Ecosystem and the Northern Continental Divide Ecosystem. The livestock losses for the Bitterroot Ecosystem are projections based on rate of loss in the other ecosystems and are based on a recovered grizzly bear population of 280 individuals managed under experimental status described in Alternative 1.

Area	Minimum grizzly bear population (1996 estimate)	Cattle present	Average annual cattle losses (%)	Sheep present	Average annual sheep losses (%)
Yellowstone Ecosystem	245[a]	146,000	35 (0.024 %)	265,000	29 (0.1 %)
Northern Continental Divide Ecosystem	516[a]	34,841	8 (0.023 %)	8,500	17 (0.2 %)
Bitterroot Ecosystem recovery goal (experimental population area)	280	30,334	4-8	40,064	5-44

[a] YE and NCDE grizzly bear minimum population estimates used in depredation calculations are consistent with the years analyzed. The current minimum population estimates are listed in Chapter 3, "Source Populations".

As provided in Alternative ,1 the public would be allowed to harass a grizzly bear attacking livestock (cattle, sheep, horses, and mules) or bees. A livestock owner may be issued a permit to kill a grizzly bear killing or pursuing livestock on private lands if it has not been possible to capture such a bear

through agency efforts. If there would be significant conflicts between grizzly bears and livestock within the experimental area, these could be resolved in favor of the livestock. There would be no federal compensation program, but compensation from existing private funding sources would be encouraged.

Impacts on Other Private Property.— Other types of conflicts occur between humans and grizzly bears. These include incidents where bears obtain anthropogenic foods (e.g. garbage), damage property, damage bee hives, and obtain fruits and vegetables from orchards and gardens. It is difficult to estimate the potential nuisance problems that could occur in the BE based on what is occurring in other ecosystems because of the differences between ecosystems. The core of the BE is National Forest and wilderness with very few population centers. Yellowstone and the NCDE both have a combination of wilderness and intensive areas of human use. Both of these ecosystems are likely to provide more opportunity for conflicts than the BE because the areas of human impact in the BE are predominately on the perimeters of the ecosystem.

The 1986-1990 nuisance situations involving property damage, garbage, beehives, and other problems in the NCDE averaged 26 incidents per year with most of the problems being garbage related (Dood and Pac 1993). The Yellowstone ecosystem usually has considerably more problems than the NCDE and during 1994 -1997 an average of 74 nuisance situations were handled involving property damage, garbage, bee hives and orchards and gardens in the YE (Gunther et al. 1995, 1996, 1997, 1998). Many of the situations occurred in just 1 of the bear management units. Sixty-three percent of the nuisance incidents involved sanitation problems where bears obtained garbage or other human food, 24% property damage, 7% bee hives, and 7% orchards.

Based on what is currently known about bear behavior in these other ecosystems, once bears are recovered in the BE, bear incidents would likely range between 0 and 74 per year. However, by the time bears would be recovered in the BE, conflicts should be greatly reduced because much more would be known about proper sanitation and avoiding many of the potential conflicts between bears and man.

Conclusions.—Livestock grazing, although presently either not occurring or at very low densities within the recovery area, is not expected to be impacted. However, within the experimental boundaries, grazing occurs predominantly in the southern portion of the BE (Figure 3-8, Table 3-13). Consequently, at recovered grizzly population levels and current livestock stocking rates, impacts to livestock would be expected to be similar to levels occurring in portions of the NCDE and the YE. In 50-110+ years (the estimated time to recovery assuming a 2-4% growth rate) grizzly bears would likely be present within the southern portion of the BE. Projections indicate that at a grizzly bear population level of 280 bears in the recovery area, yearly livestock losses to depredation by bears could range from 4-8 cattle and 5-44 sheep. Management activities would try to preempt livestock problems. The CMC would try to make all uses compatible with recovery.

Restoration of a nonessential experimental population of grizzly bears into the BE is not expected to impact existing land uses in the BE, including timber harvest and minerals extraction activities. Based on what is currently known about bear behavior in the NCDE and YE, once bears are recovered in the BE (a minimum of 50 years, and likely more than 110 years after reintroduction), nuisance bear incidents would likely range between 0 and 74 per year. However, by the time bears would be recovered in the BE, conflicts should be greatly reduced because much more would be known about proper sanitation and avoiding many of the potential conflicts between bears and humans.

Impacts on Wildlife Populations

Grizzly bears are omnivores, but primarily feed on vegetation. Studies indicate that a grizzly bear diet consists of about 90% vegetable and insect matter. They do scavenge and occasionally prey on game animals, in addition to ground dwelling rodents they actively dig out of dens. Research has documented the importance of local concentrations of ungulates as a source of protein for grizzly bears (IGBC 1987). In many locations, animal matter may not constitute a major annual diet item, but may be seasonally vital to bears (Mattson et al. 1991, Gunther and Haroldson In press).

Several studies have attempted to estimate predation by grizzly bears. Studies in the YE indicate that some grizzly bears are active predators on elk calves. Researchers made 944 sightings of grizzly bears on elk calving grounds over 5 years and documented 70 hunts for elk calves of which 26 were successful (Gunther and Renkin 1990). These researchers noted that the percentage of successful hunts declined dramatically during July as calves became more mobile. Mattson (1997) indicated that grizzly bear predation rates averaged 1.4 or 5.8 ungulates per year for adult female and male bears, respectively. Mattson found that bears preferred small prey in the form of elk and moose calves and occasionally adults. French and French (1990) found that although some bears were active predators, not all bears were very successful or even attempted to prey on elk calves. The authors further suggested that predation on elk calves is a learned behavior and is likely facilitated when cubs are raised by predacious mothers. Ungulates, especially elk, were part of the diet when they were the most available and vulnerable, such as calves, winter-killed or weakened animals during spring (Green and Mattson 1988), and weakened bulls during the fall rut (Schleyer 1983).

Based on different studies conducted in North America, bear predation and effectiveness is partly a result of vegetation type and cover, and may be a local phenomenon based on a variety of conditions enhancing predation effectiveness. Although Schlegal (1976) and Gratson and Zager (1999) documented significant black bear predation on elk calves in one study area where spring bear range and elk calving areas overlap in Idaho, it is unclear if similar circumstances are more widespread. Given expected population levels and densities, grizzly bear predation impacts are unlikely to reach levels currently occurring for black bears.

Research conducted in and near Glacier National Park indicated that predation attributed to grizzly bears accounted for 2%, 0%, and 4% of the elk, deer, and moose monitored in their study area

respectively (Kunkel and Pletcher 1994). This study documented a total of 19 predator kills of elk from 1990-1995, 3 of which were caused by grizzly bears. All 3 were older elk (age 11-16). During this same time, 11 moose were known to be killed by predation, 5 of which were attributed to grizzly bears. Grizzly population density estimates for their study area are about 1 bear per 6-8 square miles (Martinka 1974, McLellan 1989), and are perhaps 10-15 times higher than density estimates expected at recovered levels in the BE (1 bear per 50-100 square miles). Therefore, when grizzly bear populations reach recovery levels in the BE, the predation rate could be a fraction of levels in or near Glacier National Park. An expected predation rate of 0.17-0.38% of the ungulate populations in the area occupied by bears could occur.

Using Mattson's (1997) estimate of 1.4 or 5.8 ungulates per year for adult female and male bears respectively, a population of 280 bears (USFWS 1996) would be expected to prey upon a maximum of 504 ungulates per year across the BE (Table 4-3). This calculation assumes a 50:50 sex ratio and a 50:50 adult subadult ratio. The loss of a maximum of 504 ungulates to a recovered grizzly bear population would represent approximately 0.11% of estimated ungulate populations in the PAA.

Table 4-3. Estimated predation on ungulates by grizzly bears in the Primary Analysis Area as a percent of the pre-hunting season ungulate populations and different grizzly population levels. Estimates resulting from two different models (Mattson 1997)[a] and (Kunkel & Pletcher 1994)[b] shown.

Grizzly bear population[c]	Annual kill of ungulates[d]		Percent of ungulate populations (%)[e]	
	Mattson Model (Mattson 1997)	Kunkel & Pletcher Model (1994)	Mattson Model (Mattson 1997)[f]	Kunkel & Pletcher Model (1994)[f]
50	90	42	0.07	0.03
100	180	85	0.13	0.06
200	360	168	0.27	0.13
280	504	234	0.38	0.17

[a] Mattson (1997) study analyzed predation of elk, moose, and bison.
[b] Kunkel and Pletcher (1994) study analyzed predation of elk, moose and deer.
[c] Population assumed to be 50% adult and a 50:50 sex ratio.
[d] Predation rate of 1.4 and 5.8 ungulates per year for adult male and female bears respectively (Mattson 1997).
[e] Total pre-hunting season elk and moose population is 133,968 (see Table 3-22).
[f] Rates based on (bears per square mile densities) x (observed predation rate) x (total elk and moose numbers in PAA).

Annual mortality in big game can result from harsh weather, hunters, disease, predation, and other factors. These factors can interact to accentuate or negate the other. For instance bad weather may concentrate big game to make them more susceptible to hunting, predation, or disease. Furthermore an animal weakened by disease may be more susceptible to predation or winter kill. These factors make it difficult to determine whether a 0-1% grizzly predation rate would be compensatory or

additive. In addition, annual fluctuations in weather can cause ungulate populations to increase or decrease by as much as 10-15%. Such a reduction occurred between the winters of 1994-1997 in the northern PAA. Idaho Game Management Units 10 and 12 experienced a 40% population decline during this period. Research has indicated predation by black bears and mountain lions in this area can be a significant cause of calf elk mortality, and likely has contributed to the population decline in this area (Gratson and Zager 1999). The restoration of grizzly bears would likely have an impact on black bear use of the ungulate resource through competition. This would likely mask any potential grizzly predation of 0-1% on ungulates within the PAA. It should therefore not be necessary to adjust hunting seasons to compensate for grizzly bear predation.

Grizzly and black bear population relationships have also been studied in selected areas. Mattson et al. (1992), documented one instance of an adult male grizzly bear preying upon a black bear in the YE. They also found that less than 0.15% of the 6,979 grizzly bear scats examined contained remains of black bears. During a 1984 drought in the North Fork of the Flathead River, grizzly bears from Glacier National Park made greater use of river bottoms typically frequented by black bears (Jonkel 1984). Black bears were less common in the river bottom during this time and may have been displaced or preyed upon by grizzly bears. Still, areas in Glacier Park have extremely high densities of both grizzly and black bear populations. Based on Park observation records (Glacier Park unpublished data 1980-1984, Nadeau pers. comm. 1996), a spatial partitioning of resources occurs as black bears and grizzly bears frequently occupy and forage in separate areas, thus avoiding conflict and maximizing foraging effectiveness. Researchers in Wyoming have found where grizzly and black bears coexist, black bears become diurnal and occupy more forested habitat than grizzly bears. Adult male grizzly bears were nocturnal and occupied open habitat, females and subadult grizzly bears were crepuscular (active at dawn and dusk) and avoided male grizzly bears (Holm, In press). Although some displacement occurs where grizzly and black bears coexist, potential long-term impacts to black bear population dynamics is unclear, but felt to be minimal.

Impacts on Listed Wildlife and Fish.— An Intra-service Section 7 evaluation of the impacts of grizzly bear recovery in the BE on other resident listed wildlife and fish species was conducted by the USFWS. The resultant Biological Assessment (BA) and letter of concurrence are included in FEIS Appendix 9A. The BA indicates the proposed action would benefit the grizzly bear; would not likely adversely affect gray wolves, bull trout, and lynx; and would have no effect on the other wildlife and fish species analyzed. Impacts to listed anadromous fish species from grizzly bear recovery in the BE were analyzed in a Biological Assessment prepared by the USFWS and reviewed by the National Marine Fisheries Service (NMFS). The results of the Section 7 consultation between USFWS and NMFS are documented in a Biological Opinion prepared by NMFS which is included in FEIS Appendix 9B. NMFS determined that grizzly bear recovery in the BE would not likely jeopardize the continued existence of Snake River steelhead, sockeye salmon, and spring/summer chinook salmon species or result in destruction or adverse modification of critical habitat.

Conclusions.—In many locations, animal matter may not constitute a major annual diet item, but may be seasonally vital to bears (Mattson et al. 1991). An expected predation rate of 0.17-0.38%

of the ungulate populations in the area occupied by grizzly bears at recovered levels in the BE could occur. Using Mattson's (1997) estimate of 1.4 or 5.8 ungulates per year for adult female and male bears respectively, a population of 280 bears (USFWS 1996) would be expected to prey upon a maximum of 504 ungulates per year across the BE. The loss of 504 ungulates to a recovered grizzly bear population would represent approximately 0.11% of estimated pre-harvest populations of ungulates in the PAA. Potential long-term impacts to black bear population dynamics is unclear, but felt to be minimal. Overall impacts of a recovered population of grizzly bears on other wildlife populations are expected to be minimal. It should not be necessary to adjust hunting seasons to compensate for grizzly bear predation on other wildlife. Any restrictions on black bear hunters or other hunting opportunities to reduce the likelihood of mistaken identity kills or to address other potential conflicts could be recommended by the CMC, but would have to be acceptable and implemented by the IDFG and MDFWP. Grizzly bears will kill some healthy ungulates, but a large percentage of prey killed by bears will be very young, very old, sick, injured, or otherwise disadvantaged. Consequently, fewer ungulates will die from malnutrition associated with winter stress. To a small extent, competition among ungulates for food and space will be reduced, and the health of surviving ungulates may be increased an undetermined, but probably minimal amount. Grizzly bear recovery in the BE would not significantly impact other listed wildlife or fish species (Appendices 9A and 9B).

Impacts on Public Access and Recreational Use

Visitor use.—Visitors in the BE may have an opportunity to observe grizzly bears. A recently conducted scientific public survey (Duda and Young 1995), asked "if grizzly bears were put in the Bitterroots next year, would it change the number of future trips you would take"? Eighty-one percent of the locals, 85% of the regional, and 84% of the national respondents said it would not change the number of future trips they would take. Two percent of the locals, 4% of the regional and 7% of the national would take more trips. Fifteen percent of the locals, 7 percent of the regional, and 6% of the national would take fewer trips. Local and regional respondents who visited the Bitterroots in 1994 indicated that they spent a median of 6-10 days, and national respondents spent a median of 4 days that year in the Bitterroots. However, a higher percentage of locals visited the Bitterroots at some time (74%), compared to regional (21%), and national (6%) (Duda and Young 1995).

Of those respondents who said they would take more trips if grizzly bears were introduced, locals (2% of respondents) indicated that over the next 3 years they would take 2 to 15 trips (mean of 6), and regional (4% of respondents) and national (7% of respondents) would take 1-3 trips. Of those locals who said they would take fewer trips (15% of respondents), 49% of the them would take 0 trips, and 30% would still take 1 to 32 trips each year for the next 3 years. Of the regional respondents who would take fewer trips (7% of respondents), 76% said they would take 0 trips, and 10% said they would take 1 trip over the next 3 years. Of the national respondents who would take fewer trips (6% of respondents), 95% would take 0 trips.

Current use of the PAA measured in RVD's (Recreational Visitor Days) was 13,268,395 in 1995. There is no information available as to the breakdown of the percent of local, regional and national

outdoor recreationists in the PAA. Therefore, there is no real way to determine the change if any expected in the annual RVD's following reintroduction. We know that some people will avoid the PAA, and some will be attracted to the PAA because of bears. However, what is not known is what impacts an increase of 1% national visitation would have on the PAA. Annual RVD's increased about 7% in central Idaho between 1993 and 1995, and will continue to increase as the demand for wilderness and outdoor recreation areas increases nationally. Consequently, despite some possible temporary changes in visitation rates (up or down) as a result of grizzly bear restoration, little overall change in increasing visitation rates would be expected over time. Visitation will continue to increase as a result of expanding population pressures and the subsequent increased demand for outdoor recreation opportunities. Also, there is no way of predicting the number of people who will continue to recreate despite an initial avoidance of the PAA, once they feel comfortable that the benefits outweigh the minimal risks involved.

Nature study, hiking, walking, camping, and off-highway vehicle use activities in Idaho are all projected to experience moderate to high growth to the year 2010. Hunting activities in Idaho are projected to experience slow growth to the year 2010 (IDPR 1989). The expected impacts to backcountry user groups such as outfitters and rafters could include increased requirements to store food so it would be unavailable to grizzly bears, and to keep clean camps so as not to attract bears. This would enhance human safety and minimize human impacts on a wide range of wilderness resources including other wildlife species and water quality. Appendix 22 provides a preliminary report on sanitation improvements needed throughout the BE for all wildlife species, and could apply to grizzly bear recovery efforts.

Trail and Road Closures.—This alternative allows for a citizens management committee to decide if trails, roads, and other areas would be closed to improve recovery efforts for grizzly bears. No trail or road closures in the BE are expected solely for grizzly bears at this time. In the NCDE where a minimum population of about 325 grizzly bears (1998 estimate) currently exist, only one trail was closed on national forest lands because of grizzly bears in the last 10 years (USFS, Unpubl. data 1996). This closure was a result of concerns for human safety when a bear was seen feeding on an elk carcass on a trail. During the peak of the visitor use season in Glacier National Park, fewer than 5% of the trails are closed at any time as a result of safety concerns. Because of the difference between national park and national forest management, closures in the BE would most likely be extremely rare and probably be similar to the NCDE, and be based on a citizens group recommendations. In the event trail use restrictions for public safety are necessary in response to a rare instance such as a grizzly bear feeding on a carrion source, such restrictions would be short-term.

Hunting seasons.—Under this alternative, there are no proposed changes in hunting seasons. It is predicted that 280 grizzly bears would kill a maximum of 504 ungulates per year. Interactions with other predators and the compensatory nature of some predation may affect the total loss of ungulates to predators, but at this rate only 0.11% of the pre-harvest ungulate population would be preyed upon

by a recovered bear population. This small loss of ungulates is not expected to result in changes of big game seasons.

In some areas where grizzly bears and black bears coexist, black bear hunting techniques have been limited to avoid mistaken identity mortality. Baiting and hound hunting are currently not allowed in Montana, as a result of concern for bear management. Baiting and hound hunting were eliminated decades before the grizzly bear was ever listed under the ESA. In the Selkirk mountains of northern Idaho, baiting and hound hunting are not allowed in units where grizzly bears exist. Any changes in baiting and hound hunting would have to be authorized by the Idaho Fish and Game Commission. The Citizens Management Committee could recommend these changes occur as a way to reduce mistaken identity or other illegal mortality to grizzly bears. However, due to the remote character and inaccessibility of the Recovery Area which is designated wilderness, bait and hounds are seldom used during black bear season. Therefore, any changes recommended would likely have little impacts on the wilderness hunter who seldom ever baits and seldom hunts with hounds for fear of losing dogs.

Conclusions.—Under this alternative, the Citizen Management Committee may recommend changes to current management practices in the BE with the least impacts to resource use industries, including recreational industries, while prioritizing grizzly bear recovery. Although some people would avoid recreating in the recovery area as a result of reintroduction, other people would increase their recreation in the area because of it. The vast majority of recreationists and resource area users would continue to use the recovery area with little change in their trip frequency or length. Backcountry user groups such as outfitters and rafters could be impacted by increased requirements to store food and keep clean camps so as not to attract bears. Over time, recreation and visitor use of the PAA would continue to increase. No changes in hunting seasons are currently anticipated as a result of grizzly bear recovery, although changes could be recommended by the CMC to state agencies to address potential conflicts.

Impacts on Economics and the Social Environment

Background Information for Analysis.—An economic analysis of the effects of grizzly restoration into the Bitterroot Ecosystem necessarily entails examining each potential source of economic costs or benefits and estimating its net economic effect. The areas of potential economic effects examined are the following: (1) effects on hunter harvest, (2) effects on livestock depredation, (3) effects on land use restrictions, (4) effects on visitor use, and (5) effects on existence values. These areas will be discussed in turn and the cumulative effect of all sources of benefits and costs will be examined.

The following estimates of the economic consequences associated with the alternatives for grizzly reintroduction include impacts on local populations as well as impacts on the national population. Additionally, the estimates include both expenditure impacts, or impacts from increasing or decreasing local area expenditures, and non-market value impacts, or estimated economic impacts not tied to market transactions. In interpreting the estimated economic impacts of the alternatives,

it is important to note what the specific framework for each cost or benefit is, and on what population each predicted cost or benefit falls.

Effects on hunter harvest (1) potentially have two possible economic impacts: an expenditure impact and a non-market net economic value impact. Any expenditure impact would come from reduced expenditures in the PAA resulting from hunters living outside of the PAA deciding not to hunt in the PAA. These expenditure reductions would impact the businesses where the lost expenditures would otherwise have been made. Net economic value impacts associated with hunting restrictions are non-market losses which accrue to hunters because they spend less days hunting. These losses do not represent lost market transactions, but rather the lost increment of value to the hunter which is above the market expenditures (e.g., gas, food, ammo) that he/she must make for that hunting day.

Effects of livestock depredation (2) fall on the rancher losing the livestock. This is a direct expenditure , or income loss. If there were a compensation program (such as exists for the gray wolf recovery program) for ranchers, then the impact of livestock losses would be shifted from the individual ranchers to contributors to any compensation trust fund.

Effects associated with land use restrictions (3) could potentially impact recreation, timber harvest, or mineral extraction. Impacts on recreation would be felt through reductions in expenditures made by public lands recreators. Non-market losses would also be felt by potential recreationists who might have their recreation in the BE restricted. Restrictions on timber harvest and mineral extraction would be felt in local economies through loss of business expenditures, loss of employment, and loss of employee expenditures. The negative impacts of land use restrictions would be primarily expenditure losses in the local economies.

Effects on visitor use of the recovery area (4) would have two components, expenditure impacts and non-market net economic value impacts. Either increases or reductions in visitation to the recovery area by people living outside of the PAA would be associated with increased or decreased trip-related expenditures in the PAA. These increases or decreases in trips would also likely be associated with positive or negative (respectively) impacts to trip-related net economic value for the visitors. The impact of any visitation-related expenditure changes would fall primarily on area businesses, and the impact of net economic value changes would fall to the visitors themselves.

Effects on existence values (5) are described in detail in the following sections. These impacts to existence values accrue to both users and non-users of the recovery area. Existence value impacts are entirely non-market impacts. Since existence value impacts potentially affect everyone in the country, not just individuals in the PAA, the vast majority of these impacts fall to individuals outside of the PAA.

Impact on the Economic Value Associated with Hunter Harvest.—One of the potential effects of grizzly restoration to the Bitterroot Ecosystem is on big game hunting opportunities in hunting units/districts in or near the recovery area. As discussed previously in the section on the effect of restoration on wildlife populations, grizzly bear recovery is not expected to have any significant effect on huntable populations of ungulates in the BE. It is not expected that restrictions on black bear hunting in wilderness areas would occur under this alternative. However, hunters could suffer an economic loss associated with grizzly restoration if future restrictions on black bear hunting in the recovery area result in a decrease in total days spent hunting black bears in the region (see Alternative 4 analysis, this Chapter).

Economic Impact on Domestic Livestock.—A second area of potential costs associated with grizzly restoration to the BE is the possibility of livestock depredation by the recovered grizzly population. The calculation of lost value due to this depredation is straightforward. The lost value per year is equal to the estimated number of lost animals per year times the market value of those animals. For a discussion of how the estimates of livestock depredation in the Bitterroot Ecosystem were computed, see Chapter 4, Impacts on Domestic Livestock.

Grizzly depredation on domestic livestock would likely be minimal during the estimated 50-110+ years until the population of grizzly bears in the BE is fully recovered. It is estimated that after a recovered population of 280 grizzly bears is achieved, depredation incidents involving livestock would be between 4 and 8 cattle and between 5 and 44 sheep per year. Prior to full recovery depredation losses are expected to be below these estimated levels. Table 4-4 shows the estimated losses due to predation on livestock under Alternative 1. It is estimated that between $2,720 and $8,568 dollars per year in livestock predation losses would occur if grizzly bears were reintroduced to the BE under Alternative 1.

Table 4-4. Annual economic costs associated with livestock depredation under Alternative 1.[a]

Statistic	Low estimate	High estimate
Cattle lost	4	8
Average value per cow[b]	$565	$565
Sheep lost	5	44
Average value per sheep[b]	$92	$92
Total lost value per year	$2,720	$8,568

[a] During the first few decades after reintroduction, bears numbers and depredations are expected to be very low. Impacts as presented in this table would occur after grizzly bear population recovery in approximately 50-110+ years.

[b] Average value per head figures are based on an average of the Montana and Idaho value for all cattle and all sheep in the states as of January 1, 1996 (Montana and Idaho Departments of Agricultural Statistics, pers. comm. 1996).

Economic Effect of Land Use Restrictions on Recreation.—It is expected that any land use restrictions due to the restoration of grizzly bears to the BE would not result in lost economic value. While some area visitors may be inconvenienced due to occasional temporary trail closures, this inconvenience is unlikely to result in any appreciable loss of economic value. Therefore, for all proposed alternatives the net economic cost due to land use restrictions on recreation is estimated to be zero.

One aspect of restrictions on recreation which would have distributional effects within the economy concerns the potential imposition of regulations requiring outfitters operating within the recovery area and backcountry recreationists to include horsepackers and river rafters, to use bear-proof garbage and food containers and methods when in the backcountry. The purchase of bear-proof containers or hoists would impose an additional expense on the outfitters operating within the recovery area and individual backcountry recreationists. These costs would represent transfers of income between the outfitters and backcountry users, and those individuals or firms producing and selling the bear-proof products.

Economic Effect of Land Use Restrictions on Timber Harvest.—Timber harvest is an activity that can be compatible with grizzly bear recovery as long as it meets the standards and guidelines of the USFS Forest Plans. Current USFS Forest Plans for the Clearwater and Nez Perce National Forests outside of wilderness areas are adequate for grizzly bear recovery (see Appendix 10). Therefore, under Alternative 1 it is not anticipated that grizzly bear recovery in the BE would have an economic effect on current timber harvest plans.

Economic Effect of Land Use Restrictions on Mineral Extraction.—Mineral extraction would not likely be altered due to grizzly bear concerns in and by themselves. Therefore, under Alternative 1 it is not anticipated that grizzly bear recovery in the BE would have any economic effect on mineral extraction in the area.

Economic Effect of Changes in Visitor Use.—Grizzly bears are a high profile species with interest nationwide. A survey of Yellowstone National Park visitors found that respondents ranked the grizzly bear highest among wildlife species they would most like to see on their trip to the park (Duffield 1992). Restoration of grizzly bears under Alternative 1 would further increase national awareness of the presence of this species in the lower 48 states. While some individuals might wish to see a grizzly bear in the wild, others might wish to avoid the possibility of encountering one of these large mammals. Possible effects of this increased awareness might be increased or decreased visitation to the recovery area. Table 4-5 shows how different groups of respondents answered the question, "If grizzly were present in the Bitterroot Mountains, would you visit the area more frequently, less frequently, or the same frequency as you currently do?" (Duda and Young 1995).

It should be pointed out, however, that to a majority of respondents the presence of grizzly bears would not change their visitation patterns to the BE. It appears that those respondents closest to the recovery area (the local sample) are the most apprehensive about visiting the BE with grizzly bears

Table 4-5. Comparison of anticipated visitation patterns with grizzly bear reintroduction in the Bitterroot Ecosystem, by population group.

Statistic	Local Sample	Regional Sample	National Sample
% who would visit more often	1.8%	3.5%	5.3%
% who would visit less often	11.9%	6.2%	6.0%
% who would not change visitation	84.62%	87.2%	86.3%
% who "don't know"	1.75%	3.1%	2.5%
Sample size	286	289	285

Source: Duda and Young (1995).

present. Nearly 12 percent of this sample said they would visit the BE less often with bears present while only 1.8% said they would visit more often. Given the sample sizes and high percentage of respondents in every sample group who anticipate no change in trips to the BE, it appears that changes in visitation resulting from grizzly bear restoration would be minimal under this alternative. Based on survey responses, no significant increase or decrease in visitation to the BE resulting from restoration is anticipated.

Economic Effect on the Value Potential Visitors Place on Grizzly Bears.—A final area of potential change in economic value associated with grizzly bear restoration to the BE is the value potential visitors and others place on having a recovered grizzly population in the area. There are two components to this value. There is value associated with seeing grizzly bears in the wild. There is also what is called "passive use value" or "existence value". Existence value is the value a person associates with the knowledge that a resource exists, even if that person has no plans or expectations of ever directly using that resource (Krutilla 1967). In the case at hand, the resource being valued is a recovered or recovering population of grizzly bears in the BE.

Explanation of Existence Value. Conservation and other advocacy organizations demonstrate that individuals in the economy attach an economic value to such things as preserving endangered species, open spaces, and wilderness areas. This economic value is demonstrated through the simple fact that individuals are willing to donate money to organizations working towards these goals. Some of this demonstrated value is due to the fact that people anticipate "using" the resources they are paying to help preserve through activities such as hiking, hunting, or wildlife viewing. This portion of the value is known in economics as "use value". Some people, however, may never intend to make any direct use of a resource, but still attach a value to the preservation of that resource. They may hold this value for a number of reasons: 1) they may want to preserve the resource for future generations (bequest value); 2) they may want to hold open the option to use the resource in some

way in the future although they have no immediate plans to do so (option value); or 3) they may simply feel that preservation of a resource is the "right" thing to do, and thus attach a value to it (existence value). The term existence value as used in this analysis collectively includes existence, option, and bequest values, but does not include any aspect of use value.

People demonstrate their existence values in the marketplace by contributing to organizations such as the Nature Conservancy, Ducks Unlimited, or Defenders of Wildlife. However, whether people enjoy existence values of resources is not contingent upon whether they donate money to support a cause. The fact that some individuals are willing to donate money is just the most obvious manifestation of these existence values.

Given the fact that existence values exist, the problem facing economists is how to measure these values without actually collecting the monetary equivalent of these values. The technique used in this analysis, contingent valuation, is the only method available to economists to measure existence values. This method has been used in hundreds of applications worldwide in the past two decades. Contingent valuation is recognized by governmental regulatory agencies such as the Department of Interior, and the National Oceanic and Atmospheric Administration as the appropriate tool for use in measuring non-use values such as existence value.

Summary of Methodology Used for FEIS Existence Value Analysis. In measuring the existence value associated with grizzly restoration to the Bitterroot Ecosystem, a sample of respondents was contacted by phone and surveyed on their knowledge and attitudes about grizzly bears and the grizzly reintroduction into the BE issue (Duda and Young 1995). One question in this survey asked respondents how much they would be willing to contribute to either support or oppose grizzly reintroduction in the BE. The average donation amount stated by the two distinct groups of respondents (those supporting and those opposing reintroduction), was used as a measure of existence value. When these average existence values were multiplied by the estimated number of people in the country who supported or opposed reintroduction, the result was an estimate of total existence values for those supporting reintroduction, and negative existence value for the group opposing reintroduction. The net economic existence value associated with grizzly reintroduction in the BE was calculated by subtracting the value for the group opposing reintroduction from the value for the group supporting reintroduction.

A necessary next step in the estimation of existence values was to make an adjustment to the stated values based on the understanding that people may *say* they are willing to contribute more to a cause than they are actually willing to contribute. To adjust for this probable overstatement, the net economic existence value estimates were reduced by approximately 70%. Finally, these lump-sum existence value estimates were annualized over a perpetual time horizon at a 7% rate. The resulting existence value was reported in the summary cost and benefits tables for the alternatives presented in Chapter 4 of this FEIS. See Appendix 17 for further information on existence values.

Details of Methodology Used for FEIS Existence Value Analysis. The methodology used in estimating the net economic value associated with a recovered BE grizzly population follows that of Duffield (1992) and Duffield, Neher, and Patterson (1993). The basic idea is to ask individuals how much they would be willing to contribute to a fund to support (or oppose) grizzly recovery. Three random samples of potential respondents were drawn: one from the pool of all possible phone numbers in the U.S. (excluding Alaska and Hawaii), a second from all possible phone numbers in a 6 state region (Idaho, Montana, Wyoming, Washington, Oregon, and Utah), and a third from all possible phone numbers in 8 counties in or near the proposed recovery area (Missoula, Mineral, Ravalli, Idaho, Clearwater, Nez Perce, Lewis, and Shoshone) (Duda and Young 1995). Individuals in these samples were contacted and surveyed as to their understanding of, and attitudes about, grizzly bear reintroduction in the BE. Appendix 17A, "Survey Questions from, The Public and Grizzly Bear Reintroduction in the Bitterroot Mountains of Central Idaho (Duda and Young 1995) Pertinent to FEIS Economic Analysis" contains those survey questions used in the economic analysis of existence values. Because reintroduction is a potentially contentious and divisive issue, it was anticipated that two distinct groups of respondents would respond to the survey: those who support grizzly bear recovery and attach a value to their existence in the BE, and those who oppose recovery and attach a value to the absence of this species from the BE. In order to determine the value which each of these unique groups attached to the recovery of grizzly bears (or their absence) respondents were asked whether they favored or opposed efforts to reintroduce bears in the BE.

The key survey question, in terms of determining the value which they might place on a recovered (or no) grizzly bear population in the BE, asked respondents if they would be willing to buy a lifetime membership in a trust fund established to support (or oppose) efforts to help reintroduce grizzly bears to the BE. The "economic good" respondents were asked to place a value on recovery of a grizzly bear population in the BE. Respondents were presented with varying dollar costs for trust fund membership. The responses as to respondents' willingness to pay for membership in the trust funds were analyzed in order to estimate the average amount those favoring (or opposing) grizzly bear recovery in the BE would be willing to pay to support (or oppose) recovery. The method of analysis of the valuation question responses followed the methods of Hanneman (1984, 1989). Table 4-6 shows the average willingness to pay to support or oppose grizzly bear reintroduction into the BE for local, region and national samples. The standard errors on the valuation estimates were derived using a method suggested by Duffield and Patterson (1991). Sample sizes for those respondents opposing reintroduction were too small to allow model estimation and estimation of an average donation. A non-parametric analysis of these responses, however, showed that average willingness to pay was substantially lower for this group than for those supporting reintroduction. This is consistent with the findings of other similar studies (Duffield 1992, and Duffield, Neher, and Patterson 1993). In order to conservatively estimate the benefits from grizzly bear reintroduction, the same average donation estimates for those supporting reintroduction was assigned to those opposing reintroduction.

It should be explicitly noted that net willingness to pay was estimated for two different groups in the population; those supporting grizzly bear reintroduction and those opposing reintroduction. To

calculate a final net economic value associated with reintroduction of grizzly bears to the BE, the net economic value associated with the absence of grizzlies from the BE for those who opposed reintroduction was subtracted from the net economic value associated with a recovering grizzly population for those who favored reintroduction. The result of this subtraction is a number that represents the net economic value associated with grizzly bear reintroduction.

Table 4-6 shows the calculation of the total net economic existence value per year of grizzly bear reintroduction to the BE. This total value figure is based on the estimated mean lifetime willingness to pay to support grizzly bear reintroduction times the number of households with phones in the relevant population (local, regional, and national samples and supporting or opposing reintroduction) times an interest rate of 7%. The individual values were aggregated to the number of households with phones because the sample was randomly drawn from all households with phones in the relevant population. The real interest rate is used in order to convert a lump-sum donation to a grizzly bear recovery trust fund into a yearly income stream. For a perpetual income stream, the lump sum amount is converted into an annual value by multiplying by the interest rate.

The aggregate net economic value per year estimates shown in Table 4-6 are conservative in several respects. First, the valuation responses were treated as household responses rather than individual responses. Treating the responses as individual responses would increase net benefits substantially. A second, smaller, source of conservative bias arises from that fact that only those households with phones were used in the aggregation. It is currently estimated that 95% of households own phones. The existence value for those homes without phones is assumed to be zero. Third, the approach to converting the lifetime contribution into an annual value is conservative in that it assumes that only the values of the present generation of contributors count. In addition, the amortization is for perpetuity; the time horizon is infinity.

These measures of the net value individuals place on having recovered grizzly bear populations are based on what survey respondents say they would be willing to donate. However, Duffield and Patterson (1991) found that the actual amount individuals will contribute may be smaller than the amount they say they will contribute. In a study of donations to improve stream flows for endangered fisheries in Montana, Duffield and Patterson found that about one third (28.6%) of the stated willingness to pay can be relatively easily collected from individuals. In order to take into consideration this difference between stated and actual willingness to contribute, we have scaled our value estimates for grizzly bear recovery by this factor (28.6%). This calibration is preliminary since the relationship between the amount hypothetically and actually paid may vary across resources and the population sampled. We do not know the exact relationship between stated and actual willingness to contribute for grizzly bear recovery in the BE. Even adjusted for an assumed difference between stated and actual willingness to contribute, the estimated existence value benefits of grizzly bear recovery in the BE is very large, on the order of $50 million per year. This large estimate reflects the large percentage of the U.S. population that supports the recovery effort and the fact that the grizzly bear is an extremely high profile wildlife species.

Table 4-6. Estimated mean values of grizzly bear reintroduction in the Bitterroot Ecosystem to potential visitors and others under Alternative 1.

Welfare Measure/Statistic	Local sample Residents	Regional sample Residents	National Sample Respondents
Mean value for those[a] supporting reintroduction (Standard Error)[b]	48.70 (4.15)	45.02 (3.48)	40.17 (3.52)
Mean value for those opposing reintroduction (Standard Error)[c]	48.70 (4.15)	45.02 (3.48)	40.17 (3.52)
Population supporting grizzly bear reintroduction	45,897	3,725,013	66,671,516
Population opposing grizzly bear reintroduction	19,363	496,668	7,439,739
Aggregate net economic value/year[d]	90,454	10,173,806	166,553,834
Scaler[e]	0.286	0.286	0.286
Estimated net economic value/year (Standard Error)	25,870 (4,939)	2,909,709 (296,475)	47,634,396 (5,142,009)

[a] The mean values are calculated as a truncated mean with the truncation level at $100.

[b] All standard errors on estimates of mean net willingness to pay were estimated using a bootstrapping procedure with 200 bootstrap iterations (Duffield and Patterson, 1991).

[c] The sample sizes for the those opposing reintroduction were not large enough to allow estimation of models of willingness to pay. The assumption was made that willingness to pay to oppose reintroduction per household was equal to willingness to pay to support reintroduction. Analysis of nonparametric means of the contingent valuation responses by those opposing reintroduction showed that this assumption likely overstates the true willingness to pay by those opposing reintroduction.

[d] Values are calculated assuming a perpetual benefit stream from a one time trust fund deposit amortized at a 7.0% real interest rate.

[e] This factor is an estimate of the ratio of the amount individuals would actually contribute to the amount they state they would contribute, based on Duffield and Patterson (1992).

Source: Bioeconomics 1999, Economic analysis for FEIS on Grizzly Bear recovery in the Bitterroot Ecosystem.

It must be noted that the willingness to pay estimates in Table 4-7 are based on the assumption that the recovery plan detailed under Alternative 1 would result in a recovered grizzly bear population in the BE. If the reintroduction plan in Alternative 1 were to fail, the benefits detailed in Table 4-7 would not be realized.

Table 4-7. Annual net social benefits associated with grizzly bear recovery in the BE under Alternative 1.

Category of Benefit / Loss	Type of Impact (Market / Non-Market)	Impacted Population / Area	Annual Impact (1996 dollars)	
			Low Estimate[a]	High Estimate[a]
(A) Benefits Associated With Grizzly Bear Recovery				
Annual net economic value of recovery	non-market	United States population	40,449,030	60,639,180
(B) Costs Associated With Grizzly Bear Recovery				
Value of hunting losses	market and non-market	hunters and local businesses	0	0
Value of livestock losses	market	ranchers[b]	2,720	8,568
Annual grizzly bear management cost during first 5 years of program[c]	market	United States taxpayers	433,632	433,632
Total costs	---	---	436,352	442,200

[a] For the benefits estimates, the low and high estimates represent a 95% confidence interval on the estimates of net willingness pay for the alternative. For the individual costs, the low and high estimates represent the best estimates of minimum and maximum costs associated with an alternative. The final net benefits figures do not represent a confidence interval but rather a plausible range of benefits associated with the alternative.

[b] If a compensation program for grizzly depredation existed, the impacted population would be the contributors to the fund.

[c] See FEIS Appendix 7 for itemized costs. After the first five years it is estimated that the Alternative 1 recovery program would cost $193,000 per year for monitoring and citizen management.

Conclusion.—It is estimated that grizzly bear recovery in the BE under Alternative 1 will lead to total benefits of approximately 40.4 to 60.6 million dollars per year and total costs of 436 to 442 thousand dollars per year for the first five years. The largest component of total costs would be the grizzly bear management costs of 433,632 dollars per year during the first 5 years of the recovery program. After the first 5 years when reintroductions are complete, the total cost would decrease to 196 to 202 thousand dollars per year.

Social Impacts

The potential social impacts from the implementation of this alternative are varied and difficult to assess. Appendix 19 contains a summary of the public comments received during the scoping process for this DEIS. This appendix provides samples of actual comments regarding views and anticipated impacts of recovering grizzlies in the BE. As such, the appendix provides an indication of potential social impacts.

In summary, impacts would be felt at various scales within society to include local, regional, and national levels. Most impacts would however occur at the local level within communities surrounding the BE. These could include impacts to lifestyles and livelihoods of local residents caused by inconveniences and damage from nuisance bear incidents (previously described in the section "Impacts to Other Private Property"). Backcountry users and outfitters could be impacted by new sanitation requirements and techniques necessary for camping and hunting in grizzly bear habitat (described under "Impacts on Public Access and Recreational Use", and "Economic Effect of Land-Use Restrictions on Recreation"). Survey results (Duda and Young 1995) indicate that some people would avoid the BE if grizzlies were present, and others would be attracted to the area given the prospect of seeing a grizzly bear. Some individuals would wish to never see a grizzly bear in the wild, and others would feel their experience was greatly enhanced by the encounter. For additional information on potential social impacts to local communities (with emphasis on Ravalli County, Montana) see the document, "Sociocultural Context for the Reintroduction of Grizzly Bears to the Bitterroot Ecosystem (in the DEIS Administrative Record).

Social impacts could result from potential changes to land-use activities ("Impacts on Land-Use Activities" section), although none are proposed under this alternative. Local and regional communities could benefit economically and culturally from tourism resulting from grizzly recovery, and this could manifest itself in social changes. Some people would experience fear from grizzly bear presence, and others would find joy in knowing grizzlies were restored to the wilds of Idaho and Montana. Traditional hunting culture would benefit from the prospect of hunting grizzly bears once the population was recovered and delisted. The Nez Perce Indians would experience a net positive impact from the return of the grizzly bear which is a powerful spiritual symbol within their culture.

Appendix 18, "Expected Timelines to Commence Implementation of the Preferred Alternative and Initial Implementation-Associated Sanitation Efforts to Minimize Conflicts", discusses the USFWS vision for implementation of this alternative. The first year of implementation would be a "phase-in" year where sanitation equipment would be installed in key areas, and information and education outreach programs would be initiated. Appendix 22 lists areas in the BE needing sanitation improvements. This would help to minimize conflicts between bears and people, and would also lessen the potential social impacts.

Environmental Justice.— An Executive Order was signed in 1994 requiring federal agencies to address the effects of federal actions on minority populations and low-income populations. This section provides the USFWS analysis associated with this issue and supplements the socio-economic analysis in the FEIS. Issues related to Environmental Justice were not identified as significant through the scoping for issues and alternatives process of through public comments received on the DEIS. Such issues were consequently not used in development of alternatives and mitigation, or considered in the effects analyses. Minorities or low income populations would not be significantly or disproportionately affected by implementation of any alternative considered in the FEIS.

Adverse Effects

The chance of human injury from grizzly bears would be minimal for the first 50 years after reintroduction. At recovered population levels, less than 1 injury per year, and less than 1 human mortality every few decades would be expected.

There are no anticipated adverse effects on source populations of grizzly bears.

Relocation of grizzly bears to the BE is expected to reduce the availability of bears for reintroduction into other ecosystems such as the Cabinet/Yaak and the North Cascades Ecosystems, due to the fact there are a limited number of bears available for reintroduction. This alternative would only be implemented if additional funds become available above and beyond funding for recovery efforts in existing ecosystems (Appendix 24).

There would be no adverse impacts to land-use activities in the BE to include timber harvest and minerals extraction. A recovered population of grizzly bears could depredate 4-8 cattle and 5-44 sheep annually. Prior to recovery, livestock lost to depredation would be minimal. Nuisance bear incidents involving private property could range from 0-74 incidents annually at recovered population levels.

No adverse effects are expected on wildlife populations in the BE. Approximately a maximum of 504 ungulates would be lost annually to a population of 280 grizzly bears. Grizzly bear predation is not expected to result in measurable or observable changes in other wildlife populations in the BE.

Some people would avoid recreating in the recovery area as a result of restoration and grizzly bear presence, because of fear of bears. No adverse effects to hunting seasons are anticipated as a result of grizzly bear recovery.

Adverse effects of this alternative include losses to area ranchers due to livestock predation by grizzly bears may be on the order of $2,700 to $8,600 per year. These livestock losses could, however, be mitigated to a large degree by a private compensation fund.

Short-Term and Long-Term Effects

During the first several decades following reintroduction, the chance of injury caused by grizzly bears would be exceedingly small due to the low density of bears in the area. Based on injury rates in both the NCDE and the YE, it is likely that at recovered bear population levels in the BE, and the increase in human visitation expected in the next 50-110+ years, the chance of human injury once bears are recovered (a minimum of 50 years, and likely more than 110 years after reintroduction) would average less than one injury per year, and less than one bear-induced human mortality every few decades. Several factors under this alternative would further reduce these averages. Proactive monitoring and information and education programs would reduce the risk factors to humans using the recovery and experimental areas. People could kill grizzly bears in self-defense or in defense of others.

Relocation of grizzly bears to the BE is expected to have minimal short-term effects on source populations of grizzly bears. There are no long-term effects anticipated to source populations.

Reintroduction of an experimental population of grizzly bears is expected to have few short-term or long-term effects on land-use in the BE. There are no short-term or long-term effects anticipated for timber harvest and minerals extraction activities. Domestic livestock losses from depredation by a population of 280 grizzly bears are expected to range from 4-8 cattle and 5-44 sheep annually. During the first few decades after reintroduction, bears numbers and depredations are expected to be very low. Losses of livestock are expected to be variable between years and between areas. No long-term effects on overall livestock production in the BE are expected. In the short term, an individual livestock producer could sustain a loss of livestock (most likely sheep) in a given year. Nuisance bear incidents involving private property could range from 0-74 incidents annually at recovered population levels (minimum of 50-110 years after reintroduction). During the first few decades after reintroduction, bears numbers and nuisance bear incidents are expected to be very low. Short-term effects involve loss of private property and inconvenience if nuisance bears have to be trapped and removed. No long-term effects are anticipated.

Establishment of a recovery-level grizzly bear population would have some short-term and long-term effects on ungulate populations in the BE. A population of 280 bears would kill approximately a maximum of 504 ungulates annually. This would represent approximately 0.11% of estimated populations of deer and elk in the PAA. Minimal numbers of moose and black bear could also be killed. No measurable or observable effect is expected on wildlife populations due to grizzly bear predation. As a result of this limited grizzly bear predation, fewer ungulates may die of malnutrition associated with winter stress. Surviving ungulates may benefit very slightly from reduced competition for food and space.

In the short-term, the restoration of grizzly bears into the BE will be controversial and will attract nationwide attention. Initially reintroduced grizzly bears that are collared will be "famous" and people can be expected to venture into the recovery area hoping to see them. In the long-term, the presence of grizzly bears in the BE will continue to attract some people to Idaho and to the backcountry who would otherwise not visit. The presence of grizzly bears in the BE will also preclude some people from visiting the central Idaho backcountry because of fear of this species. The majority of recreationists and resource area users would continue to use the recovery area with little change in their trip frequency or length. Short-term impacts could include increased sanitation requirements for backcountry users, but these impacts would diminish in the long-term as recreationists became familiar with and equipped for backcountry use in grizzly bear country. In the long-term, recreation and visitor use of the BE would continue to increase. There should be no significant short-term or long-term effects to hunting seasons or hunter opportunity. Any restrictions on black bear hunters or other hunting opportunities to reduce the likelihood of mistaken identity kills or to address other potential conflicts could be recommended by the CMC, but would have to be acceptable and implemented by the IDFG and MDFWP. In the long-term, there could be a positive impact to hunter opportunity if the decision is made to hunt grizzly bears.

In the short-term there will be management costs on the order of 433,632 dollars per year during the 5 year recovery period and 193 thousand dollars per year for each year beyond the reintroduction period. Losses to livestock are likely to be less than predicted in the short-term and rise to the predicted level in the long-term (after full recovery). The total estimated benefits per year apply to both the short-term and the long-term.

The long-term presence of grizzly bears would represent a significant restoration of a missing component of the ecological system. The recovery of grizzly bears in the BE will allow the return of the only native omnivore now missing from this large block of Rocky Mountain wilderness habitat. A slight long-term increase of visitor use is projected because people would want to have the opportunity to see grizzly bears or see their sign in a wild setting. The reestablishment of this prominent native omnivore will have significant positive long-term effects on ecological relationships and ecosystem functions. A population of grizzly bears and their interaction with other biotic components would add to the long-term stability of the natural biological and evolutionary processes in the BE, as well as increase the chance of long-term survival of grizzly bears in the lower 48 states.

Irreversible and Irretrievable Commitments of Resources

The reintroduction of an experimental population of grizzly bears into the BE could lead to increased risk to human health and safety for people in the BE. The chance of human injury once bears are recovered (a minimum of 50-110 years after reintroduction) would average less than one injury per year, and less than one bear-induced human mortality every few decades.

The reintroduction of an experimental population of grizzly bears into the BE is expected to lead to the loss of about 4-8 cattle and 5-44 sheep annually, after population recovery in a minimum of 50 and likely more than 110 years. Minimal livestock losses are expected before the population reaches recovery levels. Any livestock losses will be irreversible and irretrievable. Any compensation paid by private groups to livestock operators will reduce the monetary loss. Private property may be damaged or lost during nuisance bear incidents that are estimated to range between 0-74 incidents annually at recovered grizzly bear population levels. Some private property loss would be irreversible and irretrievable. There are no irreversible or irretrievable commitments of other land-uses (to include timber harvest and minerals extraction) expected in the BE.

The reintroduction of an experimental population of grizzly bears into the BE is not expected to lead to any irreversible or irretrievable commitments of the health of source populations of grizzly bears. There are no anticipated irreversible or irretrievable commitments of wildlife resources or hunting opportunity in the BE. There are no anticipated irreversible or irretrievable commitments of public access or recreational use in the BE.

From an economic and social perspective, the only irreversible and irretrievable commitments of resources lie with the grizzly bear management costs and the livestock losses as they occur. The program could at any time be modified to mitigate or eliminate these losses.

Cumulative Effects Analysis

Human Health and Safety.—The reintroduction of grizzly bears into the BE would potentially allow for interactions between grizzly bears and humans. Due to the slow reproductive capacity of grizzly bears, the first few decades following the reintroduction would result in low bear densities scattered throughout the ecosystem, and subsequently low human-bear conflicts. Based on a 2-4% growth rate, it would take 40 - 80 years for grizzly bears to reach 150 in number and likely more than 110 years to recovery of 280 bears. Injury and fatalities caused by grizzly bears would likely remain very low or non-existent during the first few decades, and increase as grizzly bear numbers and human numbers increase in the same area. Based on what is currently occurring in the NCDE and the YE, there could be as many as 1 injury per year and up to 1 mortality every few decades as a result of grizzly bear-human conflicts.

Current fatalities occurring on the national forest lands in Clearwater and Idaho counties average about 10 per year. Vehicle accidents and drowning are currently the two most common methods of human fatality within the national forest boundaries in these counties. The portion of the PAA most likely to be inhabited by grizzly bears within the first few decades following reintroduction is located mostly within these two counties in Idaho. Therefore, the addition of 1 fatality every 10-20 years following grizzly bear recovery would represent only a small fraction (<1%) of total fatalities occurring annually on national forest lands within the PAA. Human fatalities fluctuate annually but have been increasing slightly over time within the PAA. Although any human fatality is serious, grizzly bear-inflicted fatalities would not likely measurably increase current death rates within the PAA.

Source Populations of Grizzly Bears.—The reintroduction of grizzly bears into the BE would require capture and relocation of a minimum of 25 bears over a period of 5 years from the identified source populations in Canada and the U.S. An equal contribution of bear numbers would be made from Canada and the U. S. These relocated bears would be lost from these populations and this loss would be a man-caused loss similar to a mortality. Some of the losses would be compensatory due to young bears having high natural mortality rates. Losses of bears from populations through human-caused actions are regulated and limited to assure the health of these populations. Mortality limits are in effect in both the NCDE and YE (USFWS 1993). These mortality limits are currently set based on a formula that allows no more than 4% human-caused mortality of the minimum population estimate based on a running 6-year average. Of this 4% limit, no more than 30% can be females. Only grizzly bear mortalities that occur within designated recovery zones or within a 10-mile buffer area around the recovery zone boundary are used in the calculation to determine if a population has exceeded mortality limits established by the Recovery Plan. Thus, bears removed from areas more than 10 miles outside recovery zone boundaries in the NCDE and YE would not be counted as mortalities.

A recent report by Simpson et al. (1995) analyzes the grizzly bear status and management approach for the Kootenay region. Average annual harvests in the Kootenay Region for the past 19 years (1976-1994) in the 15 GBMUs varies by unit and totals 55.7 bears/year for an average harvest rate

of 2.56%/year. The management objective recommended in the Simpson et al. (1995) report is a 4% human-caused kill limit of male grizzly bears and a 2% female limit. In British Columbia, grizzly bear mortality is managed (B.C. Min. Environ., Lands, and Parks 1995) so that the maximum harvest throughout the province will be no more than 4% of the total population (including kills from all sources), and the maximum sex ratio of the harvest should be no greater than 1 female to 2 males (33% females).

There would be no cumulative effects to the health of source populations because mortality limits in the Grizzly Bear Recovery Plan (USFWS 1993) and British Columbia grizzly bear management criteria (B.C. Min. Environ., Lands, and Parks 1995) would be adhered to during implementation of this alternative. Since these data are updated each year, it is necessary to recalculate mortality levels for the NCDE and YE prior to making a decision on the origin of any relocated bears. The specific number of grizzly bears that could be obtained from the NCDE and/or YE is unknown at this time. The female contribution would be designed to minimize impacts on source populations, and the male contribution could be a higher number because population increase is affected little by removal of subadult males (USFWS 1993, Eberhardt et al. 1994). No female grizzly bears would be removed from within the recovery zone or from within 10 miles outside the NCDE or YE recovery zone boundary in the NCDE or YE.

If, for example, the total reintroduction of a minimum of 25 bears (estimated 5 bears per year for 5 years) is implemented and the NCDE and/or YE contribute 1 male and one female/year, this would require that 3 bears/year come from British Columbia's Kootenay Region. If the long-term harvest average in the Kootenay Region is 55.7 bears/year as it has been in the past, then 3 additional bears removed for reintroduction into the BE would result in an increase in the harvest in the Kootenay Region to 58.7 bears/year for 5 years. This would result in an increase in the average harvest rate from 2.56%/year to 2.70%/year for the next 5 years. This appears to be within the management objectives of the British Columbia Ministry of Environment, Lands, and Parks, however meeting these objectives is dependent upon which of the 15 GBMUs provide the bears for reintroduction. If it is not acceptable to add the removal of 3 bears/year to the existing harvest level, then there could be a reduction in existing harvest in those GBMUs where the 3 bears would be removed.

Land-Use Activities.—Total livestock mortality each year attributed to weather, health, poison, theft, and other non predator related mortality accounts for the majority of livestock losses in Idaho (USFWS 1993). Total livestock losses for Idaho were 72,000 cattle and calves and 50,000 sheep and lambs. Livestock mortality related to predators is 1.8% of annual cattle losses and 31.2% of annual sheep losses. The addition of 4-8 cattle or calf losses and 5-44 sheep or lamb losses estimated from a recovered grizzly bear population of 280 would represent 0.006-0.01% of existing statewide annual cattle losses and 0.0-0.09% of statewide annual sheep losses. Because livestock are concentrated in the southern end of the recovery area, losses attributed to grizzly bears are not expected for a few decades, unless bears move to private land outside the recovery area. Although this could occur, effective bear and livestock management would likely reduce or eliminate such activity from occurring regularly.

Private property may be damaged or lost during nuisance bear incidents that are estimated to range between 0-74 incidents annually at recovered grizzly bear population levels. These include incidents where bears obtain anthropogenic foods (e.g. garbage), damage property, damage bee hives, and obtain fruits and vegetables from orchards and gardens. However, by the time bears would be recovered in the BE, much more certainly would be known about proper sanitation and avoiding many of the potential conflicts between bears and man, and therefore, conflicts should be greatly reduced. Other nuisance wildlife incidents occur within the PAA to include property damage, black bears obtaining anthropogenic foods, and depredations in agricultural fields, orchards, and gardens. The grizzly bear nuisance incidents would add cumulatively to these existing incidents.

Wildlife Populations.—A recovered population of grizzly bears in the experimental area is predicted to kill approximately a maximum of 504 ungulates per year. Predation will occur predominantly on elk, moose, and deer. Bear predation is not expected to result in measurable or observable changes in populations of ungulates, and no changes in big game management would be necessary. Bears will kill some healthy ungulates, but most of the prey killed by bears will be very young, very old, sick or injured.

Wolves were reintroduced into the central Idaho area in 1995 and again in 1996. Once wolves are recovered (100 wolves) they are expected to kill approximately 1,650 ungulates per year (495 elk, 1,155 deer, and a few moose and bighorn sheep) (USFWS 1994) or approximately 0.35% of the PAA's total pre-hunting season ungulate population. Grizzly bears at recovered levels would kill approximately 0.11% of the PAA's total pre-hunting season ungulate population. The combined predation of these two reintroduced species amounts to approximately 0.46% of central Idaho's total ungulate population. Grizzly bears would account for approximately 0.3% of the total annual non-hunter related ungulate mortality in the PAA. Even if all of the predation were additive and not compensatory, 3 tenths of a percent will not impact big game populations even with the addition of the wolves. The USFWS (1994) found that some adjustments in the cow harvest may be necessary to compensate for wolf recovery in the central Idaho area based on their computer modeling. The model assumed that all wolf predation was additive, and used ungulate data that have since been updated, thus leading to improbable but possible conclusions. Obviously some of the animals preyed upon by wolves would have died from some other cause. In addition, since the 1994 analyses, the ungulate population has increased, and more data have become available. The cumulative impacts of 280 grizzly bears would account for an additional 30% more predation than would 100 wolves. However, the combined predation of these two species is approximately 0.46% of the total ungulate population in central Idaho and based on the area of expected impact by grizzly bears, the overall ungulate population would likely reflect no measurable change.

Mountain lion predation will probably always constitute the majority of predation in the PAA. Adult lions kill 1 ungulate every 7-10 days (Murphy pers. comm. 1996). Lion harvest in 1995 in the PAA was 232 lions, 190 of which were adults. The annual predation attributed to that many lions would have been between 6,935 and 9,880 ungulates for that year. Because lions are such efficient predators and are numerous enough to provide an annual harvest of over 200 in the PAA, their

overall but unknown impact on ungulate populations may influence the rate of growth of ungulate populations. However, the addition of 504 ungulates that would be predated upon by grizzly bears would be only 6% of the predation attributed to those lions that are harvested annually in the PAA. Annual fluctuation of only 20 lions harvested would negate any predation by grizzly bears. The known predation rates of 20 adult lions would equate to known predation rates of a population of 280 grizzly bears.

In a study area on the North Fork of the Flathead River drainage in northwestern Montana and southeastern British Columbia adjacent to Glacier National Park, bears exist in a multi-predator-prey ecosystem. In this study, wolves killed an estimated 4.1% of female elk (Bureau 1992) and 6.7% of female white-tailed deer annually (Rachael 1992). Mountain lions annually killed 13.4% of female elk and 4.9% of female white-tailed deer (Bureau 1992, Rachael 1992). Bears (both black and grizzly bears) were important predators in that study area, and bears killed an estimated 1.5% of female elk (Bureau 1992) and 3.4% of female white-tailed deer annually (Rachael 1992).

Mountain lions and black bears are also common predators throughout the PAA, and would continue to prey on ungulates in central Idaho in the presence of wolves and grizzly bears. Wolf and grizzly bear densities would be considerably lower in the PAA at recovered levels than they currently are in Flathead study area. Predator interactions are being studied throughout North America. How predators impact each other and their prey is currently not very well understood, but all predation is clearly not additive, and some predator interactions will negate other predator impacts. Individual black bear predation is probably less than individual grizzly bear predation, but cumulative black bear predation would be much greater than grizzly bear predation due to overall population sizes. Additionally, grizzly bears may occasionally kill black bears, lions, coyotes, and wolves, and may also scavenge carcasses from these other predators. Coyotes are known to prey upon calves and fawns. However, following reintroduction in the YE, wolves were documented killing many coyotes and have started to replace them as the primary canid predator (DiSilvestro 1996). Because of predator interactions such as these, cumulative impacts cannot be totally additive. We know that grizzly bears will prey on some ungulates. But because of the overall interactions and yearly variations in predator densities, as well as annual variation in ungulate densities due to weather, the recovery of 280 grizzly bears over a 50-110+ year period would not measurably impact ungulate populations in the PAA.

An Intra-service Section 7 evaluation of the impacts of grizzly bear restoration in the BE on other resident listed wildlife and fish species was conducted by the USFWS. The resultant Biological Assessment (BA) and letter of concurrence are included in FEIS Appendix 9A. The BA indicates the proposed action would benefit the grizzly bear; would not likely adversely affect gray wolves, bull trout, and lynx; and would have no effect on the other wildlife and fish species analyzed. Impacts to listed anadromous fish species from grizzly bear recovery in the BE were analyzed in a Biological Assessment prepared by the USFWS and reviewed by the National Marine Fisheries Service (NMFS). The results of the Section 7 consultation between USFWS and NMFS are documented in a Biological Opinion prepared by NMFS which is included in FEIS Appendix 9B.

NMFS determined that grizzly bear recovery in the BE would not likely jeopardize the continued existence of Snake River steelhead, sockeye salmon, and spring/summer chinook salmon species or result in destruction or adverse modification of critical habitat.

Public Access and Recreational Use.—Current use of the PAA measured in RVD's (Recreational Visitor Days) was 13,268,395 in 1995. There is no information available as to the breakdown of the percent of local, regional and national outdoor recreationists in the PAA. Therefore, there is no real way to determine the change if any expected in the annual RVD's following reintroduction. Some people will avoid the PAA, and some will be attracted to the PAA because of bears. However, what is not known is what impacts an increase of 1% national visitation would have on the PAA. Annual RVD's increased about 7% in central Idaho between 1993 and 1995, and will continue to increase as the demand for wilderness and outdoor recreation areas increases nationally. Consequently, despite some possible temporary changes in visitation rates (up or down) as a result of reintroduction, little overall change in increasing visitation rates would be expected over time. Visitation will continue to increase as a result of expanding population pressures and the subsequent increased demand for outdoor recreation opportunities. Also, there is no way of predicting the number of people who will continue to recreate despite an initial avoidance of the PAA, once they feel comfortable that the benefits outweigh the small risks involved.

Nature study, hiking, walking, and camping and off-highway vehicle use activities in Idaho are all projected to experience moderate to high growth to the year 2010. Hunting activities in Idaho are projected to experience low growth to the year 2010 (IDPR 1989). The expected impacts to backcountry user groups such as outfitters and rafters could include increased requirements to store food so it would be unavailable to grizzly bears, and to keep clean camps so as not to attract bears. This would enhance human safety and minimize human impacts on a wide range of wilderness resources including other wildlife species and water quality. Appendix 22 provides a preliminary report on sanitation improvements needed throughout the BE for all wildlife species, and could apply to grizzly bear recovery efforts.

Tourism and outdoor recreation are growing in Idaho. Grizzly bears are a high profile species with interest and support nationwide. Restoration of grizzly bears under Alternative 1 will further increase national awareness of the presence of this species in central Idaho. It is likely that the recovery of grizzly bears will attract increased visitors to the BE in the next decade and beyond. Although some people will not venture into the Idaho backcountry because of fear of grizzly bears, others will visit central Idaho hoping to see bears or their sign.

Economics and the Social Environment.—Alternative 1 for grizzly bear management in the BE would result in an estimated $40.4 to $60.6 million dollars in benefits per year and direct costs of 436 to 442 thousand dollars per year for the first five years. The largest component of total costs would be the grizzly bear management costs of 433,632 dollars per year during the first 5 years of the recovery program. After the first 5 years when reintroductions are complete, the total cost would decrease to 196 to 202 thousand dollars per year. Implementation of this alternative would only occur if additional funds become available above and beyond recovery efforts in existing ecosystems (Appendix 24).

ENVIRONMENTAL CONSEQUENCES ALTERNATIVE 1A. RESTORATION OF GRIZZLY BEARS AS A NONESSENTIAL EXPERIMENTAL POPULATION WITH USFWS MANAGEMENT

Impacts on Human Health and Safety

Impacts on human health and safety from implementation of this alternative would be similar to those described for Alternative 1. The BE grizzly bear population would be managed by the USFWS as a nonessential experimental population under this alternative.

Conclusions.— During the first several decades following reintroduction, chance of injury caused by grizzly bears would be exceedingly small due to the low density of bears in the area. Under this alternative populations are estimated to achieve recovery levels of approximately 280 bears in a minimum of 50 years, and could likely take more than 110 years. Using human injury rates in the NCDE and YE, and recognizing a net increase in human visitation, projections for human injury, once bears are recovered 50-110+ years in the future, are less than one injury per year and less than one grizzly bear-induced human mortality every few decades.

Impacts on Source Populations of Grizzly Bears

Impacts to source populations under this alternative would be similar to those described for Alternative 1. Reintroduction of grizzly bears into the BE would require capture and relocation of a minimum of 25 bears over a period of 5 years from other areas. Three sources of bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population in northwest Montana, and the Yellowstone Ecosystem (YE) population. An equal contribution of bear numbers would be made from Canada and the U. S. MDFWP has stated their willingness to use grizzly bears from the NCDE to augment populations elsewhere or reintroduce the species where recovery areas have been identified (Dood and Ihsle Pac 1993, page 107). An attempt was made to transplant a grizzly bear to the Cabinet Mountains from the NCDE in 1992 but trapping efforts to capture a subadult female were not successful (Kasworm et al. 1993). Under ESA Section 10(j), the Secretary of Interior may authorize the release of any population of an endangered or threatened species outside the current range of such species if the Secretary determines that the release will further the conservation of the species, and the population is wholly separate geographically from nonexperimental populations of the same species (See Appendix 12)

Conclusions.—It appears that source areas for reintroduction of grizzly bears into the BE could be both the NCDE and/or YE (based on mortality levels) in Montana and the Kootenay Region in British Columbia, Canada. These areas have habitat similar to the BE and have sufficient numbers of bears to be a source area. Agreement to supply grizzly bears is not an assurance that bears having history of no conflict with humans, and proper age and sex will be available to the BE reintroduction program. The actual capture of the necessary bears is dependent upon access to areas with such bears, and significant effort by capture crews. Capture of desired bears is not assured, even with

intensive effort. It may require more than 5 years to obtain the desired minimum of 25 bears to initiate a new population in the BE. This should be made clear to the public and to cooperating agencies at the outset. There would be no significant detrimental effects to the health of source populations because mortality limits in the Grizzly Bear Recovery Plan (USFWS 1993) and British Columbia grizzly bear management criteria (B.C. Min. Environ., Lands, and Parks 1995) would be met during implementation of this alternative. Further, since no bears would be removed from the YE or NCDE if the mortality limits would be exceeded, and no female bears would be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE would be nonexistent.

Impacts on Land-Use Activities

Impacts on land-use activities from implementation of this alternative would be similar to those described for Alternative 1, except that USFWS would manage the BE nonessential experimental population and would review land-use activities and make recommendations to land and game management agencies. This alternative includes the reintroduction of a population of grizzly bears to be designated "experimental" and "nonessential" (refers to an experimental population whose loss would not likely reduce the survival of the species in the wild) under the ESA amendment 10(j). Federal agencies would only have to confer with the USFWS on activities that are likely to jeopardize the species. Grizzly bear management under this alternative would allow for resource extraction activities to continue without compliance with Section 7 consultation or Section 9 "takings" provisions under the ESA. No constraints on private land management actions and private lands are included in Alternative 1A.

Alternative 1A indicates that the USFWS would review any potential impacts to land uses and assure that resource extraction activities would be maintained in the BE. Alternative 1A also indicates that existing USDA Forest Service (USFS) Forest Plan standards and guidelines, as amended, would be deemed adequate pending review by the USFWS. The USFWS would be responsible for recommending changes in land-use standards and guidelines in the BE, as necessary, for grizzly bear management to land and game management agencies. It is anticipated that laws and regulations in the BE, in effect at the time of issuance of this FEIS, and governing land management activities would promote grizzly bear recovery.

Impacts on Timber Harvest.— It is expected that timber harvest is an activity that can be compatible with grizzly bear recovery as long as it meets the existing standards and guidelines of the USFS Forest Plans. Road density guidelines presently in effect in the Clearwater and Nez Perce National Forest Plans outside the wilderness areas are assumed to be adequate for grizzly bear recovery (see Appendix 10). If this alternative is implemented, the Special Rule would allow the USFWS to make recommendations for changes to land and game management agency management plans. The final decision on implementation of those recommendations would be made by those agencies, and the requirements of NEPA could apply.

Impacts on Minerals Extraction.—Mineral extraction would likely not be altered due to grizzly bear concerns in and by themselves. Recommendations would be made by the USFWS to reduce potential impacts if the need arises.

Impacts on Domestic Livestock.—Within the experimental area boundaries, grazing occurs predominantly in the southern portion of the BE (Figure 3-8, Table 3-13). Consequently, at recovered grizzly population levels and current livestock stocking rates, impacts to livestock would be expected to be similar to levels occurring in portions of the NCDE and the YE. In 50-110+ years (the estimated time to recovery assuming 2-4% growth rates) grizzly bears would likely be present within the southern portion of the BE. Projections indicate that at a grizzly bear population level of 280 bears in the recovery area, yearly livestock losses to depredation by bears could range from 4-8 cattle and 5-44 sheep. Management activities would try to preempt livestock problems. The USWFS would try to make all uses compatible with recovery.

Impacts on Other Private Property.—Based on what is currently known about bear behavior in these other ecosystems, once bears are recovered in the BE, bear incidents would likely range between 0 and 74 per year. However, by the time bears would be recovered in the BE, conflicts should be greatly reduced because much more would be known about proper sanitation and avoiding many of the potential conflicts between bears and man.

Conclusions.—Livestock grazing, although presently either not occurring or at very low densities within the recovery area, is not expected to be impacted. However, within the experimental boundaries, grazing occurs predominantly in the southern portion of the BE (Figure 3-8, Table 3-13). Consequently, at recovered grizzly population levels and current livestock stocking rates, impacts to livestock would be expected to be similar to levels occurring in portions of the NCDE and the YE. In 50-110+ years (the estimated time to recovery assuming a 2-4% growth rate) grizzly bears would likely be present within the southern portion of the BE. Projections indicate that at a grizzly bear population level of 280 bears in the recovery area, yearly livestock losses to depredation by bears could range from 4-8 cattle and 5-44 sheep. Management activities would try to preempt livestock problems. The USFWS would try to make all uses compatible with recovery.

Restoration of a nonessential experimental population of grizzly bears into the BE is not expected to impact existing land uses in the BE, including timber harvest and minerals extraction activities. Based on what is currently known about bear behavior in the NCDE and YE, once bears are recovered in the BE (a minimum of 50 years, and likely more than 110 years after reintroduction), nuisance bear incidents would likely range between 0 and 74 per year. However, by the time bears would be recovered in the BE, conflicts should be greatly reduced because much more would be known about proper sanitation and avoiding many of the potential conflicts between bears and humans.

Impacts on Wildlife Populations

Impacts on wildlife populations from implementation of this alternative would be similar to those described for Alternative 1.

Conclusions.—In many locations, animal matter may not constitute a major annual diet item, but may be seasonally vital to bears (Mattson et al. 1991). An expected predation rate of 0.17-0.38% of the ungulate populations in the area occupied by bears in the BE could occur. Using Mattson's (1997) estimate of 1.4 or 5.8 ungulates per year for adult female and male bears respectively, a population of 280 bears (USFWS 1996) would be expected to prey upon a maximum of 504 ungulates per year across the BE. The loss of 504 ungulates to a recovered grizzly bear population would represent approximately 0.11% of estimated pre-harvest populations of ungulates in the PAA. Potential long-term impacts to black bear population dynamics is unclear, but felt to be minimal. Overall impacts of a recovered population of grizzly bears on other wildlife populations are expected to be minimal. It should not be necessary to adjust hunting seasons to compensate for grizzly bear predation on other wildlife. Any restrictions on black bear hunters or other hunting opportunities to reduce the likelihood of mistaken identity kills or to address other potential conflicts could be recommended by the CMC, but would have to be acceptable and implemented by the IDFG and MDFWP. Grizzly bears will kill some healthy ungulates, but a large percentage of prey killed by bears will be very young, very old, sick, injured, or otherwise disadvantaged. Consequently, fewer ungulates will die from malnutrition associated with winter stress. To a small extent, competition among ungulates for food and space will be reduced, and the health of surviving ungulates may be increased an undetermined, but probably minimal amount. Grizzly bear recovery in the BE would not significantly impact other listed wildlife or fish species (Appendices 9A and 9B).

Impacts on Public Access and Recreational Use

Impacts on wildlife populations from implementation of this alternative would be similar to those described for Alternative 1.

Visitor use.—Despite some possible temporary changes in visitation rates (up or down) as a result of restoration, little overall change in increasing visitation rates would be expected over time. Visitation will continue to increase as a result of expanding population pressures and the subsequent increased demand for outdoor recreation opportunities. Also, there is no way of predicting the number of people who will continue to recreate despite an initial avoidance of the PAA, once they feel comfortable that the benefits outweigh the minimal risks involved. Nature study, hiking, walking, camping, and off-highway vehicle use activities in Idaho are all projected to experience moderate to high growth to the year 2010. Hunting activities in Idaho are projected to experience slow growth to the year 2010 (IDPR 1989). The expected impacts to backcountry user groups such as outfitters and rafters could include increased requirements to store food so it would be unavailable to grizzly bears, and to keep clean camps so as not to attract bears. This would enhance human safety and minimize human impacts on a wide range of wilderness resources including other wildlife

species and water quality. Appendix 22 provides a preliminary report on sanitation improvements needed throughout the BE for all wildlife species, and could apply to grizzly bear recovery efforts.

Trail and Road Closures.—No trail or road closures are expected solely for grizzly bears at this time. In the NCDE where a minimum population of about 325 grizzly bears currently exist, only one trail was closed on national forest lands because of grizzly bears in the last 10 years (USFS, Unpubl. data 1996). This closure was a result of concerns for human safety when a bear was seen feeding on an elk carcass on a trail. During the peak of the visitor use season in Glacier National Park, fewer than 5% of the trails are closed at any time as a result of safety concerns. Because of the difference between national park and national forest management, closures in the BE would most likely be extremely rare and probably be similar to the NCDE, and be based on USFWS recommendations for human safety.

Hunting seasons.—Under this alternative, there are no proposed changes in hunting seasons. It is predicted that 280 grizzly bears would kill a maximum of 504 ungulates per year. Interactions with other predators and the compensatory nature of some predation may affect the total loss of ungulates to predators, but at this rate only 0.11% of the pre-harvest ungulate population would be preyed upon by a recovered bear population. It should not be necessary to adjust hunting seasons to compensate for grizzly bear predation on other wildlife. Any restrictions on black bear hunters or other hunting opportunities to reduce the likelihood of mistaken identity kills or to address other potential conflicts could be recommended by the USFWS, but would have to be acceptable and implemented by the IDFG and MDFWP.

Conclusions.—Under this alternative, the USFWS would recommend changes to current management practices with the least impacts to resource use industries, including recreational industries, while prioritizing grizzly bear recovery. Although some people would avoid recreating in the recovery area as a result of restoration, other people would increase their recreation in the area because of it. The vast majority of recreationists and resource area users would continue to use the recovery area with little change in their trip frequency or length. Over time, recreation and visitor use of the PAA would continue to increase. No changes in hunting seasons are currently anticipated as a result of grizzly bear recovery, although changes could be recommended by the USFWS to state agencies to address potential conflicts.

Impacts on Economics and the Social Environment

Impacts to Economics and the Social Environment would be similar to those described for Alternative 1. However, the costs associated with Alternative 1A would be $20,000 less per year than Alternative 1 because there would be no costs associated with the CMC.

Background Information for Analysis.—An economic analysis of the effects of grizzly restoration into the Bitterroot Ecosystem necessarily entails examining each potential source of economic costs or benefits and estimating its net economic effect. The areas of potential economic effects examined

are the following: (1) effects on hunter harvest, (2) effects on livestock depredation, (3) effects on land use restrictions, (4) effects on visitor use, and (5) effects on existence values.

Impact on the Economic Value Associated with Hunter Harvest.—One of the potential effects of grizzly restoration to the Bitterroot Ecosystem is on big game hunting opportunities in hunting units/districts in or near the recovery area. As discussed previously in the section on the effect of restoration on wildlife populations, grizzly bear recovery is not expected to have any significant effect on huntable populations of ungulates in the BE. It is not expected that restrictions on black bear hunting in wilderness areas would occur under this alternative. However, hunters could suffer an economic loss associated with grizzly recovery if future restrictions on black bear hunting in the recovery area result in a decrease in total days spent hunting black bears in the region (see Alternative 4 analysis, this Chapter).

Economic Impact on Domestic Livestock.—A second area of potential costs associated with grizzly restoration to the BE is the possibility of livestock depredation by the recovered grizzly population. The calculation of lost value due to this depredation is straightforward. The lost value per year is equal to the estimated number of lost animals per year times the market value of those animals. For a discussion of how the estimates of livestock depredation in the Bitterroot Ecosystem were computed, see Chapter 4, Alternative 1, Impacts on Domestic Livestock.

Grizzly depredation on domestic livestock would likely be minimal during the estimated 50-110+ years until the population of grizzly bears in the BE is fully recovered. It is estimated that after a recovered population of 280 grizzly bears is achieved, depredation incidents involving livestock would be between 4 and 8 cattle and between 5 and 44 sheep per year. Prior to full recovery depredation losses are expected to be below these estimated levels. Table 4-4 shows the estimated losses due to predation on livestock under Alternative 1 and this also applies to Alternative 1A. It is estimated that between $2,720 and $8,568 dollars per year in livestock predation losses would occur if grizzly bears were reintroduced to the BE under Alternative 1A.

Economic Effect of Land Use Restrictions on Recreation.—It is expected that any land use restrictions due to the restoration of grizzly bears to the BE would not result in lost economic value. While some area visitors may be inconvenienced due to occasional temporary trail closures, this inconvenience is unlikely to result in any appreciable loss of economic value. Therefore, for all proposed alternatives the net economic cost due to land use restrictions on recreation is estimated to be zero.

One aspect of restrictions on recreation which would have distributional effects within the economy concerns the potential imposition of regulations requiring outfitters operating within the recovery area to use bear-proof garbage and food containers and methods when in the backcountry. The purchase of bear-proof containers or hoists would impose an additional expense on the outfitters operating within the recovery area. These costs would represent transfers of income between the outfitters and those individuals or firms producing and selling the bear-proof products.

Economic Effect of Land Use Restrictions on Timber Harvest.—Timber harvest is an activity that can be compatible with grizzly bear recovery as long as it meets the standards and guidelines of the USFS Forest Plans. Current USFS Forest Plans for the Clearwater and Nez Perce National Forests outside of wilderness areas are adequate for grizzly bear recovery (see Appendix 10). Therefore, under Alternative 1A it is not anticipated that grizzly bear recovery in the BE would have an economic effect on current timber harvest plans.

Economic Effect of Land Use Restrictions on Mineral Extraction.—Mineral extraction would not likely be altered due to grizzly bear concerns in and by themselves. Therefore, under Alternative 1A it is not anticipated that grizzly bear recovery in the BE would have any economic effect on mineral extraction in the area.

Economic Effect of Changes in Visitor Use.—Grizzly bears are a high profile species with interest nationwide. A survey of Yellowstone National Park visitors found that respondents ranked the grizzly bear highest among wildlife species they would most like to see on their trip to the park (Duffield 1992). Restoration of grizzly bears under Alternative 1A would further increase national awareness of the presence of this species in the lower 48 states. While some individuals might wish to see a grizzly bear in the wild, others might wish to avoid the possibility of encountering one of these large mammals. Possible effects of this increased awareness might be increased or decreased visitation to the recovery area. It appears that changes in visitation resulting from grizzly bear restoration would be minimal under this alternative. Based on survey responses, no significant increase or decrease in visitation to the BE resulting from restoration is anticipated.

Economic Effect on the Value Potential Visitors Place on Grizzly Bears.—A final area of potential change in economic value associated with grizzly bear restoration to the BE is the value potential visitors and others place on having a recovered grizzly population in the area. There are two components to this value. There is value associated with seeing grizzly bears in the wild. There is also what is called "passive use value" or "existence value". Existence value is the value a person associates with the knowledge that a resource exists, even if that person has no plans or expectations of ever directly using that resource (Krutilla 1967).

Table 4-6 (Alternative 1 section) shows the calculation of the total net economic existence value per year of grizzly bear reintroduction to the BE. The information in this table also applies to Alternative 1A. We do not know the exact relationship between stated and actual willingness to contribute for grizzly bear recovery in the BE. Even adjusted for an assumed difference between stated and actual willingness to contribute, the estimated existence value benefits of grizzly bear recovery in the BE is very large, on the order of $50 million per year. This large estimate reflects the large percentage of the U.S. population that supports the recovery effort and the fact that the grizzly bear is an extremely high profile wildlife species.

It must be noted that the willingness to pay estimates in Table 4-8 are based on the assumption that the recovery plan detailed under Alternative 1 would result in a recovered grizzly bear population

in the BE. If the reintroduction plan in Alternative 1A were to fail, the benefits detailed in Table 4-8 would not be realized.

Table 4-8. Annual net social benefits associated with grizzly bear recovery in the BE under Alternative 1A.

Category of Benefit / Loss	Type of Impact (Market / Non-Market)	Impacted Population / Area	Annual Impact (1996 dollars)	
			Low Estimate[a]	High Estimate[a]
(A) Benefits Associated With Grizzly Bear Recovery				
Annual net economic value of recovery	non-market	United States population	40,449,030	60,639,180
(B) Costs Associated With Grizzly Bear Recovery				
Value of hunting losses	market and non-market	hunters and local businesses	0	0
Value of livestock losses	market	ranchers[b]	2,720	8,568
Annual grizzly bear management cost during first 5 years of program[c]	market	United States taxpayers	413,632	413,632
Total costs	---	---	416,352	422,200

[a] For the benefits estimates, the low and high estimates represent a 95% confidence interval on the estimates of net willingness pay for the alternative. For the individual costs, the low and high estimates represent the best estimates of minimum and maximum costs associated with an alternative. The final net benefits figures do not represent a confidence interval but rather a plausible range of benefits associated with the alternative.

[b] If a compensation program for grizzly depredation existed, the impacted population would be the contributors to the fund.

[c] See FEIS Appendix 7 for itemized costs. After the first five years it is estimated that the Alternative 1A recovery program would cost $173,000 per year for monitoring and citizen management.

Conclusion.—It is estimated that grizzly bear recovery in the BE under Alternative 1A will lead to total benefits of approximately 40.4 to 60.6 million dollars per year and total costs of 416 to 422 thousand dollars per year for the first five years. The largest component of total costs would be the grizzly bear management costs of 413,632 dollars per year during the first 5 years of the recovery program. After the first 5 years when reintroductions are complete, the total cost would decrease to 176 to 182 thousand dollars per year.

Social Impacts

The potential social impacts from the implementation of this alternative are varied and difficult to assess. Appendix 19 contains a summary of the public comments received during the scoping process for this DEIS. This appendix provides samples of actual comments regarding views and anticipated impacts of recovering grizzlies in the BE. As such, the appendix provides an indication of potential social impacts.

In summary, impacts would be felt at various scales within society to include local, regional, and national levels. Most impacts would however occur at the local level within communities surrounding the BE. These could include impacts to lifestyles and livelihoods of local residents caused by inconveniences and damage from nuisance bear incidents (previously described in the section "Impacts to Other Private Property"). Backcountry users and outfitters could be impacted by new sanitation requirements and techniques necessary for camping and hunting in grizzly bear habitat (described under "Impacts on Public Access and Recreational Use", and "Economic Effect of Land-Use Restrictions on Recreation"). Survey results (Duda and Young 1995) indicate that some people would avoid the BE if grizzlies were present, and others would be attracted to the area given the prospect of seeing a grizzly bear. Some individuals would wish to never see a grizzly bear in the wild, and others would feel their experience was greatly enhanced by the encounter. For additional information on potential social impacts to local communities (with emphasis on Ravalli County, Montana) see the document, "Sociocultural Context for the Reintroduction of Grizzly Bears to the Bitterroot Ecosystem (in the DEIS Administrative Record).

Social impacts could result from potential changes to land-use activities ("Impacts on Land-Use Activities" section), although none are proposed under this alternative. Local and regional communities could benefit economically and culturally from tourism resulting from grizzly restoration, and this could manifest itself in social changes. Some people would experience fear from grizzly bear presence, and others would find joy in knowing grizzlies were restored to the wilds of Idaho and Montana. Traditional hunting culture would benefit from the prospect of hunting grizzly bears once the population was recovered and delisted. The Nez Perce Indians would experience a net positive impact from the return of the grizzly bear which is a powerful spiritual symbol within their culture.

Appendix 18, "Expected Timelines to Commence Implementation of the Preferred Alternative and Initial Implementation-Associated Sanitation Efforts to Minimize Conflicts", discusses the USFWS vision for implementation of this alternative. The first year of implementation would be a "phase-in" year where sanitation equipment would be installed in key areas, and information and education outreach programs would be initiated. Appendix 22 lists areas in the BE needing sanitation improvements. This would help to minimize conflicts between bears and people, and would also lessen the potential social impacts.

ENVIRONMENTAL CONSEQUENCES ALTERNATIVE 2. NO ACTION ALTERNATIVE — NATURAL RECOVERY

Impacts on Human Health and Safety

Under this alternative, there is only a remote likelihood that recovery of grizzly bears in the BE would occur through natural recolonization because grizzly bears do not readily colonize distant, disjunct areas such as the BE. There are two other recovery areas that are occupied by recovering populations of grizzly bears that might serve as sources of bears to naturally recolonize the BE through expansion of their current ranges. These ecosystems include the Selkirk, (SE), Cabinet/Yaak (CYE), and Northern Continental Divide (NCDE) ecosystems (Figure 2-5). The likelihood of grizzly bear recolonization of the BE would be dependent upon several factors including; population levels and pressures within the CYE and NCDE, impediments to movement south of the CYE and NCDE, and survival prospects of bears inhabiting the area between the CYE, NCDE, and the BE. Population levels in the Cabinet Mountains portion of the CYE were estimated to be 15 or fewer grizzly bears (Kasworm and Manley 1988). Under expected conditions, it could take at least 50 years for reproducing populations of bears from the CYE to expand to the Selway-Bitterroot Wilderness, which is 80 miles away. Once reproducing populations of grizzly bears reached the BE, it would conservatively require an additional 50-110 years to reach the recovered level of 280 bears (see Figure 2-3). Thus the estimated time to recover grizzly bears in the BE under this alternative is at least 100-160 years.

Therefore, this alternative would not cause any risk to human safety until it was determined that grizzly bears were actually moving from other occupied ecosystems and expanding their ranges into the BE. If this did occur, there would be an increased risk to human safety commensurate with the number of bears that move over time. The discussion located in Chapter 4 under Alternative 1, "Impacts on Human Health and Safety" would apply if grizzly bears naturally recolonized the BE.

Conclusions.—This alternative would not cause any risk to human health and safety until it was determined that grizzly bears were actually moving from other occupied ecosystems and expanding their ranges into the BE. If this did occur, there would be an increased risk to human safety commensurate with the number of bears that move over time. During the first several decades following establishment of a breeding population of grizzly bears, chance of injury caused by bears would be exceedingly small due to the low density of bears in the area. Under this alternative populations are estimated to achieve recovery levels of approximately 280 bears in 100-160 years. Using human injury rates in the NCDE and YE, and recognizing a net increase in human visitation, projections for human injury, once bears are recovered 100-160 years in the future, are less than one injury per year and less than one grizzly bear-induced human mortality every few decades.

Impacts on Source Populations of Grizzly Bears

This alternative proposes to recover grizzly bears in the BE through natural recolonization. Grizzly bears would not be reintroduced under this alternative.

Conclusions.—There would be no impact to source populations of grizzly bears under this alternative.

Impacts on Land-Use Activities

Because grizzly bears would be fully protected under the ESA, Section 7(a)(2) would apply upon documented evidence of the presence of a grizzly bear(s) in the BE, and all federal actions within the recovery zone would be subject to Section 7 consultation with the USFWS. Also, upon documentation of grizzly bears in the area, the USFWS would evaluate the adequacy of land-use restrictions to protect suitable grizzly bear habitat within the Bitterroot recovery zone. Either one of these activities could restrict land use activities to protect grizzly bear habitat and recovery. To date, there have been few land-use restrictions recommended to protect suitable grizzly bear habitat within the recovery zone for this alternative. This could change if grizzly bears are documented in the BE, which would trigger Section 7 consultation requirements under the ESA.

Impacts on Timber Harvest.—It is expected that timber harvest is an activity that can be compatible with grizzly bear recovery, however all sale activities would be subject to Section 7 consultation if grizzly bears were present in the BE, and could be affected based on such consultation. It is likely that grizzly bear habitat management would restrict to some degree timber harvests on currently roaded areas within the recovery area (Tom Wittinger, pers. comm. 1996). Based on the best available data (Tom Wittinger, Flathead Forest, pers. comm. 1996), it is estimated that reductions in timber harvest on affected national forest lands within the PAA would be between 8.3 and 39.7 million board feet per year over the next decade if Alternative 2 was implemented as proposed (see Table 4-10). Impacts to timber harvest could be less based on current land-use restrictions in Idaho that do not occur in Montana on the Flathead Forest (i.e. Pacfish, etc.). The large variation between the high and low estimates reflect the divergence between the planned Allowable Sale Quantity (ASQ) of timber from Forests in the PAA and the actual harvest volume which has occurred in recent years (see Table 3-11).

Impacts on Minerals Extraction.—Mineral extraction could be altered due to grizzly bear concerns in and by themselves, if grizzly bears were documented to be present in the BE.

Impacts on Domestic Livestock.—Elements of this alternative that will likely influence impacts on domestic livestock include: 1) natural recolonization of grizzly bears in central Idaho, with management as a threatened species under ESA; 2) intensive monitoring of grizzly bears to identify potential conflict sites; 3) control by agency personnel of any bears depredating on livestock through implementation of the Interagency Grizzly Bear Committee nuisance grizzly bear management guidelines (IGBC 1986) (Appendix 15).

Under this alternative grizzly bears may recolonize this area from other ecosystems. This process was estimated to require at least 50 years before grizzly bears might reach the area via range expansion from the CYE which is approximately 80 miles north. Once breeding populations were established it would conservatively require an additional 50-110 years to reach the recovered level of 280 bears. During the first few decades following establishment of a breeding population in the BE, bear numbers and depredations of livestock are expected to be very low. Following grizzly recovery, grizzly bears would be removed from ESA protection and the states of Idaho and Montana would continue to manage bears.

Under this alternative, most livestock depredations by grizzly bears could be expected to occur on the Clearwater, Nez Perce, Bitterroot, Panhandle, and Lolo National Forest grazing allotments. In addition, depredations could be possible in a thin band of surrounding private land.

During the summer grazing period, approximately 10,866 cattle and calves and 5,069 adult sheep and lambs are distributed on public grazing leases across five national forests affected by this alternative (Table 3-13). Some livestock on private land surrounding public lands are also believed to be susceptible to grizzly bear predation.

Grizzly depredation on livestock is highly variable between years and among areas. Projection of depredation rates from other areas is difficult because terrain, vegetation, size of farms, livestock husbandry practices, and food abundance will differ among areas. The following mathematical equation was developed by wolf biologists (USFWS 1994) and is being applied here to standardize depredation rates from the YE and NCDE in relation to total livestock and recovered bear numbers in the BE (280 bears) and estimate livestock losses.

$$\frac{\text{Number of cattle/sheep (Bitterroot Ecosystem)}}{\text{Number of cattle/sheep (Other Ecosystem)}} \times \frac{\text{Number of grizzly bears (Bitterroot)}}{\text{Number of grizzly bears (Other Ecosystem)}} \times \text{Mean annual depredations (Other Ecosystem)} = \text{Estimated annual depredations in Bitterroot}$$

Livestock present in the Yellowstone Ecosystem during 1992 were 146,000 cattle and 265,000 sheep (USFWS 1993). Livestock losses from the YE averaged 35 cattle per year during 1994-97 (Gunther et al. 1995, 1996, 1997, 1998). Sheep losses attributable to grizzly bears in the YE averaged 29 sheep per year during 1994-97 (Table 4-1). The YE grizzly bear minimum population estimate used for calculating livestock depredations was 245 bears (Eberhardt and Knight 1996) because the population estimate applied to the time period analyzed. Application of the equation to these data from the YE results in an estimate of 3 cattle and 1 sheep taken annually by a recovered grizzly bear population (280 bears) in the BE (Table 4-9).

Numbers of livestock grazing on public lands within the NCDE is less than either the YE or BE and allotments occur largely on the east side of the NCDE. However, livestock losses also occur on private lands within and adjacent to the NCDE in addition to those occurring on allotments. Losses of livestock to grizzly bears in the NCDE and peripheral lands including the Blackfoot Indian

Reservation have averaged 8 animals per year from 1986-94 (Madel 1996, D. Carney, pers. comm. 1996). Losses of sheep to grizzly bears in the NCDE including the Blackfoot Indian Reservation have averaged 17 animals per year from 1986-94 (Madel 1996, D. Carney, pers. comm. 1996). Estimates for total cattle were based on grazing allotments and numbers from the Blackfoot Indian Reservation. Estimates for total sheep were based on grazing allotments, numbers from the Blackfoot Indian Reservation, and numbers on private lands adjacent to public lands along the East Front. Livestock totaled 34,841 cattle and 8,500 sheep. The minimum grizzly bear population for the NCDE was calculated from sightings of females with cubs during 1993-95 as specified in the Recovery Plan (USFWS 1993) to be 516 bears. This minimum population estimate was used for calculating livestock depredations because it was applicable to the time period analyzed. Application of the formula to standardize depredation results in an estimated loss of 1 cow and 6 sheep annually in the BE when grizzly bear populations are fully recovered at a population of 280 (Table 4-9). Because livestock are in low numbers in the northern portion of the recovery area where bears are expected to exist in highest densities, livestock depredations could be less than either the NCDE or the YE. These predictions are statistical in nature and are not intended to show exact depredation expected in the BE, but should provide an indication of what may occur based on other ecosystems. Livestock losses have been reduced significantly in the last 3 years through modifications in animal husbandry practices such as the use of electric fences, removal of livestock carcasses, use of guard dogs, and conscientious herding practices (Madel 1996).

Table 4-9. Estimated livestock losses in the Bitterroot Ecosystem based on cattle numbers, grizzly bear numbers and rate of loss due to grizzly bears in the Yellowstone Ecosystem and the Northern Continental Divide Ecosystem. The livestock losses for the Bitterroot Ecosystem are projections based on rate of loss in the other ecosystems and are based on a recovered grizzly bear population of 280 individuals managed under *threatened* status described in Alternative 2.

Area	Minimum grizzly bear population (1996 estimate)	Cattle present	Average annual cattle losses (%)	Sheep present	Average annual sheep losses (%)
Yellowstone Ecosystem	245[a]	146,000	35 (0.024 %)	265,000	29 (0.1 %)
Northern Continental Divide Ecosystem	516[a]	34,841	8 (0.023 %)	8,500	17 (0.2 %)
Bitterroot Ecosystem recovery goal (experimental population area)	280	10,866	1-3	5,069	1-6

[a] YE and NCDE grizzly bear minimum population estimates used in depredation calculations are consistent with the years analyzed. The current minimum population estimates are listed in Chapter 3 "Source Populations."

Impacts on other private property.—This alternative would not cause any impacts to private property until it was determined that grizzly bears were actually moving from other occupied ecosystems and expanding their ranges into the BE. If this did occur, then the number of nuisance

bear incidents would be commensurate with the number of bears that move over time. Impacts to other private property under this alternative would be the same as those described for Alternative 1, once a recovered population of 280 bears is established.

Based on what is currently known about bear behavior in these other ecosystems. Once bears are recovered, nuisance bear incidents would likely range between 0 and 74 per year in the BE. However, by the time bears would be recovered in the BE, much more would be known about proper sanitation and avoiding many of the potential conflicts between bears and humans, and therefore, conflicts should be greatly reduced.

Conclusions.—This no action alternative could alter existing and ongoing land-use activities (including timber harvest and minerals extraction activities) solely for grizzly bears if grizzly bears naturally recolonize the BE and documentation of their presence triggers ESA Section 7 consultation requirements. If proposed research (initiated upon documented presence of grizzly bears in the BE) determines that current habitat management is not adequate to maintain suitable grizzly bear habitat, or that linkage zone restrictions are necessary to promote grizzly bear recolonization of the recovery zone, then recommendations could be made to alter land-use activities within these areas. If recolonization and recovery (280 bears) occurs within the recovery zone, yearly livestock losses to depredation by bears could range from 1-3 cattle and 1-6 sheep. Based on what is currently known about bear behavior in the NCDE and YE, nuisance bear incidents would likely range between 0 and 74 per year at recovered population levels. However, conflicts should be reduced in the future because much more would be known about proper sanitation and avoiding many of the potential conflicts between bears and humans. The IGBC (1986) nuisance grizzly bear management guidelines (Appendix 15) would be implemented by the USFWS in cooperation with state agencies to control grizzly bears in conflict with humans or domestic animals. If illegal killing or legal taking (control) of grizzly bears appears to be preventing recovery, then land-use restrictions could be implemented.

Impacts on Wildlife Populations

Under this alternative, there is only a remote likelihood that recovery of grizzly bears in the BE would occur through natural recolonization because grizzly bears do not readily colonize distant, disjunct areas such as the BE. If bears did naturally recolonize the BE, it could take at least 50 years for reproducing populations of bears from the CYE to expand to the Selway-Bitterroot Wilderness, which is 80 miles away. Once reproducing populations of grizzly bears reached the BE, it would conservatively require an additional 50-110 years to reach the recovered level of 280 bears (see Figure 2-3). Thus the estimated time to recover grizzly bears in the BE under this alternative is at least 100-160 years.

This alternative would not have any impact to wildlife populations in the BE until it was determined that grizzly bears were actually moving from other occupied ecosystems and expanding their ranges into the BE. If this did occur, there would be a gradual increase in predation on wildlife populations (mainly ungulates) commensurate with the number of bears that move over time. The overall impact

would likely be lower rates of predation by grizzly bears over a longer time frame than Alternative 1 until a recovered population was established. The discussion located in Chapter 4 under Alternative 1, "Impacts on Wildlife" would apply if grizzly bears naturally recolonized the BE and a recovered population was established.

Conclusions.—If grizzly bears naturally recolonized the BE, recovery would take longer to achieve under this alternative than under Alternative 1, and the level of predation caused by grizzly bears would increase more gradually over a longer period of time as the grizzly bear population slowly increased and expanded at a natural rate. A recovery-level grizzly bear population (280 bears) is expected to have the same impact on wildlife populations under this alternative as under Alternative 1.

Impacts on Public Access and Recreational Use

Visitor Use.—There would be no impacts to existing visitor/recreation use levels unless grizzly bears began to naturally recolonize the BE. If this occurred, impacts to visitor use would be similar to those discussed for Alternative 1.

Trail and Road Closures.—This alternative could alter existing and ongoing land-use activities solely for grizzly bears. If grizzly bears naturally recolonize the BE, they would be protected under the ESA as a threatened species and all federal activities that may affect grizzly bears would have to go through Section 7 consultation with the USFWS. There could be impacts to public access in the form of road and trail closures at that time. Also, per direction of the Grizzly Bear Recovery Plan, the USFWS is currently leading a 5-year process to assess the linkage potential between the various ecosystems identified for grizzly bear recovery. This linkage zone analysis is ongoing and will proceed. Upon documentation of grizzly bear presence in the BE, the, USFWS would coordinate further research studies to determine the need for and location of linkage zones, and to identify specific habitat management guidelines necessary to maintain suitable habitat within linkage zones. If research determines that linkage zones are necessary for recovery, and that changes in habitat management within the identified zones or the recovery zone are necessary, then the USFWS would recommend appropriate management actions.

Hunting seasons.—Under this alternative, there are no proposed changes in hunting seasons. If grizzly bears recovered naturally in the BE, then it is predicted that 280 grizzly bears will kill a maximum of 504 ungulates per year. Interactions with other predators and the compensatory nature of some predation may affect the total loss of ungulates to predators, but at this rate only 0.11% of the pre-harvest ungulate population will be preyed upon by a recovered bear population. This small loss of ungulates is not expected to result in changes of big game seasons, although changes could occur to address conflicts with grizzly bear recovery.

Conclusions.—There could be impacts to public access and recreational use under this alternative if grizzly bears naturally recolonize the BE. If natural recovery occurred, then some people would avoid recreating in the recovery zone as a result of grizzly bear presence and other people would

increase their recreation in the area because of it. The vast majority of recreationists and resource area users would continue to use the recovery zone with little change in their trip frequency or length. Over time, recreation and visitor use of the PAA would continue to increase. If grizzly bears naturally recolonize the BE, they would be protected under the ESA as a threatened species and all federal activities that may affect grizzly bears would have to go through Section 7 consultation with the USFWS. There could be impacts to public access in the form of road and trail closures at that time. Also, if USFWS research (initiated upon grizzly bear presence in the BE) determines that linkage zones are necessary for recovery, and that changes in habitat management within the identified zones are necessary, then they would recommend appropriate management actions at that time. No changes in hunting seasons are currently anticipated as a result of implementation of this alternative, although changes could occur.

Impacts on Economics and the Social Environment

Under the No Action Alternative - Natural Recovery it is uncertain how long the population would take to recover, and indeed if it ever would. Therefore many effects from a recovered or recovering population of grizzly bears in the BE would not likely be felt for many decades or, perhaps, ever.

Impact on the Economic Value Associated with Hunter Harvest.—The economic impact on hunter harvest in the BE of natural recovery is likely to be the same as under Alternative 1. That is, no economic losses associated with reduced hunter harvest.

Economic Impact on Domestic Livestock.—It is estimated that livestock depredation under the natural recovery alternative would be significantly less than under Alternative 1 (1 to 3 cattle and 1 to 6 sheep) once recovering populations inhabit the BE. This level of depredation would likely be reached only after a number of decades. Due to the long time period before any possible grizzly bear population recovery is expected under this alternative, and uncertainty that the population will ever naturally recover, dollar losses due to livestock predation under Alternative 2 are assumed to be zero.

Economic Effect of Land Use Restrictions on Recreation.—It is estimated that natural recovery of grizzly bears within the BE could lead to restrictions on recreation and associated economic loss. Economic losses associated with these restrictions, however, would likely be more than offset by improvements in recreational opportunities for hunters and fishermen from habitat improvements and reduced sedimentation rates in roaded areas (Christensen et al. 1993, Garrity 1996).

One aspect of restrictions on recreation which would have distributional effects within the economy concerns the imposition of regulations requiring outfitters operating within the recovery zone to use bear-proof garbage and food containers and methods when in the backcountry. The purchase of bear-proof containers or hoists would impose an additional expense on the outfitters operating within the recovery zone. These costs would represent transfers of income between the outfitters and those individuals or firms producing and selling the bear-proof products.

Economic Effect of Land Use Restrictions on Timber Harvest.—It is estimated that natural recovery of grizzly bears could lead to access restrictions which could affect timber harvest and produce associated economic impacts (Table 4-10). See discussion under Alternative 4 ("Economic Effect of Land Use Restrictions on Timber Harvest" section) for explanation of methodology used to calculate economic impacts presented in Table 4-10.

Table 4-10. Estimated 1999-2008 annual timber harvest reductions on affected roaded USFS lands within the primary analysis area (PAA) for Alternative 2.

Statistic	Low Estimate	High Estimate
Annual timber harvest on USFS lands within the PAA[a]	49	235
Annual reduction in timber harvest on affected currently roaded lands within the PAA due to grizzly habitat management restrictions	8.28[b]	39.72[b]
Estimated annual loss in direct timber harvest related jobs due to timber harvest restrictions[c]	55	264

[a] The USFS level detail behind these estimates can be found in Table 3-11.
[b] Based on an estimated reduction in ASQ in the Flathead National Forest of 16.9% forest-wide due to grizzly bear habitat management restrictions (Tom Wittinger, Flathead Forest, pers. comm.1996).
[c] Based on an estimated direct jobs per MMBF of timber harvest of 6.64 (Power 1992).

Economic Effect of Land Use Restrictions on Mining.—It is estimated that natural recovery of grizzly bears within the BE could affect mining subject to Section 7 consultation on mining activities.

Economic Effect of Changes in Visitor Use.— It is not expected that visitation will be significantly impacted by natural recovery of grizzly bears to the BE.

Economic Effects on the Value Potential Visitors Place on Grizzly Bears.—In the case of natural recovery, the benefits to existence values are the same as under Alternative 1 but this value is not realized until the grizzly bear population is recovered, or at least is beginning to recover. Because it might take 100 years or more for grizzly bear populations in the PAA to begin to recover on their own, if indeed they ever do, it is assumed that existence value due to bear recovery would be zero. In essence natural recovery is a continuation of the status quo for the foreseeable future and thus represents no welfare change for society in the form of realized existence values.

Conclusion.—It is estimated that Alternative 2 would lead to total costs of 140 thousand dollars per year for monitoring and management until recovery (Table 4-11). Additionally, it is estimated that an average of between 55 and 264 jobs would be lost due to reduced timber harvest.

Social Impacts

In the case of natural recovery, the social impacts are the same as under Alternative 1, but impacts would not occur until grizzly bears began to recover in the BE.

Table 4-11. Annual net social benefits associated with grizzly bear recovery in the BE under Alternative 2.

Category of Benefit / Loss	Type of Impact (Market / Non-Market)	Impacted Population / Area	Annual Impact (1996 dollars)	
			Low Estimate[a]	High Estimate[a]
(A) Benefits Associated With Grizzly Bear Recovery				
Annual net economic value of recovery	non-market	United States population	0	0
(B) Costs Associated With Grizzly Bear Recovery				
Value of hunting losses	market and non-market	hunters and local businesses	0	0
Value of livestock losses	market	ranchers	0	0
Annual grizzly bear management cost during first 5 years of program	market	United States taxpayers	140,000	140,000
Net job loss from reduced timber harvest	market	local area workers and businesses	55	264

[a] For the benefits estimates, the low and high estimates represent a 95% confidence interval on the estimates of net willingness pay for the alternative. For the individual costs, the low and high estimates represent the best estimates of minimum and maximum costs associated with an alternative. The final net benefits figures do not represent a confidence interval but rather a plausible range of benefits associated with the alternative.

ENVIRONMENTAL CONSEQUENCES
ALTERNATIVE 3. NO GRIZZLY BEAR ALTERNATIVE

Impacts on Human Health and Safety

The federal government and the states of Idaho and Montana would remove grizzly bears from threatened species status and ESA protection within the BE (central Idaho and west-central Montana). Unregulated killing by the public and extirpation or removal by agencies would likely prevent any possible grizzly bear recovery in this area. The risk of injury from grizzly bears would be virtually nonexistent. The risk of grizzly bear-associated injury during wilderness travel would remain nearly unchanged from that existing today. The fear associated with the risk of encountering bears would be reduced due to the assumption that grizzly bears would not be present.

Conclusions.—The risk of injury from grizzly bears would be virtually nonexistent because grizzly bear recovery would be prevented in the BE.

Impacts on Source Populations of Grizzly Bears

There would be no impacts to source populations, because grizzly bears would not be reintroduced to the BE under this alternative.

Impacts on Land-Use Activities

There would be no impacts to land-use activities because this alternative would not result in any changes to current land-uses. There would be no impact to timber harvest, minerals extraction, livestock grazing, or other private property from the implementation of this alternative.

Impacts on Wildlife Populations

Because grizzly bears would not be recovered in the BE under this alternative, there would be no impact to the ecological and predator-prey relationships that currently exist. Grizzly bears may occasionally disperse or travel through the BE, but that would be rare, and predation by these few animals would be inconsequential. There would be no measurable impact to wildlife populations from the implementation of this alternative.

Impacts on Public Access and Recreational Use

Conclusions.—Implementation of Alternative 3 could have varied but subtle impacts on visitor use in central Idaho. Because 11.9% of local, 6.2% of regional, and 6.0% of national respondents surveyed said they would visit the BE less often if grizzly bears were present (Duda and Young 1995) (see Table 4-5), some people may venture into the central Idaho backcountry in the future who wouldn't if grizzly bears were present. Grizzly bears are a high profile species with interest nationwide. A survey of Yellowstone National Park visitors found that respondents ranked the grizzly bear highest among wildlife species they would most like to see on their trip to the park (Duffield 1992). Because of national interest in grizzly bear recovery, implementation of Alternative

3 could cause some nonresidents to not visit the BE, due to their dissatisfaction with cessation of protection for the grizzly bear.

There would be no change to existing public access management in the BE from implementation of this alternative. Since there are no roads or trails currently restricted for grizzly bear protection in the BE, there would be no change to this existing condition from the implementation of this alternative. There would also be no impact on hunter harvest or management of big game populations in the BE from implementation of this alternative.

Conclusions.—Implementation of Alternative 3 could have varied but subtle impacts on visitor use in the BE. There would be no measurable impact to recreational use, or public access from implementation of this alternative. There would be no impact on hunting seasons or hunter opportunity.

Impacts on Economics and the Social Environment

Impact on the Economic Value Associated with Hunter Harvest.—Under a policy of no grizzly bears present in the BE, there would be no reduction in hunter harvest due to this species. Consequently, there would be no economic loss to hunters associated with grizzly bears in the area.

Economic Impact on Domestic Livestock.—In the absence of grizzly bears in the BE there would be no economic loss associated with grizzly predation on livestock in the area.

Economic Effect of Land Use Restrictions on Recreation, Timber Harvest, and Mining.—In the absence of grizzly bears in the BE there would be no economic loss associated with land use restrictions on recreation, timber harvest, or mining.

Economic Effect of Changes in Visitor Use.—As under Alternative 1, it is not expected that visitation will be significantly impacted by a "no grizzly bear" policy in the BE.

Impact on the Existence Value of Grizzly Bears.—In the absence of grizzly bears in the BE, there is a continuation of current population levels. Accordingly, there is no change in existence values.

Conclusion.—The only estimated costs of this alternative are management costs necessary to develop the required legislation to change existing laws and regulations. The total cost is estimated at a minimum of $2,000,000 spread over several years. No measurable benefits have been associated with this alternative.

Social Impacts

Social impacts under this alternative would be minimal as this alternative essentially seeks to maintain the current status quo.

ENVIRONMENTAL CONSEQUENCES ALTERNATIVE 4. RESTORATION OF GRIZZLY BEARS AS A THREATENED POPULATION WITH FULL PROTECTION OF THE ESA AND HABITAT RESTORATION

Impacts on Human Health and Safety

Impacts on human health and safety from implementation of this alternative would be similar to those described for Alternative 1. The BE grizzly bear population would be managed as a threatened population with full protection of the ESA under this alternative.

Conclusions.— During the first several decades following reintroduction, chance of injury caused by grizzly bears would be exceedingly small due to the low density of bears in the area. Under this alternative populations are estimated to achieve recovery levels of approximately 400 bears in a minimum of 65, and likely more than 125 years. Using human injury rates in the NCDE and YE, and recognizing a net increase in human visitation, projections for human injury, once bears are recovered 65-125 years in the future, are less than one injury per year and less than one grizzly bear-induced human mortality every few decades.

Impacts on Source Populations of Grizzly Bears

Impacts to source populations under this alternative would be similar to those described for Alternative 1. Reintroduction of grizzly bears into the BE would require capture and relocation of a minimum of 25 bears over a period of 5 years from other areas. Three sources of bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population in northwest Montana, and the Yellowstone Ecosystem (YE) population. An equal contribution of bear numbers would be made from Canada and the U. S. MDFWP has stated their willingness to use grizzly bears from the NCDE to augment populations elsewhere or reintroduce the species where recovery areas have been identified (Dood and Ihsle Pac 1993, page 107). An attempt was made to transplant a grizzly bear to the Cabinet Mountains from the NCDE in 1992 but trapping efforts to capture a subadult female were not successful (Kasworm et al. 1993).

Conclusions.—It appears that source areas for reintroduction of grizzly bears into the BE could be both the NCDE and/or YE (based on mortality levels) in Montana and the Kootenay Region in British Columbia, Canada. These areas have habitat similar to the BE and have sufficient numbers of bears to be a source area. Agreement to supply grizzly bears is not an assurance that bears having history of no conflict with humans, and proper age and sex will be available to the BE reintroduction program. The actual capture of the necessary bears is dependent upon access to areas with such bears, and significant effort by capture crews. Capture of desired bears is not assured, even with intensive effort. It may require more than 5 years to obtain the desired minimum of 25 bears to initiate a new population in the BE. This should be made clear to the public and to cooperating agencies at the outset. There would be no significant detrimental effects to the health of source populations because mortality limits in the Grizzly Bear Recovery Plan (USFWS 1993) and British

Columbia grizzly bear management criteria (B.C. Min. Environ., Lands, and Parks 1995) would be met during implementation of this alternative. Further, since no bears would be removed from the YE or NCDE if the mortality limits would be exceeded, and no female bears would be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE would be nonexistent.

Impacts on Land-Use Activities

Grizzly bears would be reintroduced into the BE without an experimental population rule and would be fully protected by all provisions of the ESA as a threatened species until recovery was achieved. Because grizzly bears would be listed as a fully protected threatened species, all federal actions within the recovery zone would be subject to ESA Section 7 consultation with the USFWS.

Impacts on Timber Harvest.—Land-use restrictions such as reduction in the number of open roads and the elimination of new roads and logging on lands currently roadless would be implemented. Road building and timber harvest would not be allowed on federal lands within the recovery zone that are presently roadless. Within the Lolo Restoration Area and Special Corridor Management Areas, road densities would be reduced to an average of no more than 0.25 miles per square mile. This would require closure and reclamation of about 3500 miles of roads. The Magruder Road would be reclaimed and converted to a pack trail from Magruder crossing 23 miles west to Sabe Saddle. The Hells Half Acre Mountain Road would be reclaimed over the entire eight mile length. USFS Forest Plans and BLM Area Management Plans would require amendments or revisions to implement these standards.

Alternative 4 would prohibit future timber harvests on unroaded USFS lands within the recovery zone (Garrity 1996). Additionally, it is likely that grizzly bear habitat management would restrict to some degree timber harvests on currently roaded areas within the recovery area (Tom Wittinger, pers. comm. 1996). Based on the best available data (Tom Wittinger, Flathead Forest, pers. comm. 1996), it is estimated that reductions in timber harvest on national forest lands within the PAA would be between 40 and 194 million board feet per year over the next decade if Alternative 4 grizzly bear recovery were implemented as proposed (see Table 4-16). Impacts to timber harvest could be less based on current land-use restrictions in Idaho that do not occur in Montana on the Flathead Forest (i.e. Pacfish, etc.). The large variation between the high and low estimates reflect the divergence between the planned Allowable Sale Quantity (ASQ) of timber from Forests in the PAA and the actual harvest volume which has occurred in recent years (see Table 3-11). Also reflected is the difference between the percentage of annual timber volume from Forests in the PAA planned to be cut from roadless areas (from Forest Plans), and the percentage of annual timber volume that was actually harvested from these roadless areas. The weighted average of the percentage of ASQ that was planned (from Forest Plans) to be harvested from roadless areas of USFS lands in the PAA is 31.6% (Randy Gay, pers. comm. 1996). However, an estimate of the percentage of actual timber volume sold (1992-1995) that came from USFS roadless areas is <5% (Randy Gay, pers. comm 1996). Garrity (1996) estimated that implementation of this alternative would result in an annual

reduction in timber sales over the next decade of 179 million board feet. Although methodology of Garrity differed from that presented here, his estimate is within the range of estimates developed here.

Impacts on Minerals Extraction.—Mineral extraction activities would not likely be altered due to grizzly bear concerns in and by themselves, however road closures as prescribed under Alternative 4 and Section 7 consultation (on a project basis) could impact extraction activities to an unknown degree. Recommendations may be made by the Scientific Committee to reduce potential impacts if the need arises.

Impacts on Domestic Livestock.—Elements of this alternative that will likely influence impacts on domestic livestock include: 1) reintroduction of grizzly bears into central Idaho, with management as a threatened species under ESA; 2) intensive monitoring of grizzly bears to identify potential conflict sites; 3) control by agency personnel of any bears depredating on livestock through implementation of the Interagency Grizzly Bear Committee nuisance grizzly bear management guidelines (IGBC 1986) (Appendix 15).

Grizzly bears would be released in areas of central Idaho that have low densities of livestock. During the first few decades after this alternative is implemented, bear numbers and depredations of livestock are expected to be very low. Following grizzly recovery, grizzly bears would be removed from ESA protection and the states of Idaho and Montana would continue to manage bears.

Most livestock depredations by grizzly bears in the 14 county PAA are expected to occur in the 18,489,989 acre block of contiguous USDA Forest Service land. In addition, depredations could occur in a thin band of surrounding private land.

During the summer grazing period, approximately 68,811 cattle and calves and 229,188 adult sheep and lambs are distributed on public grazing leases across the PAA (Table 3-13). Some livestock on private land surrounding public lands are also believed to be susceptible to grizzly bear predation.

Grizzly depredation on livestock is highly variable between years and among areas. Projection of depredation rates from other areas is difficult because terrain, vegetation, size of farms, livestock husbandry practices, and food abundance will differ among areas. The following mathematical equation was developed by wolf biologists (USFWS 1994) and is being applied here to standardize depredation rates from the Yellowstone (YE) and Northern Continental Divide Ecosystems (NCDE) in relation to total livestock and recovered bear numbers in the Bitterroot (400 bears) and estimate livestock losses.

$$\frac{\text{Number of cattle/sheep (Bitterroot Ecosystem)}}{\text{Number of cattle/sheep (Other Ecosystem)}} \times \frac{\text{Number of grizzly bears (Bitterroot)}}{\text{Number of grizzly bears (Other Ecosystem)}} \times \text{Mean annual depredations (Other Ecosystem)} = \text{Estimated annual depredations in Bitterroot}$$

Livestock present in the Yellowstone Ecosystem during 1992 were 146,000 cattle and 265,000 sheep (USFWS 1993). Livestock losses from the YE averaged 35 cattle per year during 1994-97 (Gunther et al. 1995, 1996, 1997, 1998). Sheep losses attributable to grizzly bears in the YE averaged 29 sheep per year during 1994-97 (Table 4-1). The YE grizzly bear minimum population estimate used for calculating livestock depredations was 245 bears (Eberhardt and Knight 1996) because the population estimate applied to the time period analyzed. Application of the equation to these data from the YE results in an estimate of 27 cattle and 41 sheep taken annually by a recovered grizzly bear population (400 bears) in the BE (Table 4-12).

Numbers of livestock grazing on public lands within the NCDE is less than either the YE or BE and allotments occur largely on the east side of the NCDE. However, livestock losses also occur on private lands within and adjacent to the NCDE in addition to those occurring on allotments. Losses of livestock to grizzly bears in the NCDE and peripheral lands including the Blackfoot Indian Reservation have averaged 8 animals per year from 1986-94 (Madel 1996, D. Carney, pers. comm. 1996). Losses of sheep to grizzly bears in the NCDE including the Blackfoot Indian Reservation have averaged 17 animals per year from 1986-94 (Madel 1996, D. Carney, pers. comm. 1996). Estimates for total cattle were based on grazing allotments and numbers from the Blackfoot Indian Reservation. Estimates for total sheep were based on grazing allotments, numbers from the Blackfoot Indian Reservation, and numbers on private lands adjacent to public lands along the East Front. Livestock totaled 34,841 cattle and 8,500 sheep. The minimum grizzly bear population for the NCDE was calculated from sightings of females with cubs during 1993-95 as specified in the Recovery Plan (USFWS 1993) to be 516 bears. This minimum population estimate was used for calculating livestock depredations because it was applicable to the time period analyzed. Application of the formula to standardize depredation results in an estimated loss of 12 cattle and 355 sheep annually in the BE when grizzly bear populations are fully recovered at a population of 400 (Table 4-12). Because livestock are in low numbers in the northern portion of the recovery area where bears are expected to exist in highest densities, livestock depredations could be less than either the NCDE or the YE. These predictions are statistical in nature and are not intended to show exact depredation expected in the BE, but should provide an indication of what may occur based on other ecosystems. Livestock losses have been reduced significantly in the last 3 years through modifications in animal husbandry practices such as the use of electric fences, removal of livestock carcasses, use of guard dogs, and conscientious herding practices (Madel 1996).

Impacts on other private property.— Impacts to other private property under this alternative would be the same as those described for Alternative 1. Based on what is currently known about bear behavior in other ecosystems, once bears are recovered, nuisance bear incidents would likely range between 0 and 105 per year in the BE. However, by the time bears would be recovered in the BE, much more would be known about proper sanitation and avoiding many of the potential conflicts between bears and humans, and therefore, conflicts should be greatly reduced.

Table 4-12. Estimated livestock losses in the Bitterroot Ecosystem based on cattle numbers, grizzly bear numbers and rate of loss due to grizzly bears in the Yellowstone Ecosystem and the Northern Continental Divide Ecosystem. The livestock losses for the BE are projections based on rate of loss in the other ecosystems and are based on a recovered grizzly bear population of 400 individuals managed under threatened status described in Alternative 4.

Area	Minimum grizzly bear population (1996 estimate)	Cattle present	Average annual cattle losses (%)	Sheep present	Average annual sheep losses (%)
Yellowstone Ecosystem	245[a]	146,000	35 (0.024 %)	265,000	29 (0.01 %)
Northern Continental Divide Ecosystem	516[a]	34,841	8 (0.023 %)	8,500	17 (0.2 %)
Bitterroot Ecosystem recovery goal (PAA)	400	68,811	12-27	229,188	41-355

[a] YE and NCDE grizzly bear minimum population estimates used in depredation calculations are consistent with the years analyzed. The current minimum population estimates are listed in Chapter 3 "Source Populations."

Conclusions.—Alternative 4 would prohibit future timber harvests on unroaded USFS lands within the recovery zone. Additionally, it is likely that grizzly bear habitat management would restrict to some degree timber harvests on currently roaded areas within the recovery area (Tom Wittinger, pers. comm. 1996). It is estimated that reductions in timber harvest on national forest lands within the PAA would be between 40 and 194 million board feet per year over the next decade if Alternative 4 grizzly bear recovery were implemented as proposed (see Table 4-16). Mineral extraction activities would not likely be altered due to grizzly bear concerns in and by themselves, however road closures as prescribed under Alternative 4 and Section 7 consultation (on a project basis) could impact extraction activities to an unknown degree.

Livestock grazing within the recovery zone occurs predominantly in the southern portion of the BE (Figure 3-8, Table 3-13). Consequently, at recovered grizzly population levels and current livestock stocking rates, impacts to livestock would be expected to be similar to levels occurring in portions of the NCDE and the YE. In 65-125+ years (the estimated time to recovery assuming a 4% and 2% growth rates) grizzly bears would likely be present within the southern portion of the BE. Projections indicate that at a grizzly bear population level of 400 bears in the recovery zone, yearly livestock losses to depredation by bears could range from 12-27 cattle and 41-355 sheep. Management activities would try to preempt livestock problems.

Once bears are recovered in the BE (a minimum of 65-125 years after reintroduction), nuisance bear incidents would likely range between 0 and 105 per year. However, by the time bears would be

recovered in the BE, conflicts should be greatly reduced because much more would be known about proper sanitation and avoiding many of the potential conflicts between bears and humans.

Impacts on Wildlife Populations

Grizzly bears are omnivores, but primarily feed on vegetation. Studies indicate that a grizzly bear diet consists of about 90% vegetable and insect matter. They do scavenge and occasionally prey on game animals, in addition to ground dwelling rodents which they actively dig out of dens. Research has documented the importance of local concentrations of ungulates as a source of protein for grizzly bears (IGBC 1987). In many locations, animal matter may not constitute a major annual diet item, but may be seasonally vital to bears (Mattson et al. 1991, Gunther and Haroldson In press).

Several studies have attempted to estimate predation by grizzly bears. Studies in the YE indicate that some grizzly bears are active predators on elk calves. Researchers made 944 sightings of grizzly bears on elk calving grounds over 5 years and documented 70 hunts for elk calves of which 26 were successful (Gunther and Renkin 1990). These researchers noted that the percentage of successful hunts declined dramatically during July as calves became more mobile. Mattson (1997) indicated that grizzly bear predation rates averaged 1.4 or 5.8 ungulates per year for adult female and male bears, respectively. Mattson found that bears preferred small prey in the form of elk and moose calves and occasionally adults. French and French (1990) found that although some bears were active predators, not all bears were very successful or even attempted to prey on elk calves. The authors further suggested that predation on elk calves is a learned behavior and is likely facilitated when cubs are raised by predacious mothers. Ungulates, especially elk, were part of the diet when they were the most available and vulnerable, such as calves, winter-killed or weakened animals during spring (Green and Mattson 1988), and weakened bulls during the fall rut (Schleyer 1983).

Based on different studies conducted in North America, bear predation and effectiveness is partly a result of vegetation type and cover, and may be a local phenomenon based on a variety of conditions enhancing predation effectiveness. Although Schlegal (1976) and Gratson and Zager (1999) documented significant black bear predation on elk calves in one study area where spring bear range and elk calving areas overlap in Idaho, it is unclear if similar circumstances are more widespread. Given expected population levels and densities, grizzly bear predation impacts are unlikely to reach levels currently occurring for black bears.

Research conducted in and near Glacier National Park indicated that predation attributed to grizzly bears accounted for 2%, 0%, and 4% of the elk, deer, and moose monitored in their study area respectively (Kunkel and Pletcher 1994). This study documented a total of 19 predator kills of elk from 1990-1995, 3 of which were caused by grizzly bears. All 3 were older elk (age 11-16). During this same time, 11 moose were known to be killed by predation, 5 of which were attributed to grizzly bears. Grizzly population density estimates for their study area are about 1 bear per 6-8 square miles (Martinka 1974, McLellan 1989), and are perhaps 10-15 times higher than density estimates

expected at recovered levels in the BE (1 bear per 50-100 square miles). Therefore, when grizzly bear populations reach recovery levels in the BE, the predation rate could be a fraction of levels in or near Glacier National Park. An expected predation rate of 0.30-0.54% of the ungulate populations in the area occupied by bears could occur.

Using Mattson's (1997) estimate of 1.4 or 5.8 ungulates per year for adult female and male bears respectively, a population of 400 bears (USFWS 1996) would be expected to prey upon a maximum of 720 ungulates per year across the BE. This calculation assumes a 50:50 sex ratio and a 50:50 adult subadult ratio. The loss of a maximum of 720 ungulates to a recovered grizzly bear population would represent approximately 0.15% of estimated ungulate populations in the PAA (Table 4-13).

Table 4-13. Estimated predation on ungulates by grizzly bears in the Primary Analysis Area as a percent of the pre-hunting season ungulate populations and different grizzly population levels. Estimates resulting from two different models (Mattson 1997)[a] and (Kunkel & Pletcher 1994)[b] shown.

Grizzly bear population[c]	Annual kill of ungulates[d]		Percent of ungulates (%)[e]	
	Mattson Model (Mattson 1997)	Kunkel & Pletcher Model (1994)	Mattson Model (Mattson 1997)[f]	Kunkel & Pletcher Model (1994)[fd]
50	90	49	0.07	0.04
100	180	101	0.13	0.08
200	360	202	0.27	0.15
300	540	303	0.38	0.23
400	720	404	0.54	0.30

[a] Mattson (1997) study analyzed predation of elk, moose, and bison.
[b] Kunkel and Pletcher (1994) study analyzed predation of elk and moose.
[c] Population assumed to be 50% adult and a 50:50 sex ratio.
[d] Predation rate of 1.4 and 5.8 ungulates per year for adult male and female bears respectively (Mattson 1997).
[e] Total pre-hunting season elk and moose population is 133,968 (see Table 3-22).
[f] Rates based on (bears per square mile densities) x (observed predation rate) x (total elk and moose numbers in PAA).

Annual mortality in big game can result from harsh weather, hunters, disease, predation, and other factors. These factors can interact to accentuate or negate the other. For instance bad weather may concentrate big game to make them more susceptible to hunting, predation, or disease. Furthermore an animal weakened by disease may be more susceptible to predation or winter kill. These factors make it difficult to determine whether a 0-1% grizzly predation rate would be compensatory or additive. In addition, annual fluctuations in weather can cause ungulate populations to increase or decrease by as much as 10-15%. Such a reduction occurred between the winters of 1994-1997 in the northern PAA. Idaho Game Management Units 10 and 12 experienced a 40% population decline

during this period. Research has indicated predation by black bears and mountain lions in this area can be a significant cause of calf elk mortality, and likely has contributed to the population decline in this area (Gratson and Zager 1999). The restoration of grizzly bears would likely have an impact on black bear use of the ungulate resource through competition. This would likely mask any potential grizzly predation of 0-1% on ungulates within the PAA. It should therefore not be necessary to adjust hunting seasons to compensate for grizzly bear predation.

Grizzly and black bear population relationships have also been studied in selected areas. Mattson et al. (1992), documented one instance of an adult male grizzly bear preying upon a black bear in the YE. They also found that less than 0.15% of the 6,979 grizzly bear scats examined contained remains of black bears. During a 1984 drought in the North Fork of the Flathead River, grizzly bears from Glacier National Park made greater use of river bottoms typically frequented by black bears (Jonkel 1984). Black bears were less common in the river bottom during this time and may have been displaced or preyed upon by grizzly bears. Still, areas in Glacier Park have extremely high densities of both grizzly and black bear populations. Based on Park observation records (Glacier Park unpublished data 1980-1984, Nadeau pers. comm. 1996), a spatial partitioning of resources occurs as black bears and grizzly bears frequently occupy and forage in separate areas, thus avoiding conflict and maximizing foraging effectiveness. Researchers in Wyoming have found where grizzly and black bears coexist, black bears become diurnal and occupy more forested habitat than grizzly bears. Adult male grizzly bears were nocturnal and occupied open habitat, females and subadult grizzly bears were crepuscular (active at dawn and dusk) and avoided male grizzly beras (Holm, In press). Although some displacement occurs where grizzly and black bears coexist, potential long-term impacts to black bear population dynamics is unclear, but felt to be minimal.

Conclusions.—In many locations, animal matter may not constitute a major annual diet item, but may be seasonally vital to bears (Mattson et al. 1991). An expected predation rate of 0.30-0.54% of the ungulate populations in the area occupied by bears in the BE could occur. Using Mattson's (1997) estimate of 1.4 or 5.8 ungulates per year for adult female and male bears respectively, a population of 400 bears (USFWS 1993) would be expected to prey upon a maximum of 720 ungulates per year across the BE. The loss of 720 ungulates to a recovered grizzly bear population would represent approximately 0.15% of estimated pre-harvest populations of ungulates in the PAA. Potential long-term impacts to black bear population dynamics is unclear, but felt to be minimal. Overall impacts of a recovered population of grizzly bears on other wildlife populations are expected to be minimal. It should not be necessary to adjust hunting seasons to compensate for grizzly bear predation on other wildlife. Any restrictions on black bear hunters or other hunting opportunities to reduce the likelihood of mistaken identity kills or to address other potential conflicts could be recommended by the Scientific Committee, but would have to be acceptable and implemented by the IDFG and MDFWP. Grizzly bears would kill some healthy ungulates, but a large percentage of prey killed by bears will be very young, very old, sick, injured, or otherwise disadvantaged. Consequently, fewer ungulates may die from malnutrition associated with winter stress. To a small extent, competition among ungulates for food and space will be reduced, and the health of surviving

ungulates may be increased an undetermined, but probably minimal amount. Impacts to other listed wildlife and fish species would be similar to those listed for Alternative 1.

Impacts on Public Access and Recreational Use

Visitor use.—Impacts to visitor use from the implementation of this alternative would be similar to those described for Alternative 1. There might be a slight decrease in visitor use under this alternative as compared with Alternative 1 due to restricted access from the proposed road closures. This may be offset, however, by an increase in visitors seeking a remote backcountry experience, which the road closures would help to provide.

As with Alternative 1, despite some possible temporary changes in visitation rates (up or down) as a result of reintroduction, little overall change in increasing visitation rates would be expected over time. Visitation will continue to increase as a result of expanding population pressures and the subsequent increased demand for outdoor recreation opportunities.

Road and Trail Closures.—This alternative calls for no new road building in current roadless areas and the closure and reclamation of almost 3,500 miles of roads within the Corridor Special Management Area, the Lolo Restoration Area, and the Magruder Restoration Area. Furthermore, open road density would be limited to 0.25 miles per square mile within these management areas. These actions will reduce opportunities for road-oriented recreation activities. However, road closures are likely to benefit big game populations, particularly elk (Christensen et al. 1993), and may provide more opportunities for elk hunting. Reclamation of roads would lead to reduced rates of sedimentation which affects spawning and rearing of numerous fish species. These actions would likely improve habitat conditions for both resident and anadromous fish species and may result in improved recreational fishing opportunities.

No trail closures are anticipated for grizzly bears. In the NCDE where a minimum population of about 325 grizzly bears currently exists, only one trail was closed on national forest lands because of grizzly bears in the last 10 years (USFS, Unpubl. data 1996). This closure was a result of concerns for human safety when a bear was seen feeding on an elk carcass on a trail. During the peak of the visitor use season in Glacier National Park, fewer than 5% of the trails are closed at any time as a result of safety concerns. Because of the difference between national park and national forest management, closures in the BE would likely be rare and probably be similar to the NCDE.

Hunting seasons.—Under this alternative, there is a proposal to eliminate baiting and hound hunting of black bears within the Selway-Bitterroot Wilderness, Lochsa drainage, and upper North Fork of the Clearwater drainage. The state of Montana does not allow the use of dogs or bait in the hunting of black bears and this proposal would not affect black bear hunting opportunity. Any changes in baiting and hound hunting would require authorization by the Idaho Fish and Game Commission. Black bear hunting seasons in Idaho currently extend from April 15 to June 15 and September 15 to October 15. Black bear harvest data from this area (Beecham 1995) indicated that hunters using

dogs or bait accounted for 56% of the bear harvest in the hunting units outside of the Wilderness, but only 13% of the harvest within the wilderness during 1989-94 (Table 4-14). Average annual harvest by hunters using bait or dogs was 87 bears. Black bear hunters in the Clearwater Region expended 31,651 hunter-days and averaged 52 days of total hunter effort per bear harvested (Beecham 1995). Total harvest by hunters using bait or dogs and average days per bear harvested would indicate a potential loss of 4,524 hunter days of recreation, but this loss may be short-term. Black bear hunters would still have the opportunity to hunt bears without the use of dogs or bait and the total decline in hunter days or harvest is likely to be much less than these predictions. The use of bait and dogs for black bear hunting in Idaho Big Game Management Unit (BGMU) 1 was eliminated in 1984 and 1986 respectively (Beecham 1995). Prior to any of these changes in 1983, harvest was 171 black bears. With the prohibition of these techniques, harvest declined to 64 bears in 1988, but has increased since that time. The 1989-1994 average harvest in BGMU 1 was 164 bears. If similar results occurred in the districts affected by this proposal the effects on black bear harvest would be minor.

It is predicted that a recovered grizzly bear population of 400 bears will kill a maximum of 720 ungulates per year. Interactions with other predators and the compensatory nature of some predation may affect the total loss of ungulates to predators, but at this rate only 0.15 percent of the pre-harvest ungulate population will be preyed upon by a recovered bear population. This small loss of ungulates is not expected to result in changes of big game seasons.

Table 4-14. Average annual black bear harvest by hunting technique in areas affected by proposed elimination of baiting and dogs, 1989-94 (Beecham 1995).

Hunting technique	Annual black bear harvest in Nonwilderness hunting units[a]	Annual black bear harvest in Wilderness hunting units[b]
Bait	28	3
Dogs	52	5
Other	62	53
Total	142	61

[a] Big Game Management Units (BGMU) 10 and 12.
[b] BGMU 16a, 17, 19 and 20.

Conclusions.—Under this alternative, road-oriented recreation would decline and black bear hunting opportunities via dogs and bait would be eliminated if authorized by the Idaho Fish and Game Commission. Roadless or backcountry recreation opportunities would increase because of road closures, whereas recreation opportunities in a roaded setting would decrease. Road reclamation would likely benefit big game populations, most notably elk, and fish populations are likely to

benefit from reduced sedimentation which impacts spawning habitat. Although some people would avoid recreating in the recovery zone as a result of reintroduction, other people would increase their recreation in the area because of it. The vast majority of recreationists and resource area users would continue to use the recovery zone with little change in their trip frequency or length. Backcountry user groups such as outfitters and rafters could be impacted by increased requirements to store food and keep clean camps so as not to attract bears. Over time, recreation and visitor use of the PAA would continue to increase. No changes in hunting seasons or hunter opportunity other than the elimination of bait and dogs used in black bear hunting are currently anticipated as a result of grizzly bear recovery, although other changes could be recommended to state agencies.

Impact On Economics and the Social Environment

Impact on the Economic Value Associated with Hunter Harvest.—As discussed previously in "Impacts on Public Access and Recreational Use-Hunting Seasons", it is not expected that restoration of grizzly bears to the BE under Alternative 4 will result in any significant effect on hunter harvest of ungulates.

Data from Beecham (1995) show that 1989-1994 average annual hunter harvest of black bears using either bait or dogs in the affected area was estimated to be 87 bears. Additionally, Beecham (1995) estimated that black bear hunters in the Clearwater Region averaged 52 days of total effort per bear harvested. The potential loss in black bear hunting due to elimination of baiting and dog hunting is therefore estimated to be 4,524 days per year. This estimate likely overstates the actual potential loss due to elimination of baiting and dog hunting for several reasons. Black bear hunters using bait or dogs are likely much more successful than those bear hunters not using these techniques. Therefore, bait or dog hunters likely spend less than 52 days of bear hunting per bear taken. Additionally, it is likely that bear hunters will switch to other hunting techniques, other areas, or other species, and therefore mitigate the total reduction in hunting days resulting from the restrictions. Finally, there is evidence that declines in black bear hunting following a ban on the use of bait and dogs may be temporary and hunting may increase to near pre-ban levels after a period of time (Beecham 1995). Based on the most pessimistic assumptions of reduced hunter effort and an estimated net economic value per hunting day of $63.81 (Walsh, Johnson, and McKean 1988, average net economic value for 56 U. S. big game hunting studies updated to 1996 dollars), it is estimated that an elimination of baiting and dog hunting of black bears in the recovery zone could lead to a loss of $288.7 thousand dollars per year in net economic value associated with bear hunting.

It should be noted that these losses would only occur if the ban on baiting and dog hunting of black bears in the recovery zone were adopted by the Idaho Fish and Game Commission. Additionally, if restrictions on these types of bear hunting were adopted for reasons other than to facilitate grizzly bear recovery (for instance as a statewide referendum unrelated to the grizzly bear issue) the losses could not be attributed to grizzly recovery under this alternative.

Economic Impact on Domestic Livestock.—It is estimated that under this alternative annual losses from grizzly bear predation on livestock would range from $10,552 to $47,915. This estimated annual loss is higher than that estimated for Alternative 1. Table 4-15 shows the details of the Alternative 4 livestock predation loss estimates.

Table 4-15. Annual economic costs associated with livestock depredation under Alternative 4.[a]

Statistic	Low estimate	High estimate
Cattle lost	12	27
Average value per cow[b]	$565	$565
Sheep lost	41	355
Average value per sheep[b]	$92	$92
Total lost value per year	$10,552	$47,915

[a] During the first few decades after reintroduction, bears numbers and depredations are expected to be very low. Impacts as presented in this table would occur after grizzly bear population recovery in approximately 65-125+ years.

[b] Average value per head figures are based on an average of the Montana and Idaho value for all cattle and all sheep in the states as of January 1, 1996 (Montana and Idaho Departments of Agricultural Statistics, pers. comm. 1996).

Economic Effect of Land Use Restrictions on Recreation.—As under Alternative 1, it is estimated that recovery of grizzly bears within the BE under Alternative 4 will not lead to any significant restrictions on recreation or associated economic loss. Possible closure and reclamation of many miles of forest roads under this alternative due to grizzly bear habitat restrictions may reduce some recreational access to national forest lands in the BE. Economic losses associated with these restrictions, however, would likely be more than offset by improvements in recreational opportunities for hunters and fishermen from habitat improvements and reduced sedimentation rates in roaded areas (Christensen et al. 1993, Garrity 1996).

One aspect of restrictions on recreation which would have distributional effects within the economy concerns the imposition of regulations requiring outfitters operating within the recovery zone to use bear-proof garbage and food containers and methods when in the backcountry. The purchase of bear-proof containers or hoists would impose an additional expense on the outfitters operating within the recovery zone. These costs would represent transfers of income between the outfitters and those individuals or firms producing and selling the bear-proof products.

Economic Effect of Land Use Restrictions on Timber Harvest and of Road Reclamation Work.—Alternative 4 would prohibit future timber harvests on unroaded USFS lands within the recovery zone (Garrity 1996). Additionally, it is likely that grizzly bear habitat management would restrict to some degree timber harvests on currently roaded areas within the recovery zone (Tom Wittinger,

Flathead Forest, pers. comm 1996). Table 4-16 shows low and high estimates for annual timber harvest reductions over the next decade under Alternative 4 for both roaded and unroaded lands in the recovery zone. It is estimated that reductions in timber harvest on national forest lands within the recovery zone would be between 40 and 194 million board feet per year over the next decade if Alternative 4 grizzly bear recovery were implemented as proposed. The estimation of this harvest reduction is detailed in Table 4-16 and the notes to that table. The large variation between high and low estimates reflect divergence between the planned Allowable Sale Quantity (ASQ) of timber from Forests in the PAA and the actual harvest volume which has occurred in recent years. Additionally reflected is the difference between the percentage of annual timber volume from Forests in the PAA that is planned to be cut from roadless areas (from Forest Plans), and the percentage of annual timber volume that was actually harvested in recent years from these roadless areas. Garrity (1996) estimated that implementation of this alternative would result in an annual reduction in timber sales over the next decade of 179 million board feet. Although the methodology of Garrity differed from that presented here, his estimate is within the range of estimates developed here and presented in Table 4-16.

Associated with the estimated reduction in timber harvest would be a reduction in direct timber related employment. Estimation of the number of jobs directly supported by a million board feet of timber harvest is a difficult and complex task. Estimates vary across states, regions, and forests. Additionally, estimates vary widely depending on what is included in the definition of direct timber harvest related jobs. Still another source of disagreement between estimates is whether it is assumed that job loss occurs in a static or dynamic environment. That is, does a reduction in timber harvest in an area result in a direct proportional reduction in timber jobs, or are there complicating factors which would significantly weaken the direct link between harvest and jobs. These complicating factors might include regional markets for raw materials utilized in pulp and paper mills that lessen a local mill's dependence on local harvest, or supply response by other timber suppliers to a reduction by one source of supply, such as an increase in cutting from private timber ground following a decrease in cutting from USFS land.

The complicating factors discussed above have given rise to widely divergent estimates of direct employment per million board feet (MMBF) of harvest in the region. In 1994, Montana reported 11.58 full and part-time jobs in the forestry services, lumber and wood products, and paper and allied products standard industrial classifications per MMBF of timber harvest (Daniel Wichman, University of Montana, pers. comm.1996). Garrity (1996) reports an implied number of jobs per MMBF of harvest in the recovery area of 1.68. This estimate was based on an estimated mathematical relationship between timber harvest and forest sector jobs in Montana between 1969 and 1989. Nearly at the midpoint of these two estimates is that of Power (1992) who estimated a jobs/harvest ratio for Idaho National Forests of 6.64 jobs per million board feet. While the Montana estimate is for a different harvest area, it is generally within the range of USFS estimates cited for Idaho National Forests as well (Power 1992). The wide divergence in these estimates is due to how complicating factors, discussed above, were handled by those who developed the estimates. For the

sake of this analysis the estimate by Power (1992) of 6.64 is used. This estimate was developed with consideration of the effects of regional markets as well as the effect of multiple suppliers of timber and the dynamic nature of timber markets. Additionally, this estimate represents a compromise between the other two widely divergent estimates presented here. It must be noted that the direct jobs multiplier of 6.64 used in this report is not presented as the one true estimate of the timber-jobs relationship in the grizzly bear recovery area. Rather, it is one reasonable estimate representing one interpretation of the complexities of this relationship. The resulting job impact estimates presented in Table 4-16 should therefore be viewed as middle ground estimates.

Job losses from timber harvest reductions resulting from Alternative 4 timber harvest restrictions would be at least partially offset by job creation resulting from road reclamation work specified under the alternative. Garrity (1996) estimates that 1,501 full-time one-year jobs would be created through the road reclamation work of Alternative 4. This work would likely be spread over a number of years (Garrity 1996) and thus job creation would also be spread over a number of years.

Table 4-16. Estimated 1999-2008 annual timber harvest reductions on roaded and unroaded USFS lands within the primary analysis area (PAA) for Alternative 4.

Statistic	Low Estimate	High Estimate
Annual timber harvest on USFS lands within the PAA[a]	191	448.9
Annual reduction in timber harvest on unroaded lands within the PAA[b]	9.55[d]	141.85[c]
Annual reduction in timber harvest on currently roaded lands within the PAA	30.67[e]	51.89[e]
Total annual estimated reduction in timber harvest due to grizzly habitat management restrictions	40.22	193.74
Estimated annual loss in direct timber harvest related jobs due to timber harvest restrictions[f]	267	1286

[a] The USFS level detail behind these estimates can be found in Table 3-11.

[b] Based on Garrity (1996) it is assumed that all timber harvest on unroaded lands in the recovery zone would cease under this alternative.

[c] Based on an average expected harvest for the next decade from roadless areas in the PAA of 31.6% of total harvest expected for the PAA (Tom Puchlerz, USFS, pers. comm. 1996).

[d] Based on an actual 1992-1995 harvest from roadless areas in the PAA of 5% of the total harvest from the PAA (Randy Gay, USFS, pers. comm.1996).

[e] Based on an estimated reduction in ASQ in the Flathead National Forest of 16.9% forest-wide due to grizzly bear habitat management restrictions (Tom Wittinger, Flathead Forest, pers. comm.1996).

[f] Based on an estimated direct jobs per MMBF of timber harvest of 6.64 (Power 1992).

It is difficult to estimate the net effect on employment of Alternative 4 from the two factors of job losses due to reduced timber harvest and job creation from road reclamation work. It is clear that the road reclamation jobs detailed in Garrity (1996) are short term jobs. If the work were completed in one year, 1501 workers would be employed doing that work for the year. In the following years zero workers would be employed. If the work were accomplished over a number of years, fewer workers each year would be employed. The timber harvest jobs are more problematic to describe as predicting future harvest from USFS lands is difficult. What is clear is that timber-related job losses under this alternative would continue into the future to some degree. It may be argued that USFS land timber harvest will decline in the future and thus job loss resulting from grizzly bear habitat restrictions will also decline. However, job loss from grizzly bear restrictions will continue to some degree into the foreseeable future. Under the assumption that the timber losses detailed in Table 4-16 are constant over the next decade and road reclamation work is spread evenly over the same period, Alternative 4 employment impacts would be a net loss of between 117 and 1,136 decade-long direct timber related jobs. It should be noted that job creation from road obliteration is 1,501 full time one year jobs while the job loss is part-time and full-time jobs. Therefore the net job loss figures reported here may tend to overstate the number of full-time equivalent jobs lost in timber and related products industries. Additionally, as stated before, these job loss estimates are driven by the assumed relationship of timber employment to timber harvest. If job estimates were based on the 1994 estimates for Montana of 11.58 jobs/MMBF the net estimated job loss from this alternative would be much larger (316 to 2,094 jobs). Conversely, if estimates were based on the job-harvest ratio used by Garrity (1996) of 1.68 jobs/MMBF the net employment effect would range from a small gain in employment (82 jobs) to a moderate loss (177 jobs).

One aspect of regional employment which has not been addressed in this analysis is the relationship between extractive industries and other economic sectors. Power (1992) points out that the timber industry in Idaho accounts for only a very small percentage of total employment. Additionally, Power states that timber harvests in the Northern Rockies have been a declining source of employment in recent years. Finally, Power notes a link between economic growth in many western national forest counties and a high quality, pristine natural environment. This link implies that timber jobs associated with a continuation of timber harvest practices on both roaded and unroaded lands in the recovery zone might come at the cost of reduced natural amenity driven economic growth in the future. Alternative 4 calls for a restoration of the natural environment through reduced natural resource extraction and road reclamation. Power (1992) argues that these actions would stimulate future economic growth, and thus job growth, in the recovery zone. This offsetting natural amenity driven job growth in other economic sectors has not been estimated in this analysis of simple tradeoff between timber jobs and road reclamation jobs. Its importance should not, however, be discounted. Because of the effects of economic growth driven by a high quality natural environment, long-term employment effects of Alternative 4 may be significantly more positive than the short-term employment estimates presented here.

It is unclear what effect the offsetting factors of reduced timber harvest and increased road reclamation employment would have on federal government finances. Garrity (1996) reports that money saved the federal government by precluding below-cost timber sales in roadless areas in the Alternative 4 grizzly recovery zone over the next decade would more than amply offset the 67.1 million dollars estimated to complete the road reclamation work. (Garrity (1996) estimates a savings of 137.2 million dollars over 10 years from eliminating below-cost timber sales from roadless areas in the Alternative 4 recovery zone. Below-cost timber sales represent a market cost that is borne by all United States taxpayers.)

Economic Effect of Land Use Restrictions on Mining.— It is estimated that recovery of grizzly bears within the BE under this alternative could lead to restrictions on mining or associated economic impacts through habitat restoration programs, and USFWS Section 7 consultation on mining activities.

Economic Effect of Changes in Visitor Use.—As under Alternative 1, it is not expected that visitation will be significantly impacted in the BE under Alternative 4.

Impact on the Existence Value of Grizzly Bears.—Under Alternative 4, it is estimated that the net economic value of grizzly bear existence in the BE will be equal to that for Alternative 1.

Conclusion.—It is estimated that grizzly bear recovery in the BE under Alternative 4 will lead to total benefits of 40.4 to 60.6 million dollars per year and total costs of 728 to 765 thousand dollars per year for the first five years. The largest component of total costs would be the grizzly bear management costs of 428,632 dollars per year during the first 5 years of the recovery program. After the first 5 years when reintroductions are complete, the total cost would decrease to 487 to 527 thousand dollars per year. Additionally, it is estimated that an average of between 117 and 1,136 jobs will be lost over the next decade due to reduced timber harvest in the recovery zone (Table 4-17).

Social Impacts

Social impacts under this alternative would be essentially the same as those described under Alternative 1. Also see Appendix 19.

Table 4-17. Annual net social benefits associated with grizzly bear recovery in the BE under Alternative 4.

Category of Benefit / Loss	Type of Impact (Market / Non-Market)	Impacted Population / Area	Annual Impact (1996 dollars)	
			Low Estimate[a]	High Estimate[a]
(A) Benefits Associated With Grizzly Bear Recovery[b]				
Annual net economic value of recovery	non-market	United States population	40,449,030	60,639,180
(B) Costs Associated With Grizzly Bear Recovery				
Value of hunting losses	market and non-market	hunters and local businesses	288,700	288,700
Value of livestock losses	market	ranchers[c]	10,552	47,915
Annual grizzly bear management cost during first 5 years of program[d]	market	United States taxpayers	428,632	428,632
Net job loss from reduced timber harvest	market	local area workers and businesses	117	1,136

[a] For the benefits estimates, the low and high estimates represent a 95% confidence interval on the estimates of net willingness pay for the alternative. For the individual costs, the low and high estimates represent the best estimates of minimum and maximum costs associated with an alternative. The final net benefits figures do not represent a confidence interval but rather a plausible range of benefits associated with the alternative.

[b] Garrity (1996) in an independent economic analysis of a proposal upon which this alternative was based, presented an additional economic benefit from grizzly bear recovery, realized through a net reduction in Federal Government costs associated with elimination of below-cost timber sales in roadless areas of the recovery zone. This information is presented in the section, *Economic Effect of Land Use Restrictions on Timber Harvest and of Road Reclamation Work* (page 4-59).

[c] If a compensation program for grizzly depredation existed, the impacted population would be the contributors to the fund.

[d] After the first five years it is estimated that the Alternative 4 recovery program would cost $188,000 per year for monitoring and management.

ENVIRONMENTAL CONSEQUENCES ALTERNATIVE 4A. RESTORATION OF GRIZZLY BEARS AS A THREATENED POPULATION WITH FULL PROTECTION OF THE ESA AND USFWS MANAGEMENT

Impacts on Human Health and Safety

Impacts on human health and safety from implementation of this alternative would be similar to those described for Alternative 1. The BE grizzly bear population would be managed as a threatened population with full protection of the ESA under this alternative.

Conclusions.— During the first several decades following reintroduction, chance of injury caused by grizzly bears would be exceedingly small due to the low density of bears in the area. Under this alternative populations are estimated to achieve recovery levels of approximately 400 bears in a minimum of 65, and likely more than 125 years. Using human injury rates in the NCDE and YE, and recognizing a net increase in human visitation, projections for human injury, once bears are recovered 65-125 years in the future, are less than one injury per year and less than one grizzly bear-induced human mortality every few decades.

Impacts on Source Populations of Grizzly Bears

Impacts to source populations under this alternative would be similar to those described for Alternative 1. Reintroduction of grizzly bears into the BE would require capture and relocation of a minimum of 25 bears over a period of 5 years from other areas. Three sources of bears for the BE have been identified: southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population in northwest Montana, and the Yellowstone Ecosystem (YE) population. An equal contribution of bear numbers would be made from Canada and the U. S. MDFWP has stated their willingness to use grizzly bears from the NCDE to augment populations elsewhere or reintroduce the species where recovery areas have been identified (Dood and Ihsle Pac 1993, page 107). An attempt was made to transplant a grizzly bear to the Cabinet Mountains from the NCDE in 1992 but trapping efforts to capture a subadult female were not successful (Kasworm et al. 1993).

Conclusions.—It appears that source areas for reintroduction of grizzly bears into the BE could be both the NCDE and/or YE (based on mortality levels) in Montana and the Kootenay Region in British Columbia, Canada. These areas have habitat similar to the BE and have sufficient numbers of bears to be a source area. Agreement to supply grizzly bears is not an assurance that bears having history of no conflict with humans, and proper age and sex will be available to the BE reintroduction program. The actual capture of the necessary bears is dependent upon access to areas with such bears, and significant effort by capture crews. Capture of desired bears is not assured, even with intensive effort. It may require more than 5 years to obtain the desired minimum of 25 bears to initiate a new population in the BE. This should be made clear to the public and to cooperating agencies at the outset. There would be no significant detrimental effects to the health of source populations because mortality limits in the Grizzly Bear Recovery Plan (USFWS 1993) and British Columbia grizzly bear management criteria (B.C. Min. Environ., Lands, and Parks 1995) would be

met during implementation of this alternative. Further, since no bears would be removed from the YE or NCDE if the mortality limits would be exceeded, and no female bears would be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE would be nonexistent.

Impacts on Land-Use Activities

Grizzly bears would be reintroduced into the BE without an experimental population rule and would be fully protected by all provisions of the ESA as a threatened species until recovery was achieved. Because grizzly bears would be listed as a fully protected threatened species, all federal actions within the recovery zone would be subject to ESA Section 7 consultation with the USFWS.

Impacts on Timber Harvest.—Due to restored grizzly bears having threatened status under ESA, and the resulting Section 7 consultation requirements, it is likely that grizzly bear habitat management would restrict to some degree timber harvests on currently roaded areas within the recovery area (Tom Wittinger, pers. comm. 1996). Based on the best available data (Tom Wittinger, Flathead Forest, pers. comm. 1996), it is estimated that reductions in timber harvest on national forest lands within the PAA would be between 32 and 76 million board feet per year over the next decade if Alternative 4A grizzly bear recovery were implemented as proposed (see Table 4-18). Impacts to timber harvest could be less based on current land-use restrictions in Idaho that do not occur in Montana on the Flathead Forest (i.e. Pacfish, etc.). The large variation between the high and low estimates reflect the divergence between the planned Allowable Sale Quantity (ASQ) of timber from Forests in the PAA and the actual harvest volume which has occurred in recent years (see Table 3-11).

Impacts on Minerals Extraction.—Mineral extraction activities would not likely be altered due to grizzly bear concerns in and by themselves, however Section 7 consultation (on a project basis) could impact extraction activities to an unknown degree. Recommendations may be made by the USFWS to reduce potential impacts if the need arises.

Impacts on Domestic Livestock.—Impacts on domestic livestock under Alternative 4A would be similar to those described for Alternative 4 (See Alternative 4 discussion, this Chapter). Calculations of potential livestock depredation by grizzly bears indicate an estimated loss of 12-27 cattle and 41-355 sheep annually in the BE when grizzly bear populations are fully recovered at a population of 400 (Table 4-12). Because livestock are in low numbers in the northern portion of the recovery zone where bears are expected to exist in highest densities, livestock depredations could be less than either the NCDE or the YE which were used to calculate the BE estimates. These predictions are statistical in nature and are not intended to show exact depredation expected in the BE, but should provide an indication of what may occur based on other ecosystems. Livestock losses have been reduced significantly in the last 3 years through modifications in animal husbandry practices such as the use of electric fences, removal of livestock carcasses, use of guard dogs, and conscientious herding

practices (Madel 1996). There could be some expected reduction in specific allotments under this alternative.

Impacts on other private property.— Impacts to other private property under this alternative would be the same as those described for Alternative 1. Based on what is currently known about bear behavior in other ecosystems, once bears are recovered, nuisance bear incidents would likely range between 0 and 105 per year in the BE. However, by the time bears would be recovered in the BE, much more would be known about proper sanitation and avoiding many of the potential conflicts between bears and humans, and therefore, conflicts should be greatly reduced.

Conclusions.—It is likely that grizzly bear habitat management would restrict to some degree timber harvests on currently roaded areas within the recovery area (Tom Wittinger, pers. comm. 1996). It is estimated that reductions in timber harvest on national forest lands within the PAA would be between 32 and 76 million board feet per year over the next decade if Alternative 4A grizzly bear recovery were implemented as proposed (see Table 4-18). Mineral extraction activities would not likely be altered due to grizzly bear concerns in and by themselves, however Section 7 consultation (on a project basis) could impact extraction activities to an unknown degree.

Livestock grazing within the recovery zone occurs predominantly in the southern portion of the BE (Figure 3-8, Table 3-13). Consequently, at recovered grizzly population levels and current livestock stocking rates, impacts to livestock would be expected to be similar to levels occurring in portions of the NCDE and the YE. In 65-125+ years (the estimated time to recovery assuming a 4% and 2% growth rates) grizzly bears would likely be present within the southern portion of the BE. Projections indicate that at a grizzly bear population level of 400 bears in the recovery zone, yearly livestock losses to depredation by bears could range from 12-27 cattle and 41-355 sheep. Management activities would try to preempt livestock problems.

Once bears are recovered in the BE (a minimum of 65-125 years after reintroduction), nuisance bear incidents would likely range between 0 and 105 per year. However, by the time bears would be recovered in the BE, conflicts should be greatly reduced because much more would be known about proper sanitation and avoiding many of the potential conflicts between bears and humans.

Impacts on Wildlife Populations

Impacts to wildlife populations under Alternative 4A would be similar to those described for Alternative 4. Using Mattson's (1997) estimate of 1.4 or 5.8 ungulates per year for adult female and male bears respectively, a population of 400 bears would be expected to prey upon a maximum of 720 ungulates per year across the BE. This calculation assumes a 50:50 sex ratio and a 50:50 adult subadult ratio. The loss of 720 ungulates to a recovered grizzly bear population would represent 0.15% of estimated populations of ungulates in the PAA.

Annual mortality in big game can result from harsh weather, hunters, disease, predation, and other factors. These factors can interact to accentuate or negate the other. For instance bad weather may concentrate big game to make them more susceptible to hunting, predation, or disease. Furthermore an animal weakened by disease may be more susceptible to predation or winter kill. These factors make it difficult to determine whether a 0-1% grizzly predation rate would be compensatory or additive. In addition, annual fluctuations in weather can cause ungulate populations to increase or decrease by as much as 10-15%. This would likely mask any potential grizzly predation of 0-1% on ungulates within the PAA. It should therefore not be necessary to adjust hunting seasons to compensate for grizzly bear predation.

Conclusions.—In many locations, animal matter may not constitute a major annual diet item, but may be seasonally vital to bears (Mattson et al. 1991). An expected predation rate of 0.30-0.54% of the ungulate populations in the area occupied by bears in the BE could occur. Using Mattson's (1997) estimate of 1.4 or 5.8 ungulates per year for adult female and male bears respectively, a population of 400 bears (USFWS 1993) would be expected to prey upon a maximum of 720 ungulates per year across the BE. The loss of 720 ungulates to a recovered grizzly bear population would represent approximately 0.15% of estimated pre-harvest populations of ungulates in the PAA. Potential long-term impacts to black bear population dynamics is unclear, but felt to be minimal. Overall impacts of a recovered population of grizzly bears on other wildlife populations are expected to be minimal. It should not be necessary to adjust hunting seasons to compensate for grizzly bear predation on other wildlife. Any restrictions on black bear hunters or other hunting opportunities to reduce the likelihood of mistaken identity kills or to address other potential conflicts could be recommended by the USFWS, but would have to be acceptable and implemented by the IDFG and MDFWP. Grizzly bears would kill some healthy ungulates, but a large percentage of prey killed by bears will be very young, very old, sick, injured, or otherwise disadvantaged. Consequently, fewer ungulates may die from malnutrition associated with winter stress. To a small extent, competition among ungulates for food and space will be reduced, and the health of surviving ungulates may be increased an undetermined, but probably minimal amount. Impacts to other listed wildlife and fish species would be similar to those listed for Alternative 1.

Impacts on Public Access and Recreational Use

Visitor use.—Impacts to visitor use from the implementation of this alternative would be similar to those described for Alternative 1. There might be a slight decrease in visitor use under this alternative as compared with Alternative 1 due to potential road and trail restrictions and associated impacts to public access resulting from ESA Section 7 consultation with land management agencies for the "threatened" Bitterroot population. This may be offset, however, by an increase in visitors seeking a remote backcountry experience, which potential road and trail closures could help to provide. Backcountry user groups such as outfitters and rafters could be impacted by increased requirements to store food and keep clean camps so as not to attract bears.

As with Alternative 1, despite some possible temporary changes in visitation rates (up or down) as a result of reintroduction, little overall change in increasing visitation rates would be expected over time. Visitation would continue to increase as a result of expanding population pressures and the subsequent increased demand for outdoor recreation opportunities.

Road and Trail Closures.—This alternative could alter existing and ongoing land-use activities solely for grizzly bears. Grizzly bears reintroduced to the BE would be protected under the ESA as a threatened species and all federal activities that may affect grizzly bears would have to go through Section 7 consultation with the USFWS. There could be impacts to public access in the form of road and trail closures at that time. However, in the NCDE where a minimum population of about 325 grizzly bears currently exists, only one trail was closed on national forest lands because of grizzly bears in the last 10 years (USFS, Unpubl. data 1996). This closure was a result of concerns for human safety when a bear was seen feeding on an elk carcass on a trail. During the peak of the visitor use season in Glacier National Park, fewer than 5% of the trails are closed at any time as a result of safety concerns. Because of the difference between national park and national forest management, closures in the BE would likely be rare and probably be similar to the NCDE.

Also, per direction of the Grizzly Bear Recovery Plan, the USFWS is currently leading a 5-year process to assess the linkage potential between the various ecosystems identified for grizzly bear recovery. This linkage zone analysis is ongoing and will proceed. Under this alternative, USFWS would continue to coordinate research studies to determine the need for and location of linkage zones, and to identify specific habitat management guidelines necessary to maintain suitable habitat within linkage zones. If research determines that linkage zones are necessary for recovery, and that changes in habitat management within the identified zones are necessary, then the USFWS would recommend appropriate management actions.

Hunting seasons.—Under this alternative, there are no proposed changes in hunting seasons. It is predicted that a recovered grizzly bear population of 400 bears will kill a maximum of 720 ungulates per year. Interactions with other predators and the compensatory nature of some predation may affect the total loss of ungulates to predators, but at this rate only 0.15 percent of the pre-harvest ungulate population will be preyed upon by a recovered bear population. This small loss of ungulates is not expected to result in changes of big game seasons.

Conclusions.—There could be impacts to public access and recreational use under this alternative because the reintroduced grizzly bear population would be protected under the ESA as a threatened species and all federal activities that may affect grizzly bears would have to go through Section 7 consultation with the USFWS. There could be impacts to public access in the form of road and trail closures at that time. Also, if ongoing USFWS research determines that linkage zones are necessary for recovery, and that changes in habitat management within the identified zones are necessary, then they would recommend appropriate management actions. Some people would avoid recreating in the recovery zone as a result of grizzly bear presence and other people would increase their recreation in the area because of it. The vast majority of recreationists and resource area users would

continue to use the recovery zone with little change in their trip frequency or length. Backcountry user groups such as outfitters and rafters could be impacted by increased requirements to store food and keep clean camps so as not to attract bears. Over time, recreation and visitor use of the PAA would continue to increase. No changes in hunting seasons are currently anticipated as a result of implementation of this alternative, although changes could be recommended by the USFWS to state agencies.

Impact On Economics and the Social Environment

Impact on the Economic Value Associated with Hunter Harvest.—As discussed previously in "Impacts on Public Access and Recreational Use - Hunting Seasons", it is not expected that restoration of grizzly bears to the BE under Alternative 4A will result in any significant effect on hunter harvest of ungulates.

Economic Impact on Domestic Livestock.—It is estimated that under this alternative annual losses from grizzly bear predation on livestock would range from $10,552 to $47,915. This estimated annual loss is higher than that estimated for Alternative 1. Table 4-15 shows the details of the Alternative 4 livestock predation loss estimates, and the same estimates apply for Alternative 4A.

Economic Effect of Land Use Restrictions on Recreation.—As under Alternative 1, it is estimated that recovery of grizzly bears within the BE under Alternative 4A will not lead to any significant restrictions on recreation or associated economic loss. One aspect of restrictions on recreation which would have distributional effects within the economy concerns the imposition of regulations requiring outfitters operating within the recovery zone to use bear-proof garbage and food containers and methods when in the backcountry. The purchase of bear-proof containers or hoists would impose an additional expense on the outfitters operating within the recovery zone. These costs would represent transfers of income between the outfitters and those individuals or firms producing and selling the bear-proof products.

Economic Effect of Land Use Restrictions on Timber Harvest.— It is likely that grizzly bear habitat management would restrict to some degree timber harvests on currently roaded areas within the recovery zone (Tom Wittinger, Flathead Forest, pers. comm 1996). Table 4-18 shows low and high estimates for annual timber harvest reductions over the next decade under Alternative 4A on affected USFS lands in the recovery zone. It is estimated that reductions in timber harvest on national forest lands within the recovery zone would be between 32 and 76 million board feet per year over the next decade if Alternative 4A grizzly bear recovery were implemented as proposed. The estimation of this harvest reduction is detailed in Table 4-18 and the notes to that table. The large variation between high and low estimates reflect divergence between the planned Allowable Sale Quantity (ASQ) of timber from Forests in the PAA and the actual harvest volume which has occurred in recent years.

Associated with the estimated reduction in timber harvest would be a reduction in direct timber related employment. Estimation of the number of jobs directly supported by a million board feet of timber harvest is a difficult and complex task. Estimates vary across states, regions, and forests. Additionally, estimates vary widely depending on what is included in the definition of direct timber harvest related jobs. Still another source of disagreement between estimates is whether it is assumed that job loss occurs in a static or dynamic environment. That is, does a reduction in timber harvest in an area result in a direct proportional reduction in timber jobs, or are there complicating factors which would significantly weaken the direct link between harvest and jobs. These complicating factors might include regional markets for raw materials utilized in pulp and paper mills that lessen a local mill's dependence on local harvest, or supply response by other timber suppliers to a reduction by one source of supply, such as an increase in cutting from private timber ground following a decrease in cutting from USFS land. The resulting job impact estimates presented in Table 4-18 should therefore be viewed as middle ground estimates.

Table 4-18. Estimated 1999-2008 annual timber harvest reductions on affected roaded USFS lands within the primary analysis area (PAA) for Alternative 4A.

Statistic	Low Estimate	High Estimate
Annual timber harvest on USFS lands within the PAA[a]	191	448.9
Annual reduction in timber harvest on affected currently roaded lands within the PAA due to grizzly habitat management restrictions	32.28[b]	75.86[b]
Estimated annual loss in direct timber harvest related jobs due to timber harvest restrictions[c]	215	504

[a] The USFS level detail behind these estimates can be found in Table 3-11.
[b] Based on an estimated reduction in ASQ in the Flathead National Forest of 16.9% forest-wide due to grizzly bear habitat management restrictions (Tom Wittinger, Flathead Forest, pers. comm.1996).
[c] Based on an estimated direct jobs per MMBF of timber harvest of 6.64 (Power 1992).

Economic Effect of Land Use Restrictions on Mining.— It is estimated that recovery of grizzly bears within the BE under this alternative could lead to restrictions on mining or associated economic impacts through USFWS Section 7 consultation on mining activities.

Economic Effect of Changes in Visitor Use.—As under Alternative 1, it is not expected that visitation will be significantly impacted in the BE under Alternative 4A.

Impact on the Existence Value of Grizzly Bears.—Under Alternative 4A, it is estimated that the net economic value of grizzly bear existence in the BE will be equal to that for Alternative 1.

Conclusion.—It is estimated that grizzly bear recovery in the BE under Alternative 4A will lead to total benefits of 40.4 to 60.6 million dollars per year and total costs of 439 to 477 thousand dollars per year for the first five years. The largest component of total costs would be the grizzly bear management costs of 428,632 dollars per year during the first 5 years of the recovery program. After the first 5 years when reintroductions are complete, the total cost would decrease to 199 to 236 thousand dollars per year. Additionally, it is estimated that an average of between 215 and 504 jobs will be lost over the next decade due to reduced timber harvest in the recovery zone (Table 4-19).

Social Impacts

Social impacts under this alternative would be essentially the same as those described under Alternative 1. Also see Appendix 19.

Table 4-19. Annual net social benefits associated with grizzly bear recovery in the BE under Alternative 4A.

Category of Benefit / Loss	Type of Impact (Market / Non-Market)	Impacted Population / Area	Annual Impact (1996 dollars)	
			Low Estimate[a]	High Estimate[a]
(A) Benefits Associated With Grizzly Bear Recovery				
Annual net economic value of recovery	non-market	United States population	40,449,030	60,639,180
(B) Costs Associated With Grizzly Bear Recovery				
Value of hunting losses	market and non-market	hunters and local businesses	0	0
Value of livestock losses	market	ranchers[b]	10,552	47,915
Annual grizzly bear management cost during first 5 years of program[c]	market	United States taxpayers	428,632	428,632
Net job loss from reduced timber harvest	market	local area workers and businesses	215	504

[a] For the benefits estimates, the low and high estimates represent a 95% confidence interval on the estimates of net willingness pay for the alternative. For the individual costs, the low and high estimates represent the best estimates of minimum and maximum costs associated with an alternative. The final net benefits figures do not represent a confidence interval but rather a plausible range of benefits associated with the alternative.

[b] If a compensation program for grizzly depredation existed, the impacted population would be the contributors to the fund.

[c] After the first five years it is estimated that the Alternative 4A recovery program would cost $188,000 per year for monitoring and management.

CHAPTER V

CONSULTATION AND COORDINATION

CONSULTATION AND COORDINATION

Time Line for Consultation and Coordination in Development of the Proposal

During preparation and development of the proposal, a wide variety of professional contacts were established. Grizzly bear biologists and managers in the U.S. and Canada were contacted. During development of the EIS proposal an interagency, interdisciplinary team was established, with representatives from various federal agencies, states, and tribes (see List of Preparers). During all EIS Team meetings and briefings, discussions were held regarding potential management strategies for grizzly bear restoration and reintroduction. During these meetings and briefings, discussions often centered around how a grizzly bear restoration plan could be developed such that it could result in grizzly bear recovery and also address the concerns of the various publics. The ideas, thoughts, data, criticisms, and experiences about grizzly bear reintroduction and the EIS were being sought with the goal of developing a proposal that could receive concurrence from as many affected parties as possible. This section summarizes the interagency coordination that occurred and was used to develop the proposed action of reintroducing grizzly bears as a nonessential experimental population into the Bitterroot Ecosystem (BE). See Appendix 1 for additional information regarding the chronology of grizzly bear recovery in the BE.

1975 Grizzly bear listed as threatened under the Endangered Species Act. Bitterroot Ecosystem recognized as one of the 3 recovery areas, along with the Bob Marshall and Yellowstone areas.

1982 Grizzly Bear Recovery Plan finalized. Bitterroot Ecosystem identified as an Evaluation Area to determine if grizzly bears still existed there, and if the habitat was of good enough quality to provide for grizzly bear population recovery.

1991 Technical Review Team of independent bear biologists was organized to review available habitat data. The Team determined that the BEA could support between 200-400 grizzly bears.

1992 The Interagency Grizzly Bear Committee (IGBC) reviewed the determination and recommendations of the Technical Review Team and authorized the preparation of a Recovery Plan for the Bitterroot Ecosystem to include as a chapter of the Grizzly Bear Recovery Plan. An interagency team of biologists was organized to develop the plan.

1992 Wayne Wakkinen (IDFG) was appointed team leader of an interagency team of biologists (USFWS, IDFG, MDFWP, USFS) to develop the BE Recovery Plan Chapter.

1992 A Citizens Involvement Group (CIG) was organized to help guide the development of the Bitterroot Ecosystem Grizzly Bear Recovery Chapter. Invitations to participate in this group were published in several local papers and were sent to people on the mailing lists for the Clearwater, Nez Perce, and Bitterroot National Forests. The CIG began with 50 people and ended in 1993 with 30 members.

1992 September - open houses to provide public information scoping on the draft BE Recovery Plan Chapter were held by the USFWS, CIG, and interagency team in Hamilton and Missoula, MT, Salt Lake City, UT, and Lewiston, Grangeville, and Orofino, ID. USFWS recommended

using a "nonessential experimental population" designation as identified in Sec. 10(j) of the ESA and releasing 4-6 bears per year for 5 years.

1993 Revised Grizzly Bear Recovery Plan completed.

1993 Bitterroot Ecosystem Subcommittee branched off from Northwest Ecosystem Subcommittee to allow decision makers more involvement in planning and local input.

1993 Federal Register Notice published for public involvement for the BE Recovery Plan Chapter (8/16/93).

1993 USFWS solicits public response to the draft BE Recovery Plan Chapter (8/20-10/20). Several public meetings were held to obtain information for the BE Recovery Plan Chapter.

1993 *Grizzly Bear Recovery in the Bitterroots* brochure published by the IDFG, USFS, USFWS, and MDFWP (8/93).

1993 The Idaho Legislature authorized the formation of a Grizzly Bear Oversight Committee for Idaho, consisting of the chairs of the Idaho Senate and House Resource committees, and representatives each from timber, mining, livestock, recreation, and wildlife. Committee held public meetings on the BE Recovery Plan Chapter in Grangeville and Orofino, Idaho (8/93).

1993 In response to public comments from local communities of central Idaho and western Montana, several changes were made in the final draft chapter. The draft chapter was completed December 11, 1993 and approved by the IGBC. The BE Recovery Plan final draft was appended as a chapter to the Revised Grizzly Bear Recovery Plan, and listed for comment in the Federal Register. It called for an Environmental Impact Statement (EIS) to evaluate a full range of recovery alternatives.

1994 2/4 - (revised on 2/7), release of "Position Statement of the State of Idaho Grizzly Bear Oversight Committee."

1994 July - IGBC authorized development of an Environmental Impact Statement to identify alternatives and issues, recovery area boundaries, and environmental consequences of implementing the BE Recovery Chapter.

1994 11/28 - IGBC Bitterroot Ecosystem Subcommittee meets in Missoula. Dr. Chris Servheen reports on EIS funding, and the intention to hire an EIS team leader. Schedule and public involvement discussed.

1994 12/14-15 - Winter IGBC meeting in Denver, CO. EIS schedule approved.

1995 1/9 - Notice of Intent to prepare an EIS published in the Federal Register (Vol 60, No 5).

1995 The USFWS continued public involvement and assembled an interdisciplinary team to begin the EIS process. Team leader selected. Team members include specialists from the USFWS, USFS, IDFG, MDFWP, and the Nez Perce Tribe.

1995 1/26 - BE EIS team meeting. Strategic planning on setting up systems, partnerships, etc. Nadeau reports on meeting with Keith Carlson, ID Fish and Game Commissioner.

1995 2/1 - Core EIS team meeting. Develop initial EIS schedule.

1995 2/2 - IGBC Bitterroot Ecosystem Subcommittee meets in Missoula. EIS schedule developed, and EIS team leader is introduced. Printing and distribution of Citizen's Q&A booklet scheduled. Coalition presents framework for an alternative with no economic impact.

1995 2/9 - Bitterroot Public Involvement strategy meeting.

1995 2/28 - EIS Team leader meets with Idaho Panhandle National Forest.

1995 March-May - USFWS, USFS, and IDFG attend (as guests) sensing meetings hosted by Coalition. Meetings held in Grangeville, Orofino, Hamilton, and Missoula.

1995 3/2-3 Bitterroot EIS meeting in Boise.

1995 3/3 - EIS Team leader appeared before the Idaho Legislature joint Committees on Resources at the request of Sen. Laird Noh and Rep. Golden Linford. EIS Team leader discussed the BE EIS process. Dr. Jim Peek (Univ. of Idaho) and Jerry Conley (IDFG) made presentations. Joint Committees voted to continue the Grizzly Bear Management Oversight Committee.

1995 3/4 - Boise AP story on ID Legislature voting to stay involved in the process.

1995 March - Chris Servheen and Tom Puchlertz meet with Sen. Craig, Rep. Chenoweth, and Rep. Crapo in Washington, D.C. Interest in the overall process, public involvement, and a 10j alternative.

1995 March - IGBC meeting in Minneapolis. Team leader presents overview of the EIS process, emerging issues, and updated EIS schedule.

1995 3/15 - IGBC Bitterroot Ecosystem Subcommittee (BES) meeting in Lewiston, ID. EIS Team leader attended.

1995 April - BES informed that ID Legislature Oversight Committee will continue with its participation in grizzly recovery, which in turn allows IDFG to continue their participation.

1995 4/20 - EIS Team leader meets with Bitterroot National Forest in Hamilton, MT.

1995 5/4 - EIS Team leader meets at Lowell, ID with IDFG and USFS biologists to determine effectiveness of present forest guidelines for grizzly bear concerns. Decision made that Clearwater Forest standards are adequate for the planning period.

1995 5/11 - BES meeting at USFS Powell Ranger District. EIS Team leader and Chris Servheen attend. Idaho legislative Oversight Committee extended for 2 years. Received 80 comments on NOI in Federal Register. Decide to contract with Responsive Management for survey of social attitudes regarding grizzly bear recovery in the BE.

1995 5/18-19 - EIS Team leader and Chris Servheen meet with USFWS Regional Office in Denver to discuss the BE DEIS.

1995 6/2 - EIS Team leader attends internal scoping meeting at West Fork Ranger Station, Bitterroot Forest.

1995 6/5 - Formal scoping for issues and alternatives begins with notice in Federal Register for a 45-day comment period.

1995 6/11 - EIS Team leader attends Ravalli County Commissioners meeting in Hamilton, MT.

1995 6/12 - EIS Team leader conducts interagency coordination in Moscow, ID.

1995 6/12 - EIS Team leader conducts interagency coordination in Orofino and Lewiston, ID.

1995 6/20 - News release sent to media in western Montana and Idaho announcing public scoping meetings.

1995 6/9-24 - Public attitude survey conducted by Responsive Management for IDFG.

1995 6/24 - Bitterroot CIG (from BE Recovery Plan Chapter revision) reconvenes for EIS update in Lowell, ID.

1995 7/5-11 - Seven Alternative and Issue scoping sessions held in Grangeville, Orofino, Boise, ID, Hamilton, Missoula, Helena, MT, and Salt Lake City, UT.

1995 7/20 - End 45-day public comment period on scoping of issues and alternatives.

1995 7/25 - Public comment period extended 30 days to August 21. A news release was sent to local and national media announcing the extension.
1995 7/27 - BES meeting in Grangeville, ID.
1995 8/1-3 - Summer IGBC meeting at Radium Hot Springs. BE DEIS progress discussed in public meeting.
1995 8/4 - USFWS press release (AP), "Independent sampling of public attitudes completed on proposal to reintroduce grizzly bears in Bitterroot Mountains of Idaho."
1995 8/21 - End of 30-day extension to public comment period for issues and alternatives.
1995 8/27 - Missoulian article on AP wire with results of attitude survey.
1995 9/19 - Content analysis of public comments on scoping of issues and preliminary alternatives completed.
1995 October - Content analysis report to the public and IGBC.
1995 11/2 - BE EIS team meeting in Missoula. Planning schedule, review of wolf EIS, bracket alternatives, review table of contents, information need and sources, and time frame.
1995 November - Gov. Racicot meets with over 300 citizens in Ravalli County. Grizzly bear recovery a major point of meeting. The Governor supported the concept of citizen's management.
1995 11/21 - Herb Pollard notifies BES of new members on EIS team, Wayne Kasworm and Johnna Roy.
1995 November - Mollie Beattie meets with Sen. Conrad Burns. BE EIS is a key discussion point.
1995 11/28 - IDFG personnel are briefed on BE EIS process via and internal mailing.
1995 11/30 and 12/8 - Idaho Legislative Oversight Committee comments on Coalition alternative.
1995 12/6-7 - Winter IGBC meeting in Denver, CO. Implementation funding for BE EIS on agenda.
1996 January - Briefing prepared for Senator Burns on the BE EIS and reintroduction process to date.
1996 January - Alliance for the Wild Rockies publishes, *The Conservation Biology Alternative for Grizzly Bear Recovery and Population Restoration in the Greater Salmon-Selway Region of Central Idaho and western Montana.* The Alliance hosts a series of public open houses to review this alternative and issues a news release on their alternative.
1996 1/18 - BE EIS team updates Idaho Legislature Oversight Committee via letter.
1996 1/22 - Dianne Daley-Laursen briefs Matthew McKeown, Idaho Office of the Attorney General, on BE EIS.
1996 1/23 - IDFG EIS team member briefs Jerry Conley (IDFG Director) on status of BE DEIS.
1996 1/24-25 - Dana Dolson attended USFS research team meeting for the integrated BE.
1996 1/25 - Governor Batt writes a letter to Rep. Chenoweth stating the state of Idaho is opposed to grizzly bear reintroduction.
1996 1/20 - Ralph Morgenweck briefs congressional staffs in Washington, D.C. on BE EIS.
1996 2/8-9 - Idaho Legislature passes House Joint Memorial No. 6 urging Congress to withdraw funding and other actions for reintroduction of the grizzly bear into Idaho.
1996 2/13 - IGBC conference call. BE EIS scheduling and funding for implementation.

1996 2/23 - Laird Robinson and Chris Servheen briefed Idaho Legislature with background information prior to vote on House Joint Memorial No. 6.
1996 2/26 - Idaho Legislature passes House Joint Memorial 6 opposing grizzly bear reintroduction.
1996 2/26 - USFWS press release, "US Fish and Wildlife Service announces progress on Draft Environmental Impact Statement." AP, MT and ID weeklies. Major issues identified in scoping and alternatives submitted during scoping are written up. Progress on the DEIS and future public involvement are discussed.
1996 3/13 - MT Governor Marc Racicot writes USFWS with citizen concerns regarding reintroduction.
1996 3/14 - BE EIS team meeting. Revise schedule, review alternatives.
1996 3/25 - IGBC meeting at Tulsa, OK. Implementation funding and release of draft EIS to the public.
1996 5/22-24 - BE EIS team meeting. Review and edit Chapters 1-3, and revise schedule.
1996 6/4 - Summer IGBC meeting held in Gardiner, MT. Update on BE DEIS.
1996 7/2 - BE EIS team meeting. Review Chapters 1-3,5,6 and make edits. Discuss alternatives and revise schedule.
1996 7/31 - BE EIS team conference call. Revise schedule and discuss DEIS release and public involvement strategy.
1996 8/9 - DEIS draft sent to USFWS Denver Regional and Washington Offices for internal review.
1996 9/11 - Bitterroot Ecosystem Grizzly Bear Recovery Chapter finalized and signed.
1996 10/4 - Steve Nadeau briefs Idaho Fish and Game Commission at Boise regarding progress of DEIS.
1996 10/10 - BE EIS team meeting. Review USFWS comments on draft DEIS, revise schedule, and discuss public involvement strategy.
1996 10/21 - DEIS draft sent to partner agencies (USFS, MDFWP, Nez Perce Tribe) for internal review and comment.
1996 11/27 - BE EIS team conference call with USFWS (Boise) and National Marine Fisheries Service (NMFS) (Boise) to discuss the Biological Assessment for the DEIS.
1996 11/27 - Revised DEIS draft sent to IDFG for internal review and comment.
1997 1/15 - Dr. Chris Servheen briefs IGBC on status of DEIS at Denver winter meeting.
1997 1/24 - Steve Mealey, Director IDFG sends letter to Dr. Chris Servheen stating that IDFG does not wish to comment on the internal agency review draft of the DEIS.
1997 1/27 - BE EIS team conference call with NMFS Boise office representative to discuss Biological Assessment preparation for anadromous fish.
1997 2/6 - Proposed Special Rule sent to USFWS Washington Office for review and signature.
1997 2/7 - DEIS sent to USFWS Region 6 and Washington Office for final review.
1997 3/18 - Dr. Chris Servheen briefs IGBC on status of DEIS at Washington, D.C. meeting.
1997 3/31 - Final edits from USFWS Region 6 and Washington Office reviews made to DEIS.
1997 4/16 - Dr. Chris Servheen and IGBC members meet with Idaho Governor Batt and Steve Mealey (IDFG Director) to discuss Bitterroot DEIS.
1997 4/17 - EIS team meets with NMFS representative to discuss Biological Assessment.

1997 4/30 - Dr. Chris Servheen and IGBC members meet in Boise with Idaho Legislators, Idaho Congressional Delegation, Public Lands Committee of the Idaho Association of Counties, and Idaho Fish and Game Commission to discuss DEIS.

1997 5/9 - Conference call with USFWS and USFS to discuss DEIS status and plan for publicizing the document release to the public.

1997 5/15 - Core EIS team meets to draft a communications and publicity plan for the DEIS.

1997 6/12 - Dr. Chris Servheen and IGBC members testify at congressional hearings chaired by Congresswoman Helen Chenoweth, in Washington, D.C.

1997 6/16 - Draft EIS completed, approved, and sent to printer for public distribution.

1997 6/15-30 - Dr. Chris Servheen and Laird Robinson brief Idaho and Montana Governors, Legislatures, and Congressional offices regarding DEIS.

1997 7/1 - Draft EIS and DEIS Summaries distributed to public, and available on the Internet, and public review requested during a 90-day public comment period. Public comment period begins July 11 and ran through December 1, 1997 (following two extensions).

1997 7/1 - Endangered Species Act, Proposed Rule 10(j) for Establishment of a Nonessential Experimental Population of Grizzly Bears in the Bitterroot Area of Idaho and Montana published in the Federal Register on July 2. Comment period begins July 11 and runs through December 1.

1997 9/30 - Comment period deadline extended from September 30 to November 1, based on numerous requests for more time to prepare comments.

1997 10/1-8 - Public hearings/open houses to gather public comments on the DEIS and Proposed Special Rule held in seven communities on the perimeter of the Bitterroot area. Approximately 1400 people attended these hearings and 293 individuals testified. The dates and locations for the public hearings were as follows: October 1, 1997: Challis, Idaho and Hamilton, Montana; October 2, 1997: Missoula, Montana and Lewiston, Idaho; October 3, 1997: Boise, Idaho and Helena, Montana; October 8, 1997: Salmon, Idaho.

1997 11/1 - Comment period deadline extended from November 1 to December 1, following a request from a member of the Idaho Congressional delegation.

1997 December 1 - Public Comment period ended.

1998 12/97-3/98 - Content Analysis of public comments on the Draft EIS and Proposed Special Rule. Report entitled, "Summary of Public Comments on the Draft EIS for Grizzly Bear Recovery in the Bitterroot Ecosystem" and Executive Summary Report released to public in April 1998.

1998 4-12 - EIS Team prepares draft Final EIS for internal review. Private contractor prepares Bitterroot Population Viability/Habitat Analysis for Congressionally-mandated study to be included in FEIS. Numerous EIS Team meetings occurred to write/review FEIS. Idaho Fish and Game Department representatives attend 2 meetings to review and comment on Population Viability Analysis. EIS Team members also met numerous times with Craighead Wildlife-Wildlands researchers to coordinate and review Habitat/Bear Foods Study to include in FEIS. Public Affairs Specialist provides numerous briefings and presentations to local politicians, community groups, and media. EIS Team members respond to all requests for

presentations and briefings. EIS Team finalizes formal consultation with NMFS and internal review of USFWS Biological Assessment.

1999 2/99 - Internal USFWS review of draft Final EIS.

1999 4/99 - Incorporate internal comments into a final draft FEIS.

1999 6/99 - Final draft sent for USFWS internal review in Denver Region, Solicitor's Office, and Washington, D.C. Office.

1999 8/99-9/99 - Receive comments from internal reviewers.

1999 9/99 - Dr. Chris Servheen, Johnna Roy, Denver and Portland Region personnel, brief USFWS Director and Washington Office staff on progress with the FEIS. Receive written comments 10/99.

1999 11/99 - Final comments incorporated and FEIS sent to Denver Region and Washington Office for final review and surnaming process.

2000 1/99-2/99 - Final comments incorporated, and FEIS sent to printer.

2000 3/99 - Notice of Availability published in Federal Register, and FEIS released to public for 30-day final review period (March 24 through April 24). Comments will be reviewed, and a Record of Decision will be published and released to the public.

Consultation and Coordination in Development of the EIS

Planning for the reintroduction of grizzly bears into the Bitterroot Ecosystem of central Idaho and western Montana was initiated in 1993, when the agencies of the Interagency Grizzly Bear Committee directed that an EIS be produced. An interagency team (see List of Preparers this chapter) was established during 1995. During preparation of the DEIS, federal, state and local agencies, special interest groups and the public were consulted to obtain descriptive information, identify significant issues and effects and identify effective mitigating measures and reasonable alternatives to the proposal. The first series of seven public meetings was held by the USFWS in July 1995 (see Public Participation section, this chapter). At these meetings the USFWS presented information about the DEIS process and requested the public to identify issues they believed were important to grizzly bear recovery (see Chapter 1 for discussion of issues). A public comment period and hearings to gather public comment were conducted after release of the DEIS. The comment period was open from July 1, 1997 to December 1, 1997 and was extended twice due to public requests. Seven hearings were held in local communities in Idaho and Montana (see Appendix 20 for more information on public comments on the DEIS). Most of the agencies and organizations listed at the end of this "Consultation and Coordination" section were contacted by the USFWS during preparation of the DEIS and FEIS.

Summary of Public Involvement for Draft EIS

Introduction.— This section summarizes the public involvement process (scoping) that was conducted in 1995 to identify issues and alternatives regarding grizzly bear reintroduction into the Bitterroot Ecosystem of central Idaho and western Montana. The formal scoping process identified issues that were raised in the public comments, and also gathered public input on 3 preliminary alternatives suggested by the USFWS. Chapter 1 discusses the significant issues raised during

scoping, and also describes the preliminary alternatives and how public comments shaped the 4 alternatives presented in the DEIS. Further, Appendix 19 contains portions of the report on the results of the content analysis of public comments received during scoping.

Background.— Beginning in 1993, local residents representing a spectrum of opinions on grizzly bear recovery, served on a citizen's involvement group as partners with agency personnel. The citizen's group provided direct input which led to several modifications of the final BE Grizzly Bear Recovery Plan Chapter, which was endorsed by the Interagency Grizzly Bear Committee in 1993. In 1995, the Fish & Wildlife Service continued public involvement and assembled an interdisciplinary team to begin the EIS process. Team members include specialists from the USFWS, USDA Forest Service, Idaho Department of Fish and Game, Montana Department of Fish, Wildlife and Parks, and the Nez Perce Tribe.

Issue and Alternative Scoping.— The USFWS formally began the scoping process on January 9, 1995 with the publication of a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) in the Federal Register (Vol. 60 - No. 5) on pages 2399-2400. The notice was furnished as required by the National Environmental Policy Act (NEPA) Regulations (40 CFR 1501.7) to obtain input from other agencies and the public on the scope of issues to be addressed in the EIS. This NOI asked the public to identify issues that should be addressed in the draft EIS. A few days earlier the USFWS had also issued a news release announcing the beginning of the EIS process and the start of an EIS on grizzly bear recovery in the Bitterroot Ecosystem.

The preliminary issues identified in March 1995 from scoping meetings for the Bitterroot Ecosystem Chapter of the Grizzly Bear Recovery Plan and the Notice of Intent to prepare an EIS were:

- recovery options and legal classification of grizzly bears
- possible restrictions on human uses of public lands
- geographic boundaries for recovery
- location and cost of a reintroduction program
- illegal killing of grizzly bears
- participatory role of citizens in grizzly bear recovery
- concern for human safety
- control of nuisance grizzly bears

Three preliminary alternatives were also identified and published in a Scoping of Issues and Alternatives brochure (Appendix 16). This brochure was sent to 1,100 people and distributed at seven open houses in July, 1995. The scoping brochure detailed the EIS process, provided background information, identified preliminary issues and alternatives, and described the purpose and need of the proposed action.

On June 5, 1995, a notice was published in the Federal Register initiating the formal scoping process with a 45-day comment period. A news release was sent to the print, radio, and television media in

western Montana and Idaho on June 26, 1995 announcing the dates and locations for public open houses. Public issue scoping was initiated by the USFWS by mailing a brochure that detailed the EIS process. It was mailed to 1100 people and distributed at seven open houses. The brochure gave background information, issues and alternatives identified to date, and explained how to become involved in the EIS process. People were asked to identify their issues and alternatives related to grizzly bear recovery in the Bitterroot Ecosystem.

From July 5-11, 1995, seven open houses were held in Boise, Orofino, and Grangeville, Idaho; Hamilton, Helena, and Missoula, Montana; and Salt Lake City, Utah. The open houses started at 4:00 p.m. and lasted until 8:00 p.m. At the open houses, people could watch a 5-minute introductory video about the proposal and talk with representatives of the USFWS, USDA Forest Service, and State Fish and Game agencies about grizzly bears, their recovery, and the EIS process. Those who attended the open houses received copies of the issue and alternative scoping brochure and the question-and-answer booklet. They were encouraged to leave written comments with the agency personnel or mail their comments later. Verbal comments or questions were heard and responded to by the agency representatives, but verbal testimony was not formally recorded.

Approximately 300 people attended the open houses. Written public comments on issues and alternatives were solicited at the open houses and through the media. On July 25, 1995, a notice was published in the Federal Register extending the scoping comment period 30 days (from July 20 to August 21, 1995). This extension was requested by numerous public interests with varied opinions on this complex topic. A July 25 press release was sent to local and national media to announce the extension.

Written comments on the preliminary issues and alternatives were received from more than 3,300 individual organizations and government agencies (Appendix 19 for summary). These comments arrived in over 565 letters, open house meeting notes, six petitions, and six form letters or postcards. A content analysis was performed on the public comments and a report of results prepared. The report, "Summary of Public Comments on the Scoping of Issues and Alternatives for Grizzly Bear Recovery in the Bitterroot Ecosystem" was released to the public and mailed to all people on the mailing list in September 1995. Appendix 19 contains pertinent portions of that report.

Public Review of the Draft EIS

Solicitation of Public Comment on the DEIS.— The Draft EIS was released for public review and comment on July 1, 1997. A Notice of Availability was published in the Federal Register, the DEIS was mailed to the entire mailing list, and copies of the DEIS and Summary of the DEIS were mailed to over 60 local libraries in Idaho and Montana. The DEIS and the Summary of the DEIS were also published on the Service web site at: http://www.r6/fws/gov/endspp/grizzly. A news release announcing the availability of the DEIS and requesting public comment was provided to local and national media contacts (newspaper, television, radio).

Public Hearings.— To provide an opportunity for people to voice their concerns, public hearings/open houses were held during October 1997 to gather public comments on the DEIS. These were held in seven communities on the perimeter of the Bitterroot area. Approximately 1400 people attended these hearings and 293 individuals testified. The dates and locations for the public hearings were as follows: Challis, Idaho and Hamilton, Montana (October 1); Missoula, Montana and Lewiston, Idaho (October 2); Boise, Idaho and Helena, Montana (October 3); and Salmon, Idaho (October 8). Hearings were conducted from 4 p.m. to 8 p.m. and verbal testimony (treated the same as written comments) was recorded and any written comments were accepted. In addition, the Service held meetings with local community, state leaders, and interest groups in communities around the perimeter of the proposed Recovery Area.

Extension of Public Comment Period.— Comments were to be received through September 30. The comment period was extended to November 1 based on numerous requests for more time to prepare responses. The comment period was extended a second time to December 1, 1997 following a request from a member of the Idaho Congressional delegation. A press release announced each extension.

Public Comment on the DEIS.— Comments on the DEIS were received from over 24,000 individuals, organizations, and government agencies. These comments arrived in over 2,660 letters, DEIS summary forms, resolutions, and hearing testimonies. Ten petitions were received with over 21,000 signatures. Fifteen form letters were identified.

An analysis of the public comments on the DEIS was performed by an interagency team of 14 employees from the Service and the USDA Forest Service in December - January 1998. The system used to analyze comments was objective, reliable and traceable. Every comment was given an individual identification number and was coded according to the demographic nature of the response. Substantive comments (positive and negative) on issues or alternatives were coded and entered into a database. A respondent's exact words were used when entering responses into the database. A detailed summary report, "*Summary of Public Comments on the Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem*" and an executive summary report of 24,251 public comments were prepared and released to the public in April 1998 (U.S. Fish and Wildlife Service, 1998). The reports were mailed to the entire mailing list and to all that commented on the DEIS. Issues raised during public comment on the DEIS were similar to the issues identified during public scoping. Appendix 20 contains Chapter 1 - "Introduction" from this report.

Further, all comments from federal, state, and local governments having regulatory authorities, and comments from Native American Tribes are printed in the FEIS. Responses to those comments are also provided in Chapter 5. Due to the volume of response, most letters from individuals and non-governmental agencies are not printed in the FEIS, but 18 letters from the most prominent or most vocal large private organizations, representing the diverse points of view about the proposal, are included and responded to in detail. Issues identified through the analysis of public comments (USFWS 1998) and the USFWS responses are presented in Chapter 5.

LIST OF ORGANIZATIONS AND PERSONS SENT THE DEIS AND FEIS FOR REVIEW

Federal Agencies

Copies of this Draft and Final Environmental Impact Statements (EIS) were provided to federal, state, local agencies, Native American tribes, interest groups and organizations who may be affected by the final decision and the above list of preparers/reviewers.

Due to the voluminous number of people and organizations on the mailing list, copies of the DEIS and FEIS were provided to public libraries in Montana and Idaho, and Salt Lake City, Utah because it was the national location for one of the open house meetings.

Council on Environmental Quality
Information Office

Environmental Protection Agency
Director, Office of Federal Activities

Regional Director, Region 8
Denver, Colorado

Regional Director, Region 10
Seattle, WA

United States Dept. Of Agriculture
Secretary of Agriculture

Animal & Plant Health Inspector Service
Animal Damage Control
Deputy Administrator
Regional Director, Western Region

Extension Office/Information Office

U.S.D.A. Forest Service
Regional Forester, Region 1
Regional Forester, Region 4

United States Dept. Of Interior
Secretary of Interior

Office of the Solicitor

Bureau of Indian Affairs
Office of Director
Area Director, Portland, Oregon

Bureau of Land Management
Office of Director
State Director, Idaho
State Director, Montana

National Park Service
Office of Director

Regional Director
Pacific Northwest Region

Regional Director
Rocky Mountain Region

United States Fish & Wildlife Service
Office of Director
Regional Director, Region 1
Regional Director, Region 6
Ecological Services
State Offices: Boise, Idaho
Helena, Montana

STATE OF IDAHO
Honorable Dirk Kempthorne
Governor

Director
Dept. of Commerce

Director
Dept. of Fish and Game

Director
Dept. of State Lands

Lemhi County Planning & Zoning Comm.
Lemhi County Courthouse

Clearwater County Planning & Zoning Comm.
Clearwater County Courthouse

Idaho County Planning & Zoning Comm.
Idaho County Courthouse

Lewis County Planning & Zoning Comm.
Lewis County Courthouse

President
Idaho State University

President
Lewis and Clark State College

President
North Idaho College

President
University of Idaho

Idaho Grizzly Bear Management
Oversight Committee:
- Ms. Cindy Siddoway
- Mr. Dick Willhite
- Honorable Laird Noh
- Mr. Bob Deurloo
- Mr. John Hatch
- Dr. Jim Peek
- Director Idaho Fish and Game
- Mr. Mike Luque
- Honorable Charles Cuddy

Also on mailing list:
- Honorable Judy Danielson
- Mr. Stan Hamilton
- Honorable Golden Linford
- Honorable Marguerite McLaughlin
- Mr. Grant Simonds
- Mr. Matthew McKeown

STATE OF MONTANA
Honorable Marc Racicot
Governor

Director
Dept. of Commerce

Director
Dept. of Fish, Wildlife & Parks

Director
Dept. of Natural Resources & Conservation

Commissioner
Dept. of State Lands

Director
Montana Dept. of Agriculture

Montana State Library
U.S. & Senate Documents Dept.

President
Montana State University

President
University of Montana

Provost
Western Montana College

Native American Tribes

Elected Officials

Chairman
Nez Perce Tribal Executive Council
Lapwai, Idaho

Chairman
Coeur d'Alene Tribal Council
Plummer, Idaho

Chairman
Confederated Salish & Kootenai Tribes
Pablo, Montana

Federal Elected Officials

Honorable Larry Craig
U.S. Senate, Idaho

Honorable Michael Crapo
U.S. Senate, Idaho

Honorable Mike Simpson
U.S. House of Representatives, Idaho

Honorable Helen Chenoweth
U.S. House of Representatives, Idaho

Honorable Max Baucus
U.S. Senate, Montana

Honorable Conrad Burns
U.S. Senate, Montana

Honorable Rick Hill
U.S. House of Representatives, Montana

Local Elected Officials

Board of County Commissioners
Blaine County, Idaho

Board of County Commissioners
Boise County, Idaho

Board of County Commissioners
Camas County, Idaho

Board of County Commissioners
Clearwater County, Idaho

Board of County Commissioners
Custer County, Idaho

Board of County Commissioners
Elmore County, Idaho

Board of County Commissioners
Idaho County, Idaho

Board of County Commissioners
Lemhi County, Idaho

Board of County Commissioners
Lewis County, Idaho

Board of County Commissioners
Shoshone County, Idaho

Board of County Commissioners
Valley County, Idaho

Board of County Commissioners
Missoula County, Montana

Board of County Commissioners
Mineral County, Montana

Board of County Commissioners
Ravalli County, Montana

Board of County Commissioners
Sanders County, Montana

Businesses and Organizations

American Farm Bureau Federation
Washington, D.C.

American Sheep Industry
Englewood, Colorado

Associated Press
Boise, Idaho

Fishing and Hunting News - Editor
Seattle, Washington

Executive Director
Friends of the Earth
Washington, D.C.

Backcountry Horsemen of Idaho
Salmon, Idaho

Backcountry Horsemen of Montana
Helena, Montana

Blue Ribbon Coalition
Idaho Falls, Idaho

Chamber of Commerce
Ketchum-Sun Valley
Sun Valley, Idaho

Defenders of Wildlife
Rocky Mountain Region
Missoula, Montana

Earth First!
Bozeman, Montana

Environmental Defense Fund
Washington, D.C.

Environmental Defense Fund
Rocky Mountain Office
Boulder, Colorado

Executive Director
Gem State Hunters Assoc.
Homedale, Idaho

Greater Yellowstone Coalition
Bozeman, Montana

Publisher
High Country News
Paonia, Colorado

Humane Society of the U.S.
Washington, D.C.

Idaho Cattle Association
Boise, Idaho

Executive Vice President
Idaho Cattle Association
Boise, Idaho

Idaho Conservation League
Sun Valley, Idaho

President
Idaho Farm Bureau
Boise, Idaho

Idaho Field Archery Association
Orofino, Idaho

President
Idaho Hunters Association
Homedale, Idaho

President
Idaho Outfitters & Guides Assoc.
Boise, Idaho

Idaho Outfitters & Guides License Board
Boise, Idaho

Idaho State Rifle & Pistol Assoc.
Meridian, Idaho

Idaho Woolgrowers Assoc.
Boise, Idaho

Institute for Tourism & Recreation Research
University of Montana

Intl. Assoc. of Fish & Wildlife Agencies
Washington, D.C.

Lewiston Morning Tribune
Lewiston, Idaho

Director
Montana Department of Agriculture

Montana Farm Bureau

Montana Farmer Stockman

Montana Farmers Union

Montana Guides & Outfitters

Executive Vice President
Montana Stock Growers Assoc.

President
Montana Wildlife Federation

Montana Wool Growers Association

National Audubon Society
Washington D.C.

National Audubon Society
Rocky Mountain Regional Office
Boulder, Colorado

National Fish & Wildlife Foundation
Washington, D.C.

National Parks & Conservation
Rocky Mountain Regional Director
Salt Lake City, Utah

National Trappers Association, Inc.
Bloomington, Illinois

National Wildlife Federation
Washington, D.C.

Executive Director
National Wildlife Federation
Central Rocky Mountain Region
Boulder, Colorado

Native American Fish & Wildlife Society
Broomfield, Colorado

Natural Resources Council of America
Washington, D.C.

The Nature Conservancy
Arlington, Virginia

The Nature Conservancy
Big Sky Director, Montana

Nature Conservancy
Silver Creek Preservation
Picabo, Idaho

North American Wild Sheep Foundation
Boise, Idaho

Northern Rockies Conservation Cooperative
Jackson, Wyoming

Post Register
Idaho Falls, Idaho

Public Land Associates, Inc.
Bozeman, Montana

President
Putting People First
Washington, D.C.

Executive Director
Rocky Mountain Elk Foundation
Missoula, Montana

Rocky Mountain News
Denver, Colorado

The Wilderness Society
Washington, D.C.

The Wilderness Society
Northern Rockies Regional Office
Bozeman, Montana

Publications Director
Wildlife Management Institute
Washington, D.C.

Chairman
Wildlife Program Environ. Defense Fund
Washington, D.C.

The Wildlife Society
Bethesda, Maryland

The Wildlife Society
Idaho Chapter
Boise, Idaho

The Wildlife Society
Northwest Section
Boise, Idaho

President
World Wildlife Fund
Washington, D.C.

Because of the voluminous number of people and organizations on the mailing list, not all are listed. A complete list of names (addresses may not be released) is available upon request from the U. S. Fish & Wildlife Service.

DEIS Comments and Responses

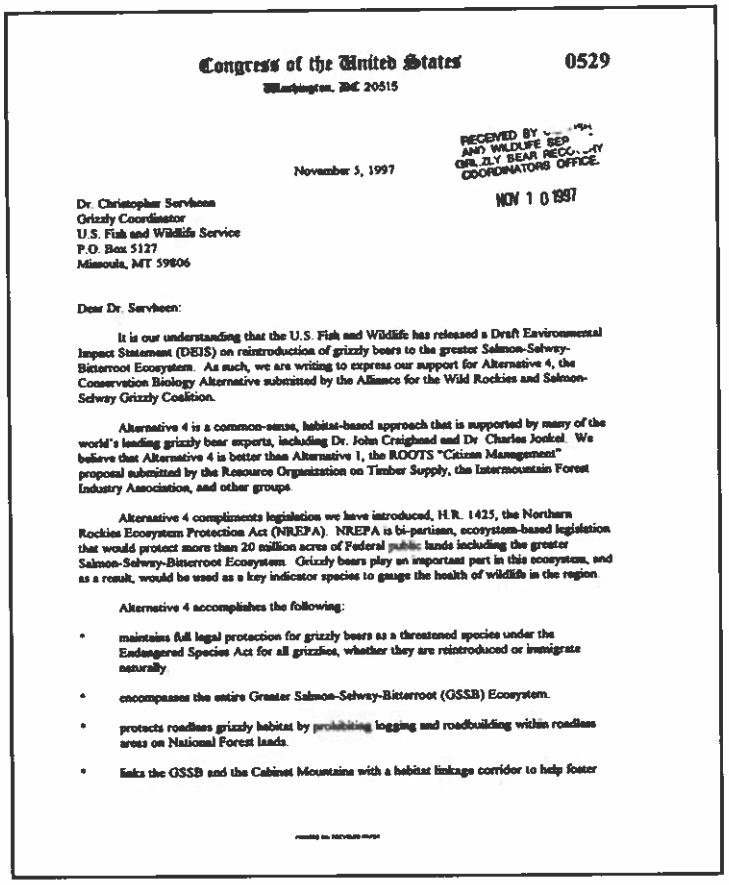
Introduction

Public review of the Draft EIS was extensive. Comments on the DEIS were received from over 24,000 individuals, organizations, and government agencies. These comments arrived in over 2,660 letters, DEIS summary forms, resolutions, and hearing testimonies. Ten petitions were received with over 21,000 signatures. Fifteen form letters were identified. The great bulk of the public comments received were directed at registering opposition to or support to the reintroduction of grizzly bears into the Bitterroot Ecosystem. Many comments were essentially votes, and contained a statement of opinion and were not substantive input to correct or improve the content of the EIS or proposal. Comments that provided substantive input to environmental issues or alternatives to toward improvement of the EIS were in the minority.

Publishing all of this comment was unreasonable due to the large volume and unspecific nature of much of the content in the letters and cards. Therefore, if became necessary to reduce the size of the FEIS. All public comments are, however, on file and open to the public at the USFWS Grizzly Bear Recovery Office in Missoula, Montana.

The letters published in Chapter 5 of the FEIS are the letters and responses to federal, state, local governments, Indian tribal organizations, and all agencies authorized to develop and enforce environmental standards [NEPA 102(2)(c)]. All of the extensive material and comments from individuals and organizations not published in the FEIS were reviewed during the content analysis process for major issues. Those issues are described and responded to in the section that follows the agency letters. Many issues are not environmental but are responded to anyway.

In addition, 18 letters from the most prominent and/or vocal large private organizations representing the diverse points of view and concerns about the proposal are included and responded to in detail as representative examples of the commentary and issues raised by the public at large on both sides of the issue. All other letters are available to the public at the location mentioned previously. Only in this way could the FEIS be kept to a reasonable size and be responsive to CEQ Rules of reducing unnecessary paperwork (sec. 1500.4(c) CEQ Regulations).



Congress of the United States 0529
Washington, DC 20515

RECEIVED BY ... AND WILDLIFE SER... GRIZZLY BEAR RECO... COORDINATORS OFFICE.
NOV 10 1997

November 5, 1997

Dr. Christopher Servheen
Grizzly Coordinator
U.S. Fish and Wildlife Service
P.O. Box 5127
Missoula, MT 59806

Dear Dr. Servheen:

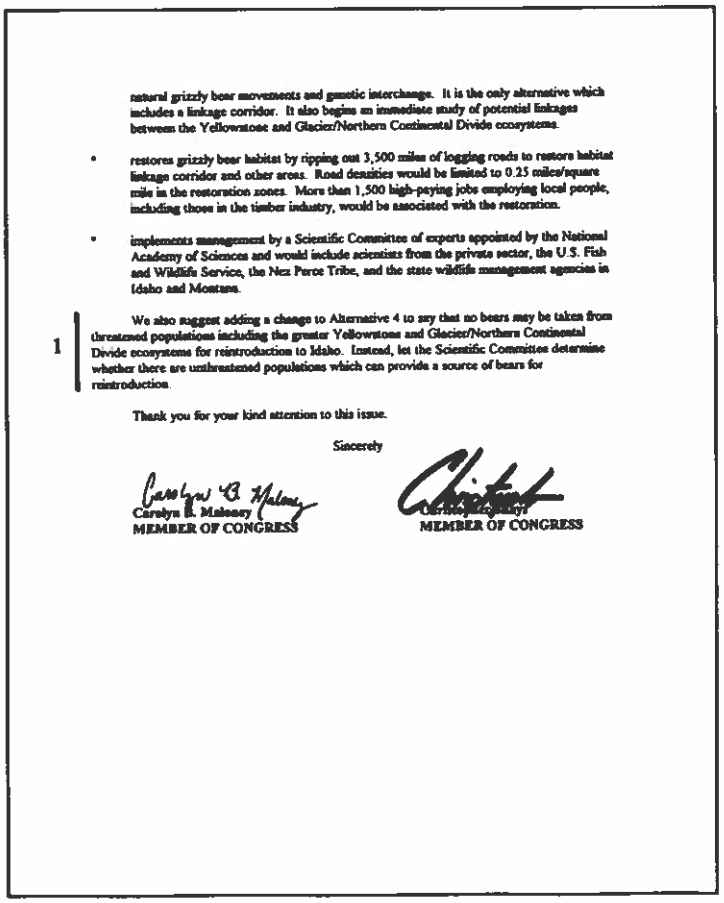
It is our understanding that the U.S. Fish and Wildlife has released a Draft Environmental Impact Statement (DEIS) on reintroduction of grizzly bears to the greater Salmon-Selway-Bitterroot Ecosystem. As such, we are writing to express our support for Alternative 4, the Conservation Biology Alternative submitted by the Alliance for the Wild Rockies and Salmon-Selway Grizzly Coalition.

Alternative 4 is a common-sense, habitat-based approach that is supported by many of the world's leading grizzly bear experts, including Dr. John Craighead and Dr. Charles Jonkel. We believe that Alternative 4 is better than Alternative 1, the ROOTS "Citizen Management" proposal submitted by the Resource Organization on Timber Supply, the Intermountain Forest Industry Association, and other groups.

Alternative 4 compliments legislation we have introduced, H.R. 1425, the Northern Rockies Ecosystem Protection Act (NREPA). NREPA is bi-partisan, ecosystem-based legislation that would protect more than 20 million acres of Federal public lands including the greater Salmon-Selway-Bitterroot Ecosystem. Grizzly bears play an important part in this ecosystem, and as a result, would be used as a key indicator species to gauge the health of wildlife in the region.

Alternative 4 accomplishes the following:

- maintains full legal protection for grizzly bears as a threatened species under the Endangered Species Act for all grizzlies, whether they are reintroduced or immigrate naturally.
- encompasses the entire Greater Salmon-Selway-Bitterroot (GSSB) Ecosystem.
- protects roadless grizzly habitat by prohibiting logging and roadbuilding within roadless areas on National Forest lands.
- links the GSSB and the Cabinet Mountains with a habitat linkage corridor to help foster



natural grizzly bear movements and genetic interchange. It is the only alternative which includes a linkage corridor. It also begins an immediate study of potential linkages between the Yellowstone and Glacier/Northern Continental Divide ecosystems.

- restores grizzly bear habitat by ripping out 3,500 miles of logging roads to restore habitat linkage corridor and other areas. Road densities would be limited to 0.25 miles/square mile in the restoration zones. More than 1,500 high-paying jobs employing local people, including those in the timber industry, would be associated with the restoration.
- implements management by a Scientific Committee of experts appointed by the National Academy of Sciences and would include scientists from the private sector, the U.S. Fish and Wildlife Service, the Nez Perce Tribe, and the state wildlife management agencies in Idaho and Montana.

1 We also suggest adding a change to Alternative 4 to say that no bears may be taken from threatened populations including the greater Yellowstone and Glacier/Northern Continental Divide ecosystems for reintroduction to Idaho. Instead, let the Scientific Committee determine whether there are unthreatened populations which can provide a source of bears for reintroduction.

Thank you for your kind attention to this issue.

Sincerely

Carolyn B. Maloney
MEMBER OF CONGRESS

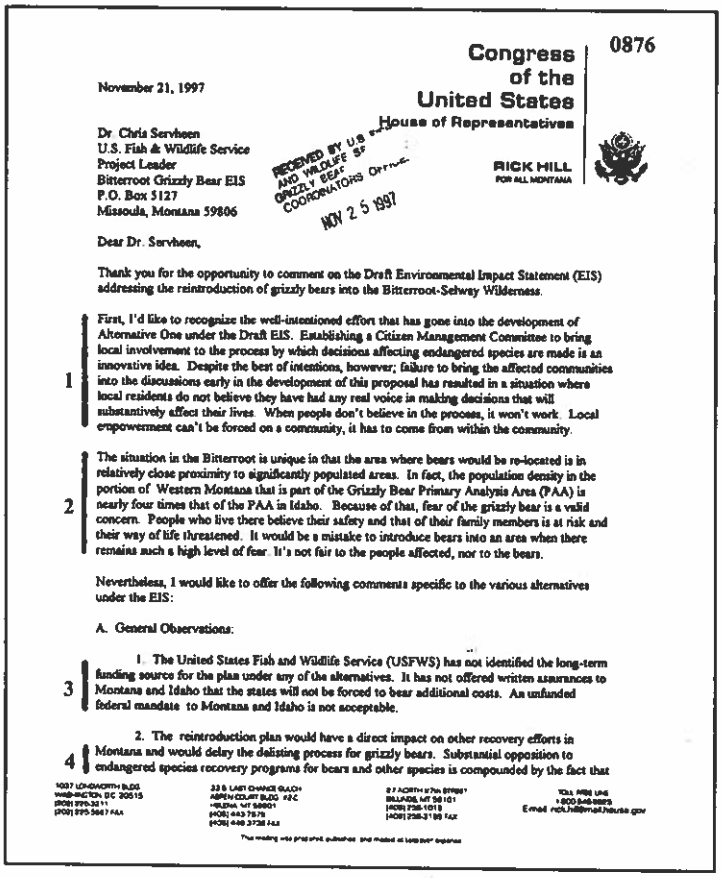
MEMBER OF CONGRESS

Federal, Congressmen Carolyn B. Maloney and Christopher Shays: #529

1. Thank you for your comments supporting Grizzly Bear Recovery in the Bitterroot Ecosystem. Populations of grizzly bears in the Greater Yellowstone and North Continental Divide Ecosystems are recovering to the extent that their populations are expanding outside of the recovery zones. Grizzly bears taken from outside of the established recovery zone boundaries in the Yellowstone and Northern Continental Divide Ecosystems will not be counted as part of the mortality quota. In addition, the delisting of the Yellowstone Population is proceeding.

Contribution of bears from either ecosystem will be based on the current mortality levels for that ecosystem. Mortality data are updated annually and any removal of bears from either ecosystem will be predicated on achievement of the mortality limits. Since these data are updated each year, it is necessary to recalculate mortality levels for both the NCDE and YE prior to making a decision on the origin of any relocated bears. The specific number of grizzly bears that can be obtained from the NCDE or YE is unknown at this time. The female contribution will be designed to minimize impacts on the source population and no female grizzly bears will be removed from within the NCDE or YE recovery zone boundary or from within 10 miles outside the boundary. The male contribution can be a higher number because population increase is affected little by removal of subadult males. Since no bears will be removed from the YE or NCDE if the mortality limits will be exceeded, and no female bears will be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE will be nonexistent.

Your comment is noted and declined since sufficient explanation about the minimal impact of removal of bears from the Northern Continental Divide or Yellowstone Ecosystems, and the cautions that would be used prior to any such removals are already present in the FEIS. The requested additions will not be added as the description of Alternative 4 is sufficient to represent the intent of the alternative.



0876

Congress of the United States
House of Representatives

November 21, 1997

Dr. Chris Servheen
U.S. Fish & Wildlife Service
Project Leader
Bitterroot Grizzly Bear EIS
P.O. Box 3127
Missoula, Montana 59806

RECEIVED BY U.S. F&W
AND WILDLIFE SP
GRIZZLY BEAR
COORDINATORS OFFICE
NOV 25 1997

RICK HILL
FOR ALL MONTANA

Dear Dr. Servheen,

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (EIS) addressing the reintroduction of grizzly bears into the Bitterroot-Selway Wilderness.

1 First, I'd like to recognize the well-intentioned effort that has gone into the development of Alternative One under the Draft EIS. Establishing a Citizen Management Committee to bring local involvement to the process by which decisions affecting endangered species are made is an innovative idea. Despite the best of intentions, however; failure to bring the affected communities into the discussions early in the development of this proposal has resulted in a situation where local residents do not believe they have had any real voice in making decisions that will substantively affect their lives. When people don't believe in the process, it won't work. Local empowerment can't be forced on a community, it has to come from within the community.

2 The situation in the Bitterroot is unique in that the area where bears would be re-located is in relatively close proximity to significantly populated areas. In fact, the population density in the portion of Western Montana that is part of the Grizzly Bear Primary Analysis Area (PAA) is nearly four times that of the PAA in Idaho. Because of that, fear of the grizzly bear is a valid concern. People who live there believe their safety and that of their family members is at risk and their way of life threatened. It would be a mistake to introduce bears into an area when there remains such a high level of fear. It's not fair to the people affected, nor to the bears.

Nevertheless, I would like to offer the following comments specific to the various alternatives under the EIS:

A. General Observations:

3 1. The United States Fish and Wildlife Service (USFWS) has not identified the long-term funding source for the plan under any of the alternatives. It has not offered written assurances to Montana and Idaho that the states will not be forced to bear additional costs. An unfunded federal mandate to Montana and Idaho is not acceptable.

4 2. The reintroduction plan would have a direct impact on other recovery efforts in Montana and would delay the delisting process for grizzly bears. Substantial opposition to endangered species recovery programs for bears and other species is compounded by the fact that

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(202) 225-5687 FAX

33 E. LAST CHANCE GULCH
ASPEN COURT BLDG. #2C
HELENA, MT 59601
(406) 443-7878
(406) 449-5738 FAX

27 NORTH 27th STREET
BILLINGS, MT 59101
(406) 256-1015
(406) 256-3195 FAX

TOLL FREE LINE
1-800-848-8825
E-mail: rick.hill@mail.house.gov

This mailing was prepared, published, and mailed at taxpayer expense

the USFWS keeps moving the goal posts.

5 3. USFWS has not conducted a complete analysis of the economic and social impacts of the various alternatives. That is a serious omission and makes it difficult to accurately determine the consequences of the agency's actions. That inadequacy will subject the entire process, regardless of alternatives, to challenges.

B. Alternative One:

6 1. This alternative proposes a potentially unique approach to the management of a listed species. However, because the Secretary of Interior is unable to grant sufficient authority to the Citizens' Management Committee under current law, USFWS cannot guarantee the objectives of citizen management will be realized with regard to reintroduction and management of grizzly bears.

7 2. Because 38% of the PAA in Western Montana involves private property, reintroduction of grizzly bears will increase livestock predation and other incursions on private property. There is no assurance to landowners that USFWS will be able to respond to such incidents in a timely manner. There is also insufficient information regarding the authority and role of the proposed Citizens' Management Committee as it relates to establishing protocols that allow landowners to respond.

8 3. Reintroduction would also create a public safety hazard for recreationalists and residents. While the special rule would allow a person to take a grizzly bear in self defense or in the defense of others if it is reported within 24 hours, the rule does not specify a clear standard that can be employed to determine conditions upon which citizens can rely to protect themselves and family members from grizzly bears even on their own property. The agency has not resolved concerns that the burden of proof will fall on individuals to demonstrate they did not act inappropriately should an encounter lead to the killing of a bear. The agency has not identified any added protections that will accrue from the experimental, nonessential designation, nor has it clarified the role and authority of the CMA in making those determinations.

9 4. The USFWS has not provided sufficient assurances governing the circumstances under which the Secretary of Interior can withdraw management responsibility from the Citizen Management Committee. The threat of arbitrary challenges would diminish the ability of the CMA to do its work.

5. The proposed recovery area boundaries are far too close to residential and agricultural areas.

C. Alternative Two:

10 1. Allowing for natural recovery best responds to public concerns regarding the potential for an accelerated increase in the grizzly bear population to result in a higher incidence of human/grizzly encounters on both public and private lands than would normally occur. Local

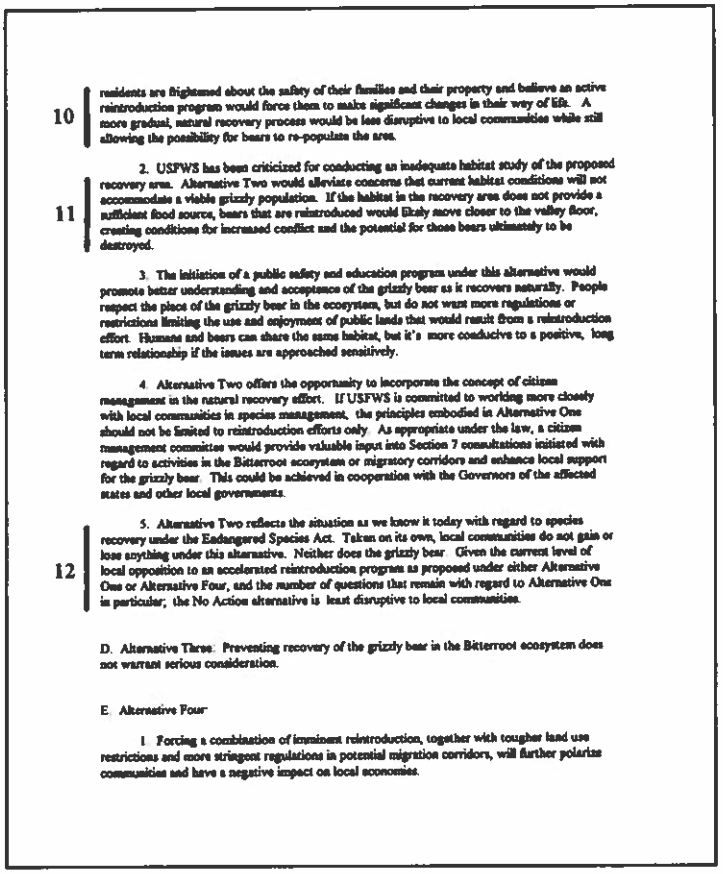
Federal, Congressman Rick Hill (Montana): #876

1. There were efforts by the conservationists and industry folks who crafted the Citizen Management Committee (CMC) concept to engage affected communities into the process early on but, for the most part, these efforts were rejected. We must agree with you that when people aren't part of the process in the beginning they don't believe in the process. We also totally agree that local empowerment can't be forced on a community, it has to come from within the community.

2. While it is true that grizzly distribution is related to food, distribution is also directly related to habitat security. Most grizzly bears will avoid areas of human activity and we expect this to be the case with any bears placed in the Bitterroot Ecosystem (BE). An example is the results of the placement of 4 grizzly bears in the Cabinet Mountains of northwest Montana. This area has high human population density within a closer distance than the BE wilderness reintroduction areas, but not one of these bears ever came into any type of conflict on private lands nor had any conflict of any kind with people in the release area. We expect that grizzly distribution will be related to the distribution of both food and security. Bears that occupy areas of human habitation will be subject to management action and removal. More specifically, under Alternative 1, grizzly bear occupancy will be discouraged on private lands outside the national forest boundaries in the Bitterroot Valley, Montana. If a grizzly bear enters these areas, the public will be notified and updated until the bear is removed.

3. Communications between the Director of the USFWS and the Governor of Montana are ongoing on this matter (Appendix 24). Because budgets are established by congress on a year-to-year basis it is not realistic to identify long term funding. The DEIS outlined expected costs of managing and monitoring the reintroduced grizzly bears. These costs would be provided to Montana and Idaho by USFWS should they choose to accept management responsibility. If the state of Idaho chooses not to accept management responsibility for grizzly bears, these USFWS funds will be used to manage and monitor the bears without state of Idaho involvement.

4. The reintroduction of grizzly bears to the BE has not been decided and will not delay the delisting process for the YE. If the decision on recovery of grizzly bears in the BE is to reintroduce, it will not have an impact on other recovery efforts in Montana.



residents are frightened about the safety of their families and their property and believe an active
10 reintroduction program would force them to make significant changes in their way of life. A more gradual, natural recovery process would be less disruptive to local communities while still allowing the possibility for bears to re-populate the area.

2. USFWS has been criticized for conducting an inadequate habitat study of the proposed recovery area. Alternative Two would alleviate concerns that current habitat conditions will not
11 accommodate a viable grizzly population. If the habitat in the recovery area does not provide a sufficient food source, bears that are reintroduced would likely move closer to the valley floor, creating conditions for increased conflict and the potential for those bears ultimately to be destroyed.

3. The initiation of a public safety and education program under this alternative would promote better understanding and acceptance of the grizzly bear as it recovers naturally. People respect the place of the grizzly bear in the ecosystem, but do not want more regulations or restrictions limiting the use and enjoyment of public lands that would result from a reintroduction effort. Humans and bears can share the same habitat, but it's more conducive to a positive, long term relationship if the issues are approached sensitively.

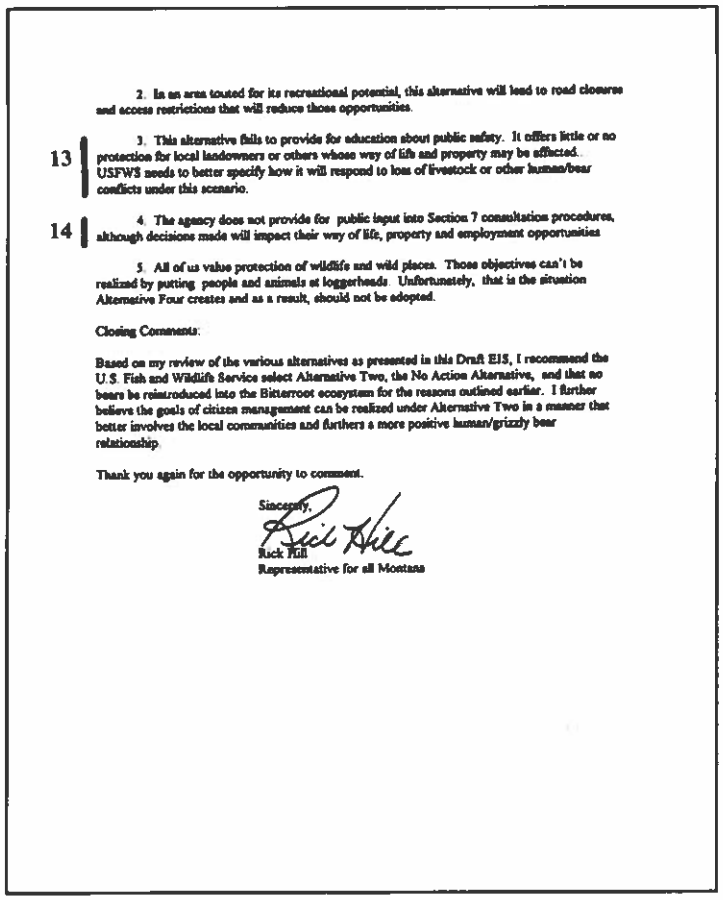
4. Alternative Two offers the opportunity to incorporate the concept of citizen management in the natural recovery effort. If USFWS is committed to working more closely with local communities in species management, the principles embodied in Alternative One should not be limited to reintroduction efforts only. As appropriate under the law, a citizen management committee would provide valuable input into Section 7 consultations initiated with regard to activities in the Bitterroot ecosystem or migratory corridors and enhance local support for the grizzly bear. This could be achieved in cooperation with the Governors of the affected states and other local governments.

5. Alternative Two reflects the situation as we know it today with regard to species
12 recovery under the Endangered Species Act. Taken on its own, local communities do not gain or lose anything under this alternative. Neither does the grizzly bear. Given the current level of local opposition to an accelerated reintroduction program as proposed under either Alternative One or Alternative Four, and the number of questions that remain with regard to Alternative One in particular, the No Action alternative is least disruptive to local communities.

D. Alternative Three: Preventing recovery of the grizzly bear in the Bitterroot ecosystem does not warrant serious consideration.

E. Alternative Four

1. Forcing a combination of imminent reintroduction, together with tougher land use restrictions and more stringent regulations in potential migration corridors, will further polarize communities and have a negative impact on local economies.



2. In an area touted for its recreational potential, this alternative will lead to road closures and access restrictions that will reduce those opportunities.

3. This alternative fails to provide for education about public safety. It offers little or no
13 protection for local landowners or others whose way of life and property may be affected. USFWS needs to better specify how it will respond to loss of livestock or other human/bear conflicts under this scenario.

14 4. The agency does not provide for public input into Section 7 consultation procedures, although decisions made will impact their way of life, property and employment opportunities

5. All of us value protection of wildlife and wild places. Those objectives can't be realized by putting people and animals at loggerheads. Unfortunately, that is the situation Alternative Four creates and as a result, should not be adopted.

Closing Comments:

Based on my review of the various alternatives as presented in this Draft EIS, I recommend the U.S. Fish and Wildlife Service select Alternative Two, the No Action Alternative, and that no bears be reintroduced into the Bitterroot ecosystem for the reasons outlined earlier. I further believe the goals of citizen management can be realized under Alternative Two in a manner that better involves the local communities and furthers a more positive human/grizzly bear relationship.

Thank you again for the opportunity to comment.

Sincerely,

Rick Hill

Rick Hill
Representative for all Montana

5. The economics discussion has been expanded and reorganized in the Final EIS to address the concerns of the relationship between the estimated existence values and money spent in the local communities, and the questions of the validity and usefulness of the value estimates. Given the size of the Primary Analysis Area, it is cost prohibitive to analyze social impacts to a more detailed level than is provided in the FEIS.

6. The Secretary of the Interior, in consultation with the Governors of Idaho and Montana would authorize a Citizen Management Committee. This committee would implement the Bitterroot Chapter of the Grizzly Bear Recovery Plan and would be authorized management implementation responsibility by the Secretary of the Interior. The Endangered Species Act of 1973, Section 4 (F)(2) states that, "The Secretary (of the Interior), in developing and implementing recovery plans, may procure the services of appropriate public and private agencies and institutions, and other qualified persons."

7. A small portion of the Experimental Area extends over the crest of the Bitterroot mountains into Western Montana. Unless the CMC determines otherwise, private lands outside the National Forest Boundary in the Bitterroot Valley would be an area where any human-grizzly bear conflicts would be considered significant. Grizzly bear occupancy would be discouraged in these areas and grizzly bears would be captured, destroyed, or returned to the recovery area. The USFWS would work with State and Federal agency partners to respond to incidents. The Special Rule and Nuisance Bear Guidelines (Appendix 15) will establish protocols that allow landowners to respond to incidents.

8. Self defense or defense of others is a clear standard in the law, and there is significant case law relating to this in court records. See Chapter 2, Alternative 1 and Appendix 12 for protections under experimental nonessential designation. Alternative 1 has been revised to clarify the role of the CMC.

9. The preferred alternative (Alternative 1) has been modified to include a Scientific Review Panel of 3 appointed by the Governors of Idaho and Montana and the Secretary to attempt to resolve conflicts between the Secretary and CMC over actions or decisions of the CMC. The Panel would review information pertinent to the conflict, and make recommendations to the CMC as to whether their actions are in compliance with the Special Rule and are leading to grizzly bear recovery. If the recommendations are not accepted by the CMC and the conflict continues, the Secretary would review the recommendations. If the Secretary decides to proceed, he/she must also confer with the two Governors before resuming management

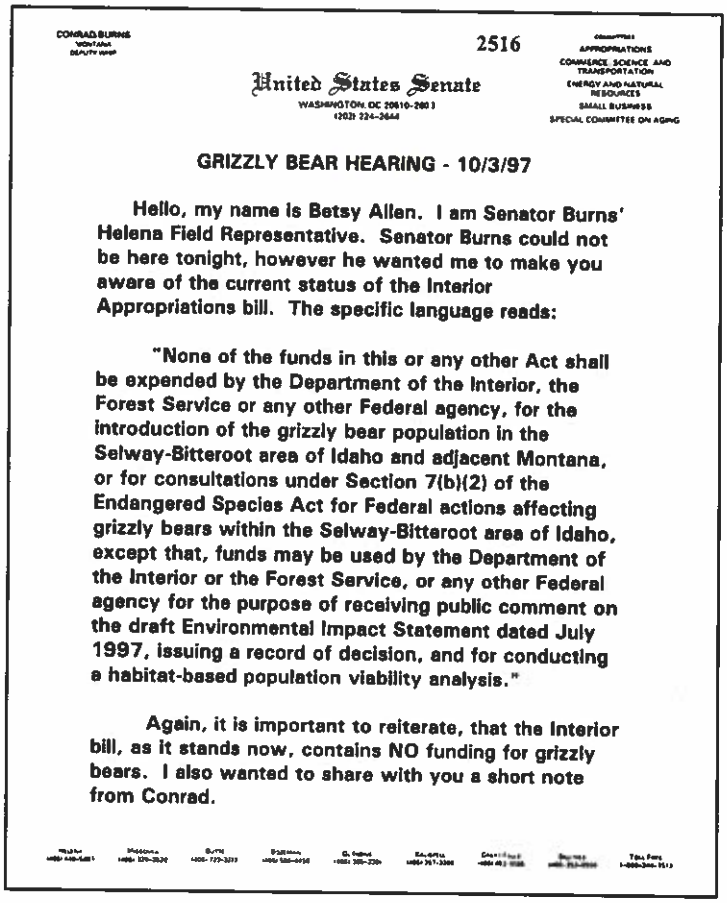
responsibility. We do not feel arbitrary challenges would occur because it is to the benefit of the Secretary of the Interior for the CMC to be successful.

10. Under the Natural Recovery Alternative, there is only a remote likelihood that recovery of grizzly bears in the BE would occur through natural recolonization because grizzly bears do not readily colonize distant, disjunct areas such as the BE.

11. Habitat quality has been studied extensively (see Appendix 3). Also, the USFWS contracted further habitat studies, as directed by Congress, during preparation of the FEIS. Appendix 21 presents four papers that address habitat quality and capability for supporting a viable population of grizzly bears in the BE.

12. Under alternative 2, the likelihood of natural recolonization of grizzly bears in the BE appears remote. If recovery occurs, it could take 100-160+ years. If status quo continues, and no grizzly bears recolonize, then grizzly bear recovery in the lower 48 states would be negatively affected, and local communities would not benefit from the presence of this rare and magnificent species in the BE.

13. and 14. The USFWS considered but does not support Alternative 4.



CONRAD BURNS
MONTANA
DEPUTY WHIP

2516

United States Senate
WASHINGTON, DC 20510-2603
(202) 224-2644

APPROPRIATIONS
COMMERCE, SCIENCE AND TRANSPORTATION
ENERGY AND NATURAL RESOURCES
SMALL BUSINESS
SPECIAL COMMITTEE ON AGING

GRIZZLY BEAR HEARING - 10/3/97

Hello, my name is Betsy Allen. I am Senator Burns' Helena Field Representative. Senator Burns could not be here tonight, however he wanted me to make you aware of the current status of the Interior Appropriations bill. The specific language reads:

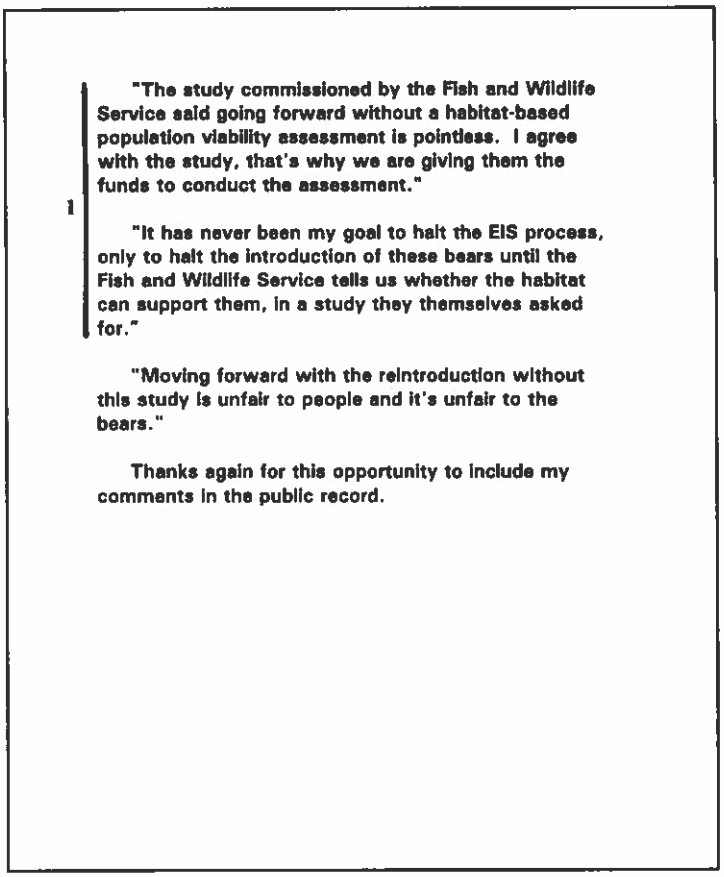
"None of the funds in this or any other Act shall be expended by the Department of the Interior, the Forest Service or any other Federal agency, for the introduction of the grizzly bear population in the Selway-Bitteroot area of Idaho and adjacent Montana, or for consultations under Section 7(b)(2) of the Endangered Species Act for Federal actions affecting grizzly bears within the Selway-Bitteroot area of Idaho, except that, funds may be used by the Department of the Interior or the Forest Service, or any other Federal agency for the purpose of receiving public comment on the draft Environmental Impact Statement dated July 1997, issuing a record of decision, and for conducting a habitat-based population viability analysis."

Again, it is important to reiterate, that the Interior bill, as it stands now, contains NO funding for grizzly bears. I also wanted to share with you a short note from Conrad.

Federal, Senator Conrad Burns (Montana): Hearing Testimony #2516

1. Following the National Environmental Policy Act (NEPA), the USFWS prepared a DEIS for public review and comment. The habitat quality of the BE has been studied extensively by Scaggs (1979), Butterfield and Almack (1985), Davis and Butterfield (1991) and Merrill et al. (1999). All four of these studies concluded that the BE contains suitable habitat essential to the maintenance of a grizzly bear population.

The USFWS has completed a habitat-based population viability assessment of the BE, and it is included as Appendix 21 in the FEIS. This assessment indicates the habitat in the BE is capable of supporting a population of 308-321 grizzly bears. This number is 10-15% higher than the USFWS recovery goal estimate because further evaluation of the habitats in the southern portion of the Ecosystem indicate that even though the forb and berry production in these dry habitats is relatively low, the southern half of the Bitterroot Ecosystem contains substantial stands of whitebark pine as well as



"The study commissioned by the Fish and Wildlife Service said going forward without a habitat-based population viability assessment is pointless. I agree with the study, that's why we are giving them the funds to conduct the assessment."

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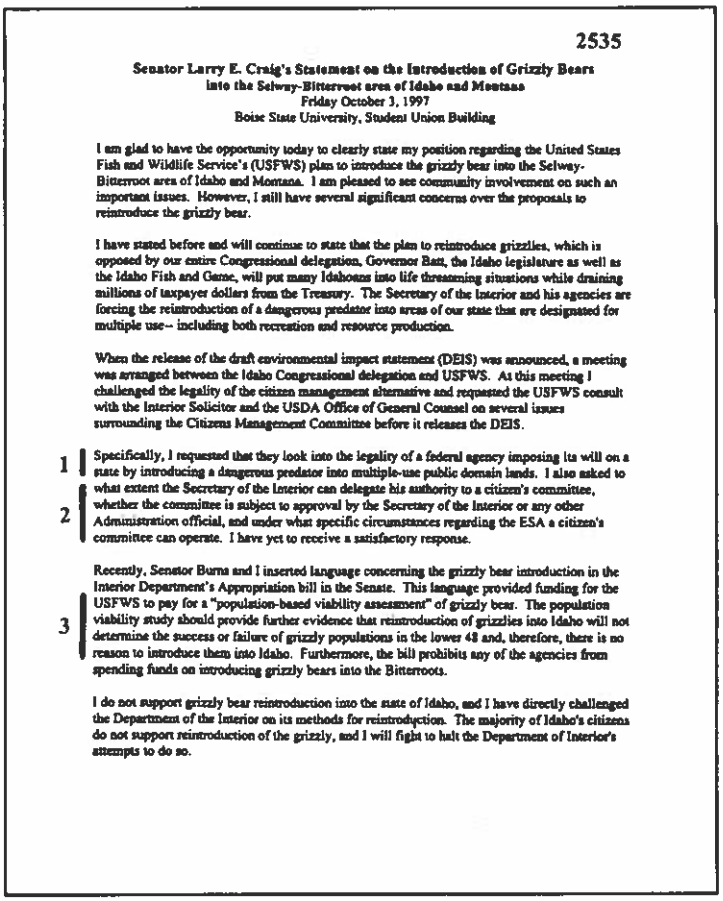
"It has never been my goal to halt the EIS process, only to halt the introduction of these bears until the Fish and Wildlife Service tells us whether the habitat can support them, in a study they themselves asked for."

"Moving forward with the reintroduction without this study is unfair to people and it's unfair to the bears."

Thanks again for this opportunity to include my comments in the public record.

populations of elk and deer that can provide food for grizzly bears. Further, the remoteness of the area and the paucity of roads will help to ensure that a viable population of grizzly bears can persist in the Bitterroot Ecosystem of Idaho and Montana. Appendix 21D presents data on presence of a variety of grizzly bear foods in the BE. In summary, these assessments provide the best scientific information available to indicate the habitats in the BE are capable of supporting a viable population of grizzly bears.

Following the NEPA process, the USFWS did not consider or find it possible to reintroduce grizzly bears into the BE in fiscal year 1998. A record of decision is not projected to be prepared until spring 2000.



2535

Senator Larry E. Craig's Statement on the Introduction of Grizzly Bears into the Selway-Bitterroot area of Idaho and Montana
Friday October 3, 1997
Boise State University, Student Union Building

I am glad to have the opportunity today to clearly state my position regarding the United States Fish and Wildlife Service's (USFWS) plan to introduce the grizzly bear into the Selway-Bitterroot area of Idaho and Montana. I am pleased to see community involvement on such an important issues. However, I still have several significant concerns over the proposals to reintroduce the grizzly bear.

I have stated before and will continue to state that the plan to reintroduce grizzlies, which is opposed by our entire Congressional delegation, Governor Batt, the Idaho legislature as well as the Idaho Fish and Game, will put many Idahoans into life threatening situations while draining millions of taxpayer dollars from the Treasury. The Secretary of the Interior and his agencies are forcing the reintroduction of a dangerous predator into areas of our state that are designated for multiple use-- including both recreation and resource production.

When the release of the draft environmental impact statement (DEIS) was announced, a meeting was arranged between the Idaho Congressional delegation and USFWS. At this meeting I challenged the legality of the citizen management alternative and requested the USFWS consult with the Interior Solicitor and the USDA Office of General Counsel on several issues surrounding the Citizens Management Committee before it releases the DEIS.

1 Specifically, I requested that they look into the legality of a federal agency imposing its will on a state by introducing a dangerous predator into multiple-use public domain lands. I also asked to

2 what extent the Secretary of the Interior can delegate his authority to a citizen's committee, whether the committee is subject to approval by the Secretary of the Interior or any other Administration official, and under what specific circumstances regarding the ESA a citizen's committee can operate. I have yet to receive a satisfactory response.

Recently, Senator Burns and I inserted language concerning the grizzly bear introduction in the Interior Department's Appropriation bill in the Senate. This language provided funding for the USFWS to pay for a "population-based viability assessment" of grizzly bear. The population

3 viability study should provide further evidence that reintroduction of grizzlies into Idaho will not determine the success or failure of grizzly populations in the lower 48 and, therefore, there is no reason to introduce them into Idaho. Furthermore, the bill prohibits any of the agencies from spending funds on introducing grizzly bears into the Bitterroots.

I do not support grizzly bear reintroduction into the state of Idaho, and I have directly challenged the Department of the Interior on its methods for reintroduction. The majority of Idaho's citizens do not support reintroduction of the grizzly, and I will fight to halt the Department of Interior's attempts to do so.

Federal, Senator Larry Craig (Idaho): Hearing Testimony #2535

1. The U.S. Fish and Wildlife Service is by no means imposing its will on a state. The States have been involved with project scoping, public meetings, habitat assessment, recovery planning, and a host of other Bitterroot issues during the last 10+ years. The Grizzly Bear Recovery Plan (USFWS 1982) called for evaluation of the Bitterroot Ecosystem as a potential recovery area. The USFWS is the primary agency responsible for recovery and conservation of threatened species, including grizzly bears, in the lower 48 states under the Endangered Species Act (ESA) in 1975. The USFWS is mandated by Congress to conserve listed species and the ecosystems upon which they depend. The USFWS is proceeding with the National Environmental Policy Act process.

2. The ESA of 1973, in section 4(F)(2) Determination of Endangered Species and Threatened Species says, "The Secretary (of the Interior), in developing and implementing recovery plans, may procure the services of

appropriate public and private agencies and institutions, and other qualified persons. ESA section 10(j) allows the USFWS increased flexibility to manage a population designated as experimental nonessential. If the preferred alternative is adopted, the final rule will detail the authority and responsibilities of the CMC.

3. The USFWS has completed a habitat-based population viability assessment of the BE, and it is included as Appendix 21 in the FEIS. This assessment indicates the habitat in the BE is capable of supporting a population of 308-321 grizzly bears. A metapopulation analysis (Appendix 21C) predicts the addition of the Bitterroot population will reduce the probability of extinction for grizzly bears in the lower 48 States by 88-99%, depending on different growth rate variances used in the model. In all cases examined in the report, there is a significant reduction in the probability of extinction for grizzly bears in the United States with a restored Bitterroot population. The addition of population areas (such as the proposed Bitterroot population) causes a geometric decline in extinction probability, and greatly improves the probability of existence and therefore the effectiveness of conservation for the grizzly bear.

Federal, Senator Dirk Kempthorne (Idaho): Hearing Testimony #2632

1. Grizzly Bears in Yellowstone National Park have been responsible for the deaths of 5 people from 1839-1994. Earthquakes have taken the lives of 28 people and drowning has resulted in the loss of 101 people during that time period. Threats to public safety potentially posed by grizzly bears are discussed in the FEIS for all proposed alternatives (Chapter 2) and analyzed using data from similar areas in Montana, Idaho, and Wyoming (Appendix 11). Further measures have been added to the FEIS preferred alternative (Alternative 1) to address the issue of public health and safety.

Also, there are behaviors that people who hike, hunt and recreate in grizzly bear country can employ to reduce the chances of a grizzly bear encounter. There are also actions that people can take if they accidentally encounter a grizzly bear which are quite effective in reducing the chances of being mauled. Grizzly bear depredation on domestic livestock would

2632

STATEMENT BY
SENATOR KEMPTHORNE

Public Hearing on
Introduction of Grizzly Bears in Idaho

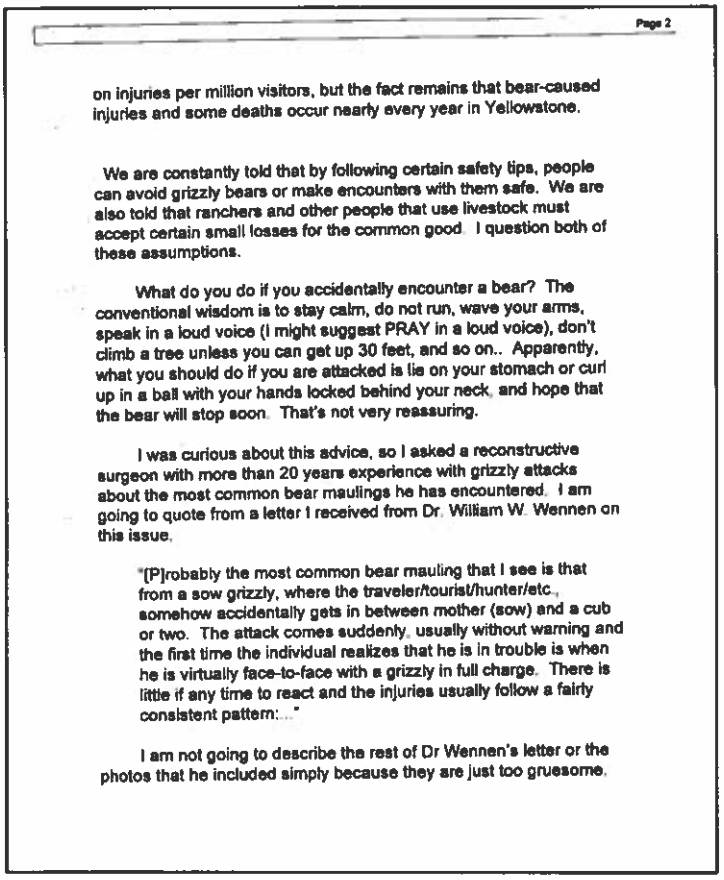
October 2, 1997

Thank you for holding this series of hearings on the introduction of grizzly bear into Idaho. As an Idahoan, I have concerns about the Administration's plans to artificially introduce the grizzly into Idaho without the explicit permission and involvement of the people of the State. As Chairman of the Senate Environment and Public Works Subcommittee on Drinking Water, Fisheries and Wildlife, I also take the broader view of the grizzly and its status under the Endangered Species Act. I have significant concerns about continuing federal involvement in the management of the grizzly bear, a species that many scientists believe is no longer threatened.

1 As an Idahoan, I worry about what these dangerous predators will do to the people of Idaho who happen to come in contact with them. In my mind, introduction of the grizzly raises a fundamental question: how will we protect our citizens and their property from this dangerous predator? Many anecdotes exist about how dangerous the grizzly can be, but I prefer to stick with facts when I can find them.

In the winter of 1996, the quarterly magazine *Yellowstone Science* published an article on bear-inflicted human injuries in Yellowstone. The article provided data on injuries: 82 over the last 25 years-- an average of three per year. Nineteen of these were severe, and three resulted in death.

The tendency both in this article and in the popular press is to play down the number of bear-inflicted injuries by providing statistics



Page 2

on injuries per million visitors, but the fact remains that bear-caused injuries and some deaths occur nearly every year in Yellowstone.

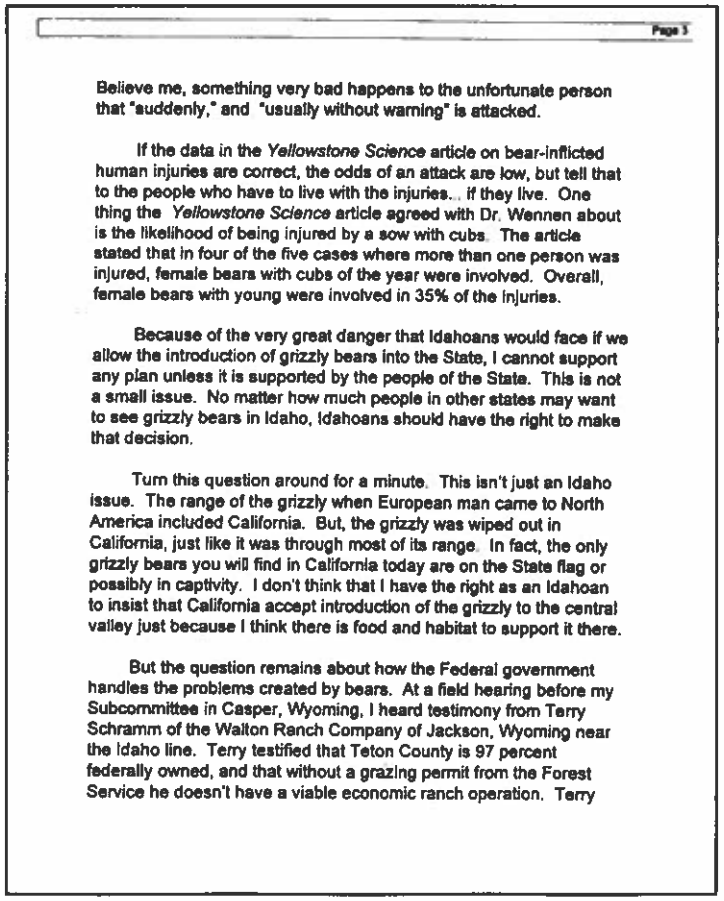
We are constantly told that by following certain safety tips, people can avoid grizzly bears or make encounters with them safe. We are also told that ranchers and other people that use livestock must accept certain small losses for the common good. I question both of these assumptions.

What do you do if you accidentally encounter a bear? The conventional wisdom is to stay calm, do not run, wave your arms, speak in a loud voice (I might suggest PRAY in a loud voice), don't climb a tree unless you can get up 30 feet, and so on.. Apparently, what you should do if you are attacked is lie on your stomach or curl up in a ball with your hands locked behind your neck, and hope that the bear will stop soon. That's not very reassuring.

I was curious about this advice, so I asked a reconstructive surgeon with more than 20 years experience with grizzly attacks about the most common bear maulings he has encountered. I am going to quote from a letter I received from Dr. William W. Wennen on this issue.

"[P]robably the most common bear mauling that I see is that from a sow grizzly, where the traveler/tourist/hunter/etc., somehow accidentally gets in between mother (sow) and a cub or two. The attack comes suddenly, usually without warning and the first time the individual realizes that he is in trouble is when he is virtually face-to-face with a grizzly in full charge. There is little if any time to react and the injuries usually follow a fairly consistent pattern:..."

I am not going to describe the rest of Dr Wennen's letter or the photos that he included simply because they are just too gruesome.



Page 3

Believe me, something very bad happens to the unfortunate person that "suddenly," and "usually without warning" is attacked.

If the data in the *Yellowstone Science* article on bear-inflicted human injuries are correct, the odds of an attack are low, but tell that to the people who have to live with the injuries... if they live. One thing the *Yellowstone Science* article agreed with Dr. Wennen about is the likelihood of being injured by a sow with cubs. The article stated that in four of the five cases where more than one person was injured, female bears with cubs of the year were involved. Overall, female bears with young were involved in 35% of the injuries.

Because of the very great danger that Idahoans would face if we allow the introduction of grizzly bears into the State, I cannot support any plan unless it is supported by the people of the State. This is not a small issue. No matter how much people in other states may want to see grizzly bears in Idaho, Idahoans should have the right to make that decision.

Turn this question around for a minute. This isn't just an Idaho issue. The range of the grizzly when European man came to North America included California. But, the grizzly was wiped out in California, just like it was through most of its range. In fact, the only grizzly bears you will find in California today are on the State flag or possibly in captivity. I don't think that I have the right as an Idahoan to insist that California accept introduction of the grizzly to the central valley just because I think there is food and habitat to support it there.

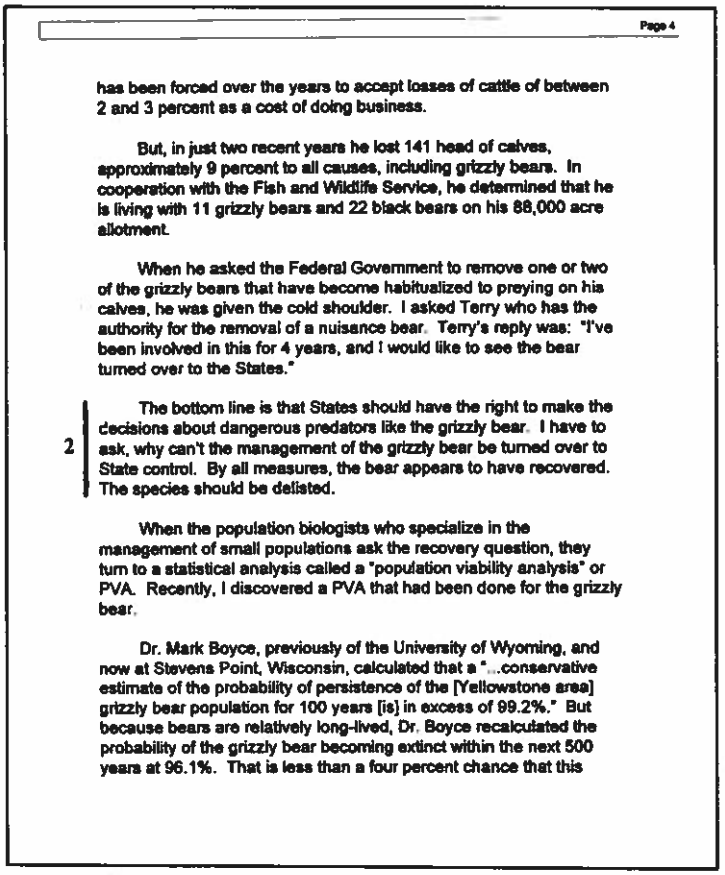
But the question remains about how the Federal government handles the problems created by bears. At a field hearing before my Subcommittee in Casper, Wyoming, I heard testimony from Terry Schramm of the Walton Ranch Company of Jackson, Wyoming near the Idaho line. Terry testified that Teton County is 97 percent federally owned, and that without a grazing permit from the Forest Service he doesn't have a viable economic ranch operation. Terry

likely be minimal during the estimated 50-110 years until the population of grizzly bears in the BE is fully recovered. It is estimated that after a recovered population of 280 grizzly bears is achieved, depredation incidents involving livestock would be between 4-8 cattle and between 5-44 sheep per year.

2. We also feel it is important that the plan to reintroduce grizzly bears into the BE is supported by Idahoans. We feel strongly that the reintroduction of grizzly bears does not present a "very great danger" to Idahoans. The area in Idaho and Western Montana proposed for grizzly bear recovery consists of the Selway-Bitterroot Wilderness and the Frank Church - River of No Return Wilderness which contains approximately 5,785 square miles of National Forest Lands of designated wilderness. These two Congressionally designated wilderness areas are national resources.

Regarding comments on removal of depredating bears in the cattle allotment on the Bridger-Teton Forest, where Mr. Schram works; the portion of the allotment where the depredation took place was in Situation I grizzly bears habitat and the bears were not removed. The permit specified that any losses in Situation I habitat would not result in removal of grizzly bears. There were depredating bears removed from this allotment in Situation II habitat as per the protocol in the Interagency Grizzly Bear Guidelines. The ranch where Mr. Schramm works was reimbursed for all verified losses due to grizzly bears by the state of Wyoming.

3. Dr. Mark Boyce was contracted by the USFWS to do a habitat-based population viability analysis (PVA) of the proposed BE Grizzly Bear Recovery Area. Results of Dr. Boyce's PVA results are presented in FEIS Appendix 21. A metapopulation analysis (Appendix 21C) predicts the addition of the Bitterroot population will reduce the probability of extinction for grizzly bears in the lower 48 States by 88-99%, depending on different growth rate variances used in the model. In all cases examined in the report, there is a significant reduction in the probability of extinction for grizzly bears in the United States with a restored Bitterroot population. The addition of population areas (such as the proposed Bitterroot population) causes a



Page 4

has been forced over the years to accept losses of cattle of between 2 and 3 percent as a cost of doing business.

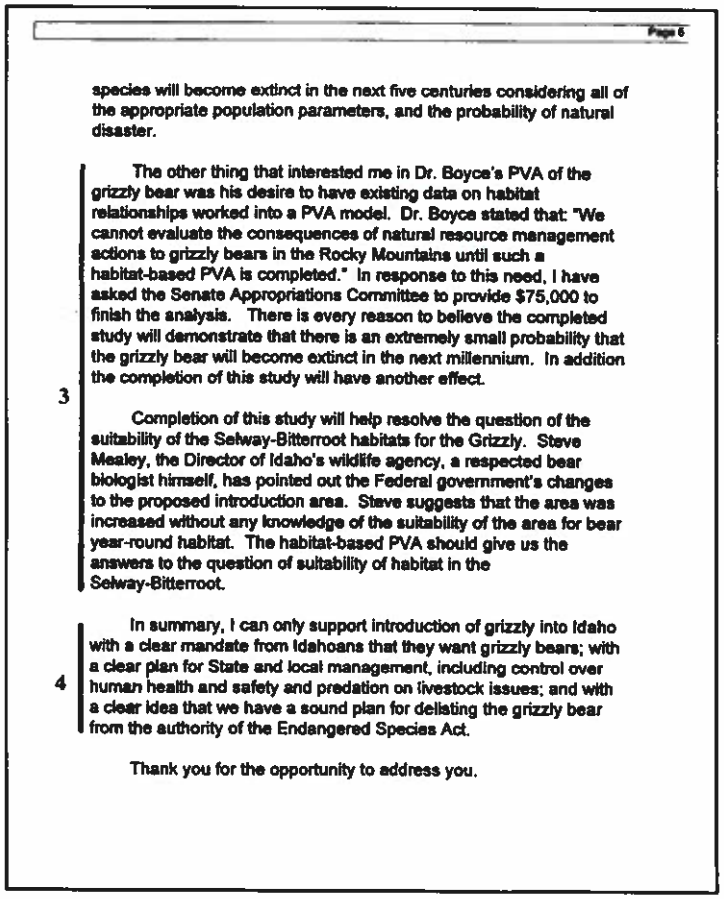
But, in just two recent years he lost 141 head of calves, approximately 9 percent to all causes, including grizzly bears. In cooperation with the Fish and Wildlife Service, he determined that he is living with 11 grizzly bears and 22 black bears on his 88,000 acre allotment.

When he asked the Federal Government to remove one or two of the grizzly bears that have become habituated to preying on his calves, he was given the cold shoulder. I asked Terry who has the authority for the removal of a nuisance bear. Terry's reply was: "I've been involved in this for 4 years, and I would like to see the bear turned over to the States."

2 The bottom line is that States should have the right to make the decisions about dangerous predators like the grizzly bear. I have to ask, why can't the management of the grizzly bear be turned over to State control. By all measures, the bear appears to have recovered. The species should be delisted.

When the population biologists who specialize in the management of small populations ask the recovery question, they turn to a statistical analysis called a "population viability analysis" or PVA. Recently, I discovered a PVA that had been done for the grizzly bear.

Dr. Mark Boyce, previously of the University of Wyoming, and now at Stevens Point, Wisconsin, calculated that a "...conservative estimate of the probability of persistence of the [Yellowstone area] grizzly bear population for 100 years [is] in excess of 99.2%." But because bears are relatively long-lived, Dr. Boyce recalculated the probability of the grizzly bear becoming extinct within the next 500 years at 96.1%. That is less than a four percent chance that this



Page 5

species will become extinct in the next five centuries considering all of the appropriate population parameters, and the probability of natural disaster.

3 The other thing that interested me in Dr. Boyce's PVA of the grizzly bear was his desire to have existing data on habitat relationships worked into a PVA model. Dr. Boyce stated that: "We cannot evaluate the consequences of natural resource management actions to grizzly bears in the Rocky Mountains until such a habitat-based PVA is completed." In response to this need, I have asked the Senate Appropriations Committee to provide $75,000 to finish the analysis. There is every reason to believe the completed study will demonstrate that there is an extremely small probability that the grizzly bear will become extinct in the next millennium. In addition the completion of this study will have another effect.

Completion of this study will help resolve the question of the suitability of the Selway-Bitterroot habitats for the Grizzly. Steve Mealey, the Director of Idaho's wildlife agency, a respected bear biologist himself, has pointed out the Federal government's changes to the proposed introduction area. Steve suggests that the area was increased without any knowledge of the suitability of the area for bear year-round habitat. The habitat-based PVA should give us the answers to the question of suitability of habitat in the Selway-Bitterroot.

4 In summary, I can only support introduction of grizzly into Idaho with a clear mandate from Idahoans that they want grizzly bears; with a clear plan for State and local management, including control over human health and safety and predation on livestock issues; and with a clear idea that we have a sound plan for delisting the grizzly bear from the authority of the Endangered Species Act.

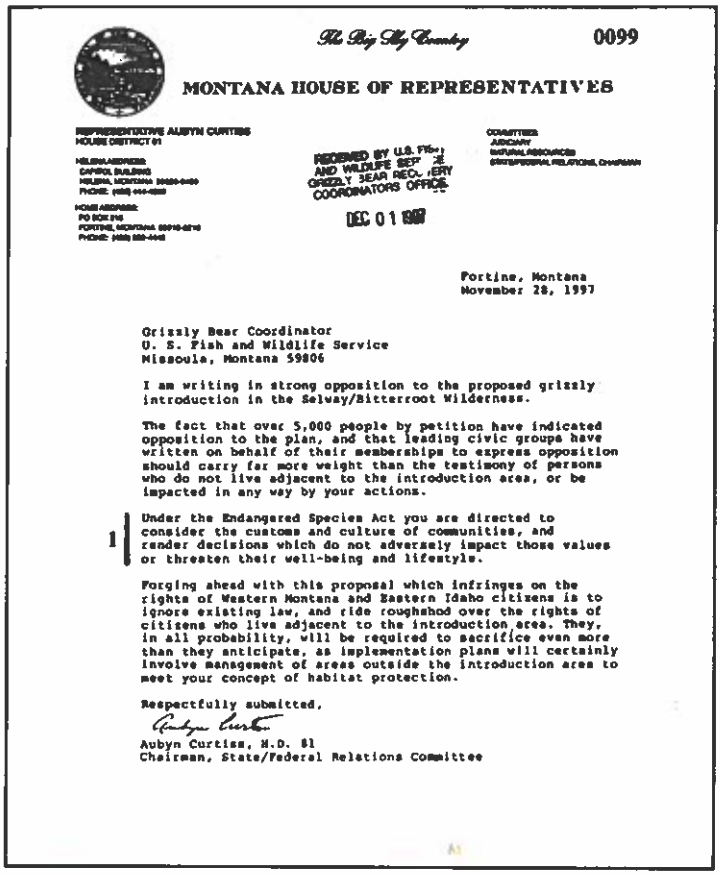
Thank you for the opportunity to address you.

geometric decline in extinction probability, and greatly improves the probability of existence and therefore the effectiveness of conservation for the grizzly bear. Even without the Bitterroot, the probability of extinction of all grizzly bears south of Canada is low.

The habitat quality of the BE has been studied extensively by Scaggs (1979), Butterfield and Almack (1985), Davis and Butterfield (1991), and Merrill et al. (1999). All four of these studies concluded that the BE contains suitable habitat essential to the maintenance of a grizzly bear population.

Dr. Boyce also completed a habitat-based population assessment of the BE, and it is included as Appendix 21(A,B) in the FEIS. This assessment indicates the habitat in the BE is capable of supporting a population of 308-321 grizzly bears. This number is 10-15% higher than the USFWS recovery goal estimate because further evaluation of the habitats in the southern portion of the Ecosystem indicate that even though the forb and berry production in these dry habitats is relatively low, the southern half of the Bitterroot Ecosystem contains substantial stands of whitebark pine as well as populations of elk and deer that can provide food for grizzly bears. Further, the remoteness of the area and the paucity of roads will help to ensure that a viable population of grizzly bears can persist in the Bitterroot Ecosystem of Idaho and Montana. Appendix 21D presents data on presence of a variety of grizzly bear foods in the BE. In summary, Appendix 21 provides the best scientific information available to indicate the habitats in the BE are capable of supporting a viable population of grizzly bears.

4. The Citizen Management Committee (CMC) is made up of individuals from primarily the two states in the BE. The CMC will be responsible for preparation of a plan to ensure grizzly bear recovery occurs in the BE. The plan will address human health and safety issues as well as livestock issues. Delisting of the grizzly bear from the authority of the Endangered Species Act will not occur until a recovered population occurs in 50-110+ years in the future.



The Big Sky Country 0099

MONTANA HOUSE OF REPRESENTATIVES

REPRESENTATIVE AUBYN CURTISS
HOUSE DISTRICT 01

COMMITTEES
AGRICULTURE
NATURAL RESOURCES
STATE/FEDERAL RELATIONS, Chairman

RECEIVED BY U.S. FISH AND WILDLIFE SERV. GRIZZLY BEAR REC. SERV. COORDINATORS OFFICE
DEC 01 1997

Fortine, Montana
November 28, 1997

Grizzly Bear Coordinator
U. S. Fish and Wildlife Service
Missoula, Montana 59806

I am writing in strong opposition to the proposed grizzly introduction in the Selway/Bitterroot Wilderness.

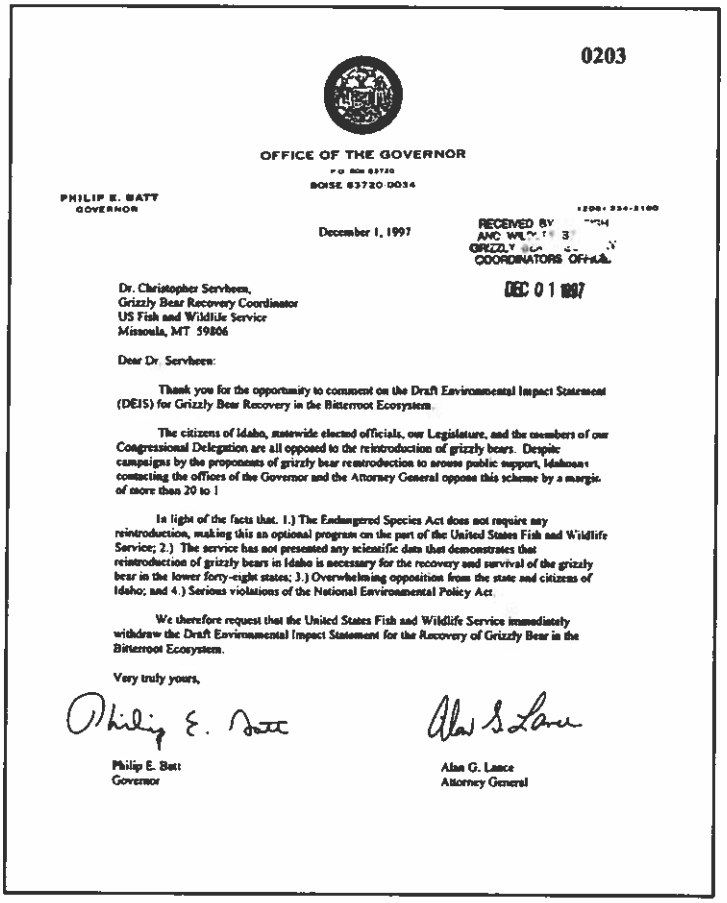
The fact that over 5,000 people by petition have indicated opposition to the plan, and that leading civic groups have written on behalf of their memberships to express opposition should carry far more weight than the testimony of persons who do not live adjacent to the introduction area, or be impacted in any way by your actions.

1 Under the Endangered Species Act you are directed to consider the customs and culture of communities, and render decisions which do not adversely impact those values or threaten their well-being and lifestyle.

Forging ahead with this proposal which infringes on the rights of Western Montana and Eastern Idaho citizens is to ignore existing law, and ride roughshod over the rights of citizens who live adjacent to the introduction area. They, in all probability, will be required to sacrifice even more than they anticipate, as implementation plans will certainly involve management of areas outside the introduction area to meet your concept of habitat protection.

Respectfully submitted,

Aubyn Curtiss, H.D. 81
Chairman, State/Federal Relations Committee



0203

OFFICE OF THE GOVERNOR

PHILIP E. BATT
GOVERNOR

BOISE 83720-0034

December 1, 1997

RECEIVED BY AMC WLFE SERV GRIZZLY BEAR REC. SERV. COORDINATORS OFFICE
DEC 01 1997

Dr. Christopher Servheen,
Grizzly Bear Recovery Coordinator
US Fish and Wildlife Service
Missoula, MT 59806

Dear Dr. Servheen:

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for Grizzly Bear Recovery in the Bitterroot Ecosystem.

The citizens of Idaho, statewide elected officials, our Legislature, and the members of our Congressional Delegation are all opposed to the reintroduction of grizzly bears. Despite campaigns by the proponents of grizzly bear reintroduction to arouse public support, Idahoans contacting the offices of the Governor and the Attorney General oppose this scheme by a margin of more than 20 to 1.

In light of the facts that, 1.) The Endangered Species Act does not require any reintroduction, making this an optional program on the part of the United States Fish and Wildlife Service; 2.) The service has not presented any scientific data that demonstrates that reintroduction of grizzly bears in Idaho is necessary for the recovery and survival of the grizzly bear in the lower forty-eight states; 3.) Overwhelming opposition from the state and citizens of Idaho; and 4.) Serious violations of the National Environmental Policy Act.

We therefore request that the United States Fish and Wildlife Service immediately withdraw the Draft Environmental Impact Statement for the Recovery of Grizzly Bear in the Bitterroot Ecosystem.

Very truly yours,

Philip E. Batt
Governor

Alan G. Lance
Attorney General

State, Montana Representative Aubyn Curtiss: #99

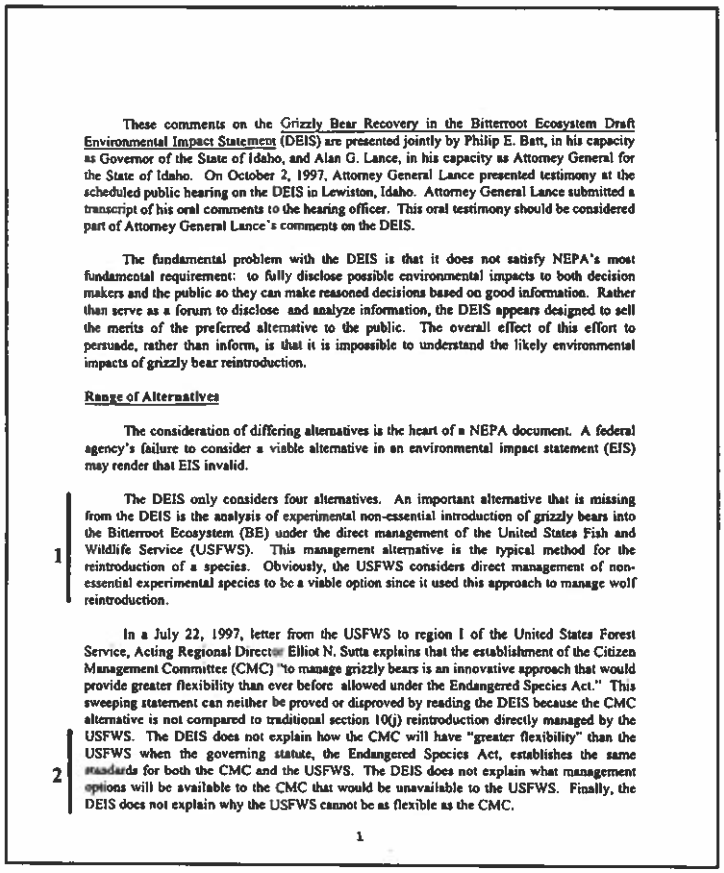
1. Thank you for your comments on the DEIS for Grizzly Bear Recovery in the Bitterroot Ecosystem. Ten petitions were received on the DEIS containing 21,362 signatures. Of the total signatures, 76.6 percent favored grizzly bear reintroduction. Six of the ten petitions were adamantly opposed to reintroduction and contained "local" signatures from the states of Montana and Idaho totaling 5,002 people. These signatures represented the 23.4 percent of petition signatures opposed to reintroduction.

There is no language in the ESA to this effect. However, Alternative 1 was crafted to address these issues, and to minimize social and economic impacts to local communities. There is no intent to infringe on the rights of citizens or ignore existing law or ride roughshod over the rights of citizens who live adjacent to the proposed reintroduction area. The proposal calls for citizen management of grizzly bears to take place within the nonessential experimental area and the recovery area.

State, Idaho Governor Philip Batt and Attorney General Alan Lance: #203

1. Thank you for your suggestion. This alternative has been added as Alternative 1A.

2. The concept of management flexibility is related both to the decisions made and to who is making those decisions. An analogy is travel from one city to another. Several routes, speeds, and dates of departure are possible, but the destination is the same. We believe that when a person is making his or her own decisions, they generally feel more comfortable than when such decisions are made by others. This is the concept that is the foundation of the CMC. If local people are making the decisions that will lead to recovery, they will feel more involved and more in control and therefore more comfortable than if those decisions were being made by others. The CMC will be making the decisions that will lead to grizzly bear recovery in the Bitterroot ecosystem. The flexibility that is referred to in the July 22, 1997 letter from Mr. Sutta refers both to the decisions made by the CMC and the creation of the CMC



These comments on the Grizzly Bear Recovery in the Bitterroot Ecosystem Draft Environmental Impact Statement (DEIS) are presented jointly by Philip E. Batt, in his capacity as Governor of the State of Idaho, and Alan G. Lance, in his capacity as Attorney General for the State of Idaho. On October 2, 1997, Attorney General Lance presented testimony at the scheduled public hearing on the DEIS in Lewiston, Idaho. Attorney General Lance submitted a transcript of his oral comments to the hearing officer. This oral testimony should be considered part of Attorney General Lance's comments on the DEIS.

The fundamental problem with the DEIS is that it does not satisfy NEPA's most fundamental requirement: to fully disclose possible environmental impacts to both decision makers and the public so they can make reasoned decisions based on good information. Rather than serve as a forum to disclose and analyze information, the DEIS appears designed to sell the merits of the preferred alternative to the public. The overall effect of this effort to persuade, rather than inform, is that it is impossible to understand the likely environmental impacts of grizzly bear reintroduction.

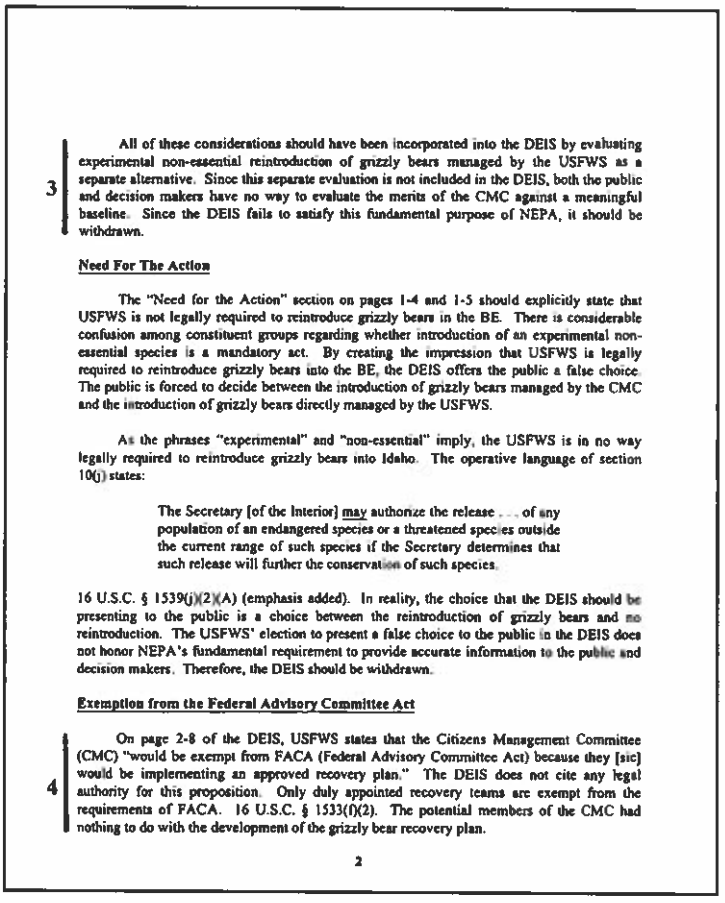
Range of Alternatives

The consideration of differing alternatives is the heart of a NEPA document. A federal agency's failure to consider a viable alternative in an environmental impact statement (EIS) may render that EIS invalid.

1 The DEIS only considers four alternatives. An important alternative that is missing from the DEIS is the analysis of experimental non-essential introduction of grizzly bears into the Bitterroot Ecosystem (BE) under the direct management of the United States Fish and Wildlife Service (USFWS). This management alternative is the typical method for the reintroduction of a species. Obviously, the USFWS considers direct management of non-essential experimental species to be a viable option since it used this approach to manage wolf reintroduction.

2 In a July 22, 1997, letter from the USFWS to region I of the United States Forest Service, Acting Regional Director Elliot N. Sutta explains that the establishment of the Citizen Management Committee (CMC) "to manage grizzly bears is an innovative approach that would provide greater flexibility than ever before allowed under the Endangered Species Act." This sweeping statement can neither be proved or disproved by reading the DEIS because the CMC alternative is not compared to traditional section 10(j) reintroduction directly managed by the USFWS. The DEIS does not explain how the CMC will have "greater flexibility" than the USFWS when the governing statute, the Endangered Species Act, establishes the same standards for both the CMC and the USFWS. The DEIS does not explain what management options will be available to the CMC that would be unavailable to the USFWS. Finally, the DEIS does not explain why the USFWS cannot be as flexible as the CMC.

1



3 All of these considerations should have been incorporated into the DEIS by evaluating experimental non-essential reintroduction of grizzly bears managed by the USFWS as a separate alternative. Since this separate evaluation is not included in the DEIS, both the public and decision makers have no way to evaluate the merits of the CMC against a meaningful baseline. Since the DEIS fails to satisfy this fundamental purpose of NEPA, it should be withdrawn.

Need For The Action

The "Need for the Action" section on pages 1-4 and 1-5 should explicitly state that USFWS is not legally required to reintroduce grizzly bears in the BE. There is considerable confusion among constituent groups regarding whether introduction of an experimental non-essential species is a mandatory act. By creating the impression that USFWS is legally required to reintroduce grizzly bears into the BE, the DEIS offers the public a false choice. The public is forced to decide between the introduction of grizzly bears managed by the CMC and the introduction of grizzly bears directly managed by the USFWS.

As the phrases "experimental" and "non-essential" imply, the USFWS is in no way legally required to reintroduce grizzly bears into Idaho. The operative language of section 10(j) states:

> The Secretary [of the Interior] may authorize the release . . . of any population of an endangered species or a threatened species outside the current range of such species if the Secretary determines that such release will further the conservation of such species.

16 U.S.C. § 1539(j)(2)(A) (emphasis added). In reality, the choice that the DEIS should be presenting to the public is a choice between the reintroduction of grizzly bears and no reintroduction. The USFWS' election to present a false choice to the public in the DEIS does not honor NEPA's fundamental requirement to provide accurate information to the public and decision makers. Therefore, the DEIS should be withdrawn.

Exemption from the Federal Advisory Committee Act

4 On page 2-8 of the DEIS, USFWS states that the Citizens Management Committee (CMC) "would be exempt from FACA (Federal Advisory Committee Act) because they [sic] would be implementing an approved recovery plan." The DEIS does not cite any legal authority for this proposition. Only duly appointed recovery teams are exempt from the requirements of FACA. 16 U.S.C. § 1533(f)(2). The potential members of the CMC had nothing to do with the development of the grizzly bear recovery plan.

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itself. As an example of management differences, the CMC may choose to implement a hunter education program in response to illegal killing of bears with eventual recommendations to limit hunting in certain areas if the education program is unsuccessful in stopping illegal killing. The USFWS, if it were managing the situation, might choose to suggest immediate limits on hunting. Different possible approaches to the same problem are evidence of management flexibility. The objective of both actions is the same. How they achieve the same result may be different. This flexibility facilitates local control by the CMC. The creation of a CMC to manage a listed species is possible under the ESA section 10(j) experimental approach of reintroduction due to its increased flexibility.

3. This alternative has been added to the FEIS.

4. The implementation of recovery actions in approved recovery plans by public/private groups is exempt from FACA as per Section 4 of the ESA.

5. Such possible management plans would include such things as specific management of nuisance bears and the response protocol to do so, or public outreach and education plans for users in the area. The CMC could also make recommendations to land management agencies concerning activities that might impact bears if the CMC sees problems that need to be addressed. An example could be a recommendation on improved sanitation to minimize attractions to bears at recreation sites. The CMC does not have authority to implement management actions on public lands. Land management agencies would have to follow the appropriate public processes such as NEPA, if necessary, or public comment such as with possible Forest Plan amendments, should the management agencies choose to implement any CMC recommendations.

6. Responsiveness to comments received in the public comment period is not possible if, as the letter suggests, no changes can be made in the Final EIS unless the public has seen such comments. Under NEPA the purpose of the DEIS is to solicit comment, and the responsible agency can then be responsive to that comment

Furthermore, the CMC is not merely implementing the recovery plan because CMC management has been presented to the public as an opportunity for "greater flexibility than ever before allowed under the Endangered Species Act." If the CMC's only intent is to implement the recovery plan, then there will be no more flexibility in its actions than there would be if the USFWS were directly managing grizzly bears pursuant to the recovery plan. As a matter of simple logic, it is impossible to both manage with "greater flexibility than ever before allowed" and manage pursuant to an already developed recovery plan. The DEIS is flawed for leading the public to believe that the CMC will have management options available to it that go beyond the contents of the recovery plan, while also asserting an exemption from FACA that is limited to the development and implementation of recovery plans.

Operation of the CMC

The organization and operation of the CMC is the centerpiece of the entire preferred alternative. However, amazingly enough, there is almost no discussion in the DEIS of the actions that the CMC is likely to take. Page 2-8 of the DEIS summarizes the function of the CMC. However, that summary is limited to the statement that the "CMC would develop management plans and policies, as necessary for management of grizzly bears in the Experimental Area."

5 Presumably, these yet-to-be developed "management plans" would be subject to additional NEPA analysis. Additional NEPA coverage would be required because the "management plans" cannot be tiered to the analysis of the DEIS. Indeed, it is difficult to understand why the USFWS does not include some discussion of the likely contents of subsequent management plans. The whole purpose of the DEIS is to inform the public and decision makers concerning actions that the CMC is likely to take.

6 This concern has become more acute because the State of Idaho has learned that the USFWS is strongly considering altering the operations of the CMC in response to a proposal from the State of Montana. *See* **letter from Governor Marc Racicot to Christopher Servheen dated September 30, 1997 (attached).** The public has not had an opportunity to comment on this major revision. Presumably, many who expressed support for the preferred alternative during the comment period would not support the change proposed by the State of Montana. USFWS is not fulfilling its NEPA obligations by circulating one proposal, only to alter it, with no opportunity for public input, in an effort to build support for the preferred alternative. Since the DEIS does not satisfy the primary purposes of NEPA, it should be withdrawn.

3

Land Use Restrictions

A primary concern of Idahoans is that current land use activities will be curtailed due to the reintroduction of grizzly bears in the BE. The DEIS attempts to respond to these concerns in general terms by characterizing land use restrictions as either minimal or unlikely. For example, the DEIS reaches the general conclusion that the introduction "of a nonessential experimental population of grizzly bears into the BE is not expected to impact existing land uses, including timber harvest and minerals extraction activities." DEIS at 4-11. However, the DEIS reserves significant power for the CMC to curtail current land use practices. This reservation of power occurs without sufficient discussion of the likely decisions that may occur. Areas in the DEIS where power is reserved to negatively impact existing land uses are highlighted below. Some are revisited in the section of these comments dealing with economic analysis.

7 1. Page 2-13 of the DEIS states that it "is anticipated that laws and regulations, in effect at the time of issuance of the special rule, and governing land management activities would promote grizzly bear recovery." Currently, the laws and regulations "governing land management activities" promote multiple use of public land, not just grizzly bear recovery. Therefore, in order for USFWS to achieve what is "anticipated" in the DEIS, current laws and regulations governing land management would have to be changed. The environmental and economic impacts of these "anticipated" changes are not addressed in the DEIS. Since the DEIS does not contain sufficient analysis of the environmental and economic impacts of these "anticipated" changes, it is flawed.

2. Pages 2-13 and 2-14 of the DEIS contain the following discussion of the relationship between the CMC and existing forest plans:

> If this alternative is implemented, the proposed special rule would govern recommended changes to Forest Plan standards and guidelines as per direction of the CMC . . . . Changes to the Forest Plan should have to be reviewed by the CMC and agency biologists to determine potential impacts.

8 It is impossible to both change existing forest plans and also avoid altering "existing land management activities." Since the DEIS does not include sufficient environmental or economic analysis of changing existing forest plans, the DEIS is flawed and should be withdrawn.

3. Page 2-14 of the DEIS states that the CMC's "management activities" would "try to preempt livestock problems." In addition, the CMC 'would try to make all [livestock] uses compatible with [grizzly bear] recovery." Presumably, the CMC would change

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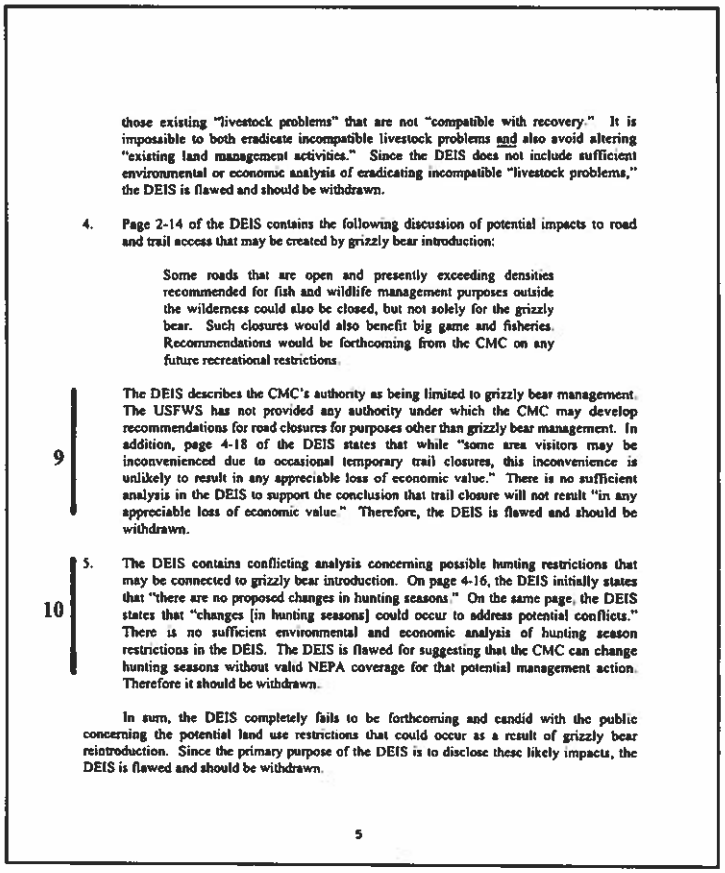
in the FEIS and ROD.

7. The assumption in this statement is that grizzly bear recovery and multiple use management of public lands are incompatible. This is not the case. Regulations exist on public lands that limit access to provide habitat security for big game, limit road building to minimize sedimentation in streams for endangered fish, require adequate storage of garbage, and limit illegal killing of wildlife. These regulations would also promote grizzly bear recovery. Many existing laws and regulations on public lands in the Bitterroot Ecosystem would serve to promote grizzly bear recovery and provide secure habitat for grizzly bears in this area.

8. This clause refers to possible CMC recommendations to land management agencies that might result in amendments to Forest Plans, should they be accepted. The clause refers to the fact that the CMC can make such recommendations should they see fit, not to any specific recommendations. This is a reference to a process not to a specific recommendation. Any changes in Forest Plans would have to go through pubic review as per direction of the National Forest Management Act (NMFA).

9. Discussions of road and trail closures in this FEIS are related to grizzly bear management. There are many other reasons why land management agencies would implement trail and road closures for motorized and non-motorized use that are unrelated to grizzly bears. These type closures are not governed under this FEIS.

The FEIS does not recommend any trail closures, and the USFWS does not anticipate any permanent trail closures in the Bitterroot Ecosystem related to grizzly recovery. Under Alternative 1, the CMC could make recommendations to land and wildlife management agencies for trail or road closures necessary for grizzly bear management in the Experimental Area, but the decision on implementation of closures would be made by the responsible agency. If the CMC recommendations would require significant changes to existing plans and policy, and the agencies tentatively agree to accept those recommendations, then the requirements of NEPA may apply. Any consideration of trail



those existing "livestock problems" that are not "compatible with recovery." It is impossible to both eradicate incompatible livestock problems and also avoid altering "existing land management activities." Since the DEIS does not include sufficient environmental or economic analysis of eradicating incompatible "livestock problems," the DEIS is flawed and should be withdrawn.

4. Page 2-14 of the DEIS contains the following discussion of potential impacts to road and trail access that may be created by grizzly bear introduction:

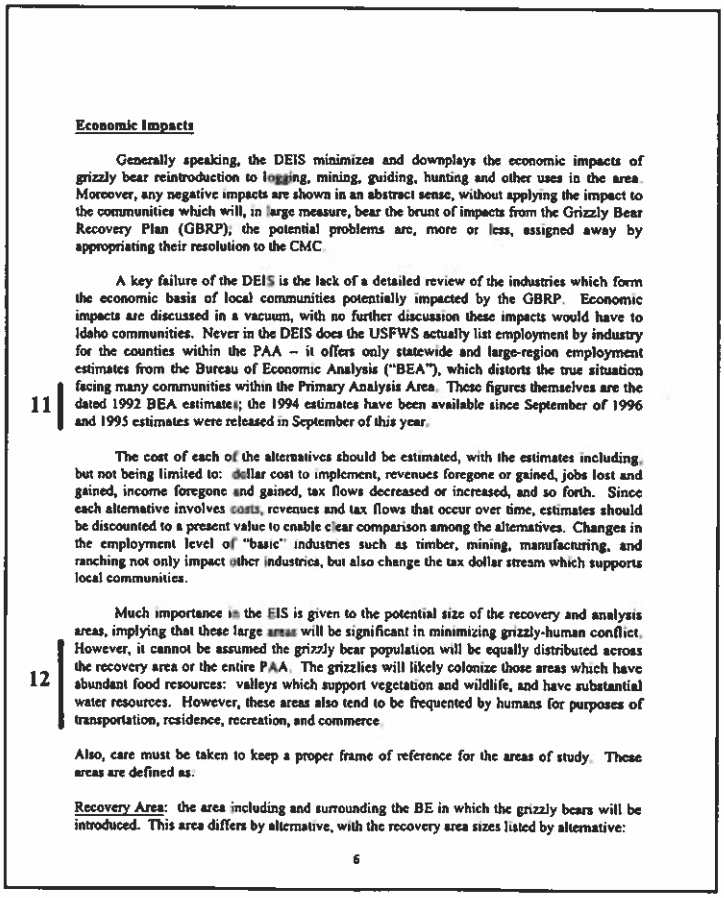
> Some roads that are open and presently exceeding densities recommended for fish and wildlife management purposes outside the wilderness could also be closed, but not solely for the grizzly bear. Such closures would also benefit big game and fisheries. Recommendations would be forthcoming from the CMC on any future recreational restrictions.

9 The DEIS describes the CMC's authority as being limited to grizzly bear management. The USFWS has not provided any authority under which the CMC may develop recommendations for road closures for purposes other than grizzly bear management. In addition, page 4-18 of the DEIS states that while "some area visitors may be inconvenienced due to occasional temporary trail closures, this inconvenience is unlikely to result in any appreciable loss of economic value." There is no sufficient analysis in the DEIS to support the conclusion that trail closure will not result "in any appreciable loss of economic value." Therefore, the DEIS is flawed and should be withdrawn.

10 5. The DEIS contains conflicting analysis concerning possible hunting restrictions that may be connected to grizzly bear introduction. On page 4-16, the DEIS initially states that "there are no proposed changes in hunting seasons." On the same page, the DEIS states that "changes [in hunting seasons] could occur to address potential conflicts." There is no sufficient environmental and economic analysis of hunting season restrictions in the DEIS. The DEIS is flawed for suggesting that the CMC can change hunting seasons without valid NEPA coverage for that potential management action. Therefore it should be withdrawn.

In sum, the DEIS completely fails to be forthcoming and candid with the public concerning the potential land use restrictions that could occur as a result of grizzly bear reintroduction. Since the primary purpose of the DEIS is to disclose these likely impacts, the DEIS is flawed and should be withdrawn.

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Economic Impacts

Generally speaking, the DEIS minimizes and downplays the economic impacts of grizzly bear reintroduction to logging, mining, guiding, hunting and other uses in the area. Moreover, any negative impacts are shown in an abstract sense, without applying the impact to the communities which will, in large measure, bear the brunt of impacts from the Grizzly Bear Recovery Plan (GBRP); the potential problems are, more or less, assigned away by appropriating their resolution to the CMC.

A key failure of the DEIS is the lack of a detailed review of the industries which form the economic basis of local communities potentially impacted by the GBRP. Economic impacts are discussed in a vacuum, with no further discussion these impacts would have to Idaho communities. Never in the DEIS does the USFWS actually list employment by industry for the counties within the PAA -- it offers only statewide and large-region employment estimates from the Bureau of Economic Analysis ("BEA"), which distorts the true situation facing many communities within the Primary Analysis Area. These figures themselves are the 11 dated 1992 BEA estimates; the 1994 estimates have been available since September of 1996 and 1995 estimates were released in September of this year.

The cost of each of the alternatives should be estimated, with the estimates including, but not being limited to: dollar cost to implement, revenues foregone or gained, jobs lost and gained, income foregone and gained, tax flows decreased or increased, and so forth. Since each alternative involves costs, revenues and tax flows that occur over time, estimates should be discounted to a present value to enable clear comparison among the alternatives. Changes in the employment level of "basic" industries such as timber, mining, manufacturing, and ranching not only impact other industries, but also change the tax dollar stream which supports local communities.

Much importance in the EIS is given to the potential size of the recovery and analysis areas, implying that these large areas will be significant in minimizing grizzly-human conflict. However, it cannot be assumed the grizzly bear population will be equally distributed across 12 the recovery area or the entire PAA. The grizzlies will likely colonize those areas which have abundant food resources: valleys which support vegetation and wildlife, and have substantial water resources. However, these areas also tend to be frequented by humans for purposes of transportation, residence, recreation, and commerce.

Also, care must be taken to keep a proper frame of reference for the areas of study. These areas are defined as:

Recovery Area: the area including and surrounding the BE in which the grizzly bears will be introduced. This area differs by alternative, with the recovery area sizes listed by alternative:

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closures for whatever reason would be part of the environmental analysis of the land or wildlife management agency that implements them. The CMC can make recommendations on a wide range of issues. What they recommend is up to them and any impacts of any recommendations accepted by land management agencies would be part of the public process of that agency.

10. This refers to possible hunting restrictions implemented on public lands as per state game department responsibilities. The FEIS does not recommend any hunting restrictions so it cannot address any potential impacts of actions not recommended therein. The USFWS does not anticipate any hunting restrictions in the BE related to grizzly recovery. Any consideration of hunting restrictions for whatever reason would be part of the analysis process of the state game management agency that implements them. The CMC can make recommendations on a wide range of issues including hunting. What they recommend is up to them and any impacts of any recommendations accepted by state game management agencies would be part of the public process of that agency.

11. Comment noted. These updated figures have been added to the FEIS as available, although the specific impact of any such changes will be limited. The economic analysis in the FEIS considers projected impacts of each alternative and presents the economic ramifications of those projected impacts.

12. While it is true that grizzly distribution is related to food, distribution is also directly related to habitat security. Most grizzly bears will avoid areas of human activity and we expect this to be the case with any bears placed in the Bitterroot Ecosystem. An example is the results of the placement of 4 grizzly bears in the Cabinet Mountains. This area has high human population density within a closer distance than the BE wilderness reintroduction areas, but not one of these bears ever came into any type of conflict on private lands nor had any conflict of any kind with people in the release area. We expect that grizzly distribution will be related to the distribution of both food and security. Bears that occupy areas of human habitation will be subject to management action and removal.

#1: 5,785 square miles (BE, no ESA protection, Citizen Management Committee administration)

#2: 5,500 square miles (BE, natural recovery, full ESA protection)

#3: 0 square miles (non-recovery alternative)

#4: 21,875 square miles (from National Forests outside Coeur d'Alene to the National Forests near Boise, full ESA protection, Scientific Committee administration)

Primary Analysis Area ("PAA"): The approximate 22,000 square mile area of the national forests ranging from northern Idaho to southwest Idaho, and into western Montana, surrounding the recovery area. An area where grizzly bears may colonize, but in which the management of them varies according to the selected GBRP alternative.

The EIS is often quite elaborate in its discussion of impacts (but not the economic consequences) to the recovery area, or the BE, but often the real area of interest for the reader is the overall PAA, as it is the minimum area impacted by the GBRP. In other cases, the impacted areas might be fairly narrowly focused; but the impact is described without such geographic reference. For example, the inability to access an area for mining and timber activity might have serious consequences for a specific area dependent upon those industries for its economic livelihood.

Forecast Direct Costs:

13 Direct costs include the cost of capture and transportation of grizzly bears to the BE and the monitoring and management by federal and state personnel over the course of the project. Overall, it seems the forecasts underestimate operations expenses and do not consider the impact of inflation, or real increases in the costs of goods and services which occur over time.

Alternative 1 (The Proposal):

On page 6-73 of the EIS, the cost of implementing the alternative is presented. The annual estimated monitoring and management cost of $168,000 borne by the Idaho Department of Fish and Game ("IDFG"), Nez Perce Tribe, and the Montana Department of Fish, Wildlife, and Parks ("MDFWP") at the state level, is extremely low. Likewise, the five-year monitoring and management annual estimate of $150,000 is too low. Of the $168,000, $100,000 is budgeted for salaries and benefits for state-level organizations. Today, $100,000 would fund only two full-time positions over a year at a maximum. Far more manpower is required to adequately manage the project. A growing grizzly population would also increase the number

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of people needed to implement the GBRP. Even one more full-time equivalent position ("FTE") will add at least $35,000 to $50,000 annually to the expenses.

In addition, the $10,000 per year for travel and supplies is budgeted for operations expenses is insufficient. By way of comparison, the second alternative, which indicates no action taken to restore the grizzly bear population, has an operations budget $5,000 greater than that of the first alternative, which has an active involvement of US Fish and Wildlife Service personnel, as well as many other people from Idaho and Montana state agencies.

13 Importantly, these cost estimates do not (nor do any of the others included in the other alternatives) take into account the increasing cost of goods and services as a result of inflation. One can add an average of at least 3.0% across the period to calculate the impact of this factor on costs. Nor do the costs include a prediction of the cost of additional activity necessary to "manage" an increasing grizzly population of 280 or more bears. These estimates do not include the cost to the taxpayer of probable legal challenges. Overall, a reasonable cost estimate would consider expenses to run an additional $50,000-$100,000 per year over the life of the project, not taking into consideration the impact of inflation, or changes in management procedures as directed by the CMC.

Alternative 2:

With the "No Action" scenario, the total cost presented upon page 6-74 of the EIS is forecast to be only slightly lower per year ($140,000) than the projected cost of Alternative 1. Under this alternative, it is not expected that grizzlies will reoccupy the BE, as they "do not move far to colonize distant, disjunct areas." (EIS, p. 2-18) The direct costs as projected in the EIS are reasonable; but, like the other alternatives, it does not include any estimate of the impact of inflation on the cost of goods and services in the future.

Alternative 3:

Perhaps the most surprising estimate included among those given for the alternatives is that of this, the "No Recovery" alternative. The "minimum estimate" cost (over several years) is projected to be $2,000,000, with $400,000 spent by the U.S. Fish and Wildlife Service ("USFWS") for salaries and benefits, $100,000 for operations expenses (travel and supplies), and $1,500,000 for "legislative, lobbying, and other efforts" to develop the legislation to adjust the Endangered Species Act ("ESA") to accommodate this alternative, which would remove grizzly bears from the list of threatened and endangered species from the Rocky Mountain region of the U.S.

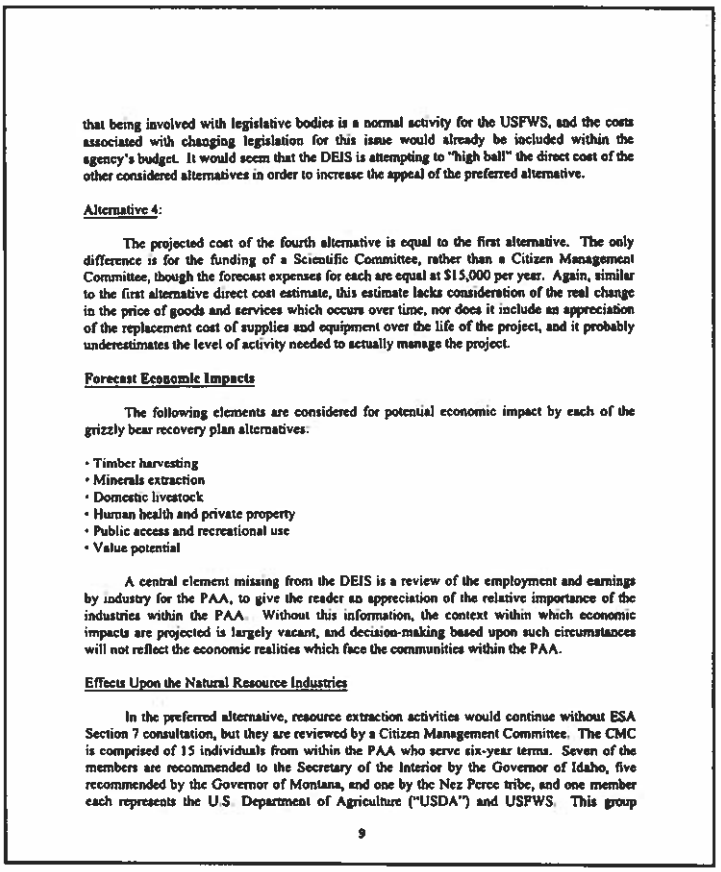
The USFWS does not indicate why the cost is so high for changing legislation; nor does it discuss whether or not the agency already has lobbyists and attorneys on staff. It would seem

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13. Cost inflation is assumed but the exact rate of inflation is not known, thus making accurate and specific budgets for future years uncertain. The listed costs can be assumed to increase by 2% per year. For the purposes of this planning document, our cost projections serve to give a present lump sum useful to compare effects of various alternatives. We note that the estimates will be subject to future inflation, but due to uncertain time frames and inflation rates, and considering how the cost estimates are used in this FEIS, we will not adjust the estimates for inflation. However, additional costs have been added to Appendix 7, based on public comment.

14. While the CMC concept does not "guarantee" balanced decision-making which will consider the impact of the CMC's decisions on the local communities, we can think of no better way to balance the recovery of the grizzly with the needs and interests of local people than to have local people on the decision-making committee itself. The Governors of Idaho and Montana will recommend local citizens to the Secretary, who will select 7 from Idaho and 5 from Montana, based on their diversity of knowledge and experience in natural resource issues, and for their commitment to collaborative decision-making.

15. The CMC does not have authority over pubic land management decisions. Such decisions are the purview of the USDA Forest Service National Forests and the processes and public involvement of these Forests. The CMC can make recommendations to the National Forests concerning grizzly bear-related activities. Recommendations made by the CMC are not public land allocation decisions. However, implementation of these recommendations is up to the land management agencies. Most public lands outside wilderness areas within the Experimental Area are currently subject to the concept of multiple use per NFMA and other national laws and policies. Such multiple use management is supposed to address the needs of both wildlife and human needs to the exclusion of neither, as per NFMA. Decisions about new roads or land developments on public lands are made by the public land management agencies. The CMC does not have authority to "approve or



that being involved with legislative bodies is a normal activity for the USFWS, and the costs associated with changing legislation for this issue would already be included within the agency's budget. It would seem that the DEIS is attempting to "high ball" the direct cost of the other considered alternatives in order to increase the appeal of the preferred alternative.

Alternative 4:

The projected cost of the fourth alternative is equal to the first alternative. The only difference is for the funding of a Scientific Committee, rather than a Citizen Management Committee, though the forecast expenses for each are equal at $15,000 per year. Again, similar to the first alternative direct cost estimate, this estimate lacks consideration of the real change in the price of goods and services which occurs over time, nor does it include an appreciation of the replacement cost of supplies and equipment over the life of the project, and it probably underestimates the level of activity needed to actually manage the project.

Forecast Economic Impacts

The following elements are considered for potential economic impact by each of the grizzly bear recovery plan alternatives:

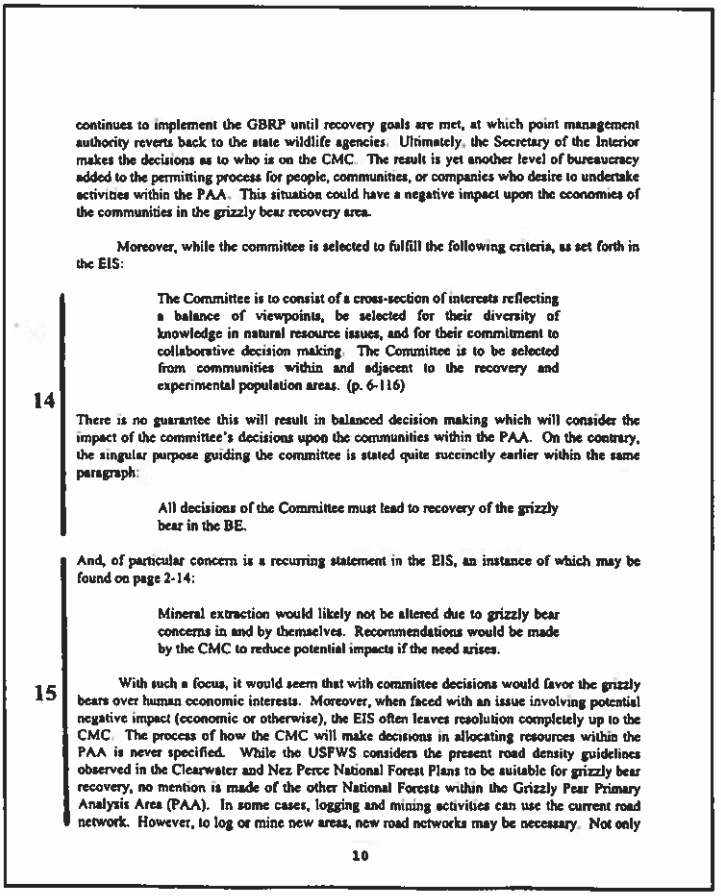
- Timber harvesting
- Minerals extraction
- Domestic livestock
- Human health and private property
- Public access and recreational use
- Value potential

A central element missing from the DEIS is a review of the employment and earnings by industry for the PAA, to give the reader an appreciation of the relative importance of the industries within the PAA. Without this information, the context within which economic impacts are projected is largely vacant, and decision-making based upon such circumstances will not reflect the economic realities which face the communities within the PAA.

Effects Upon the Natural Resource Industries

In the preferred alternative, resource extraction activities would continue without ESA Section 7 consultation, but they are reviewed by a Citizen Management Committee. The CMC is comprised of 15 individuals from within the PAA who serve six-year terms. Seven of the members are recommended to the Secretary of the Interior by the Governor of Idaho, five recommended by the Governor of Montana, and one by the Nez Perce tribe, and one member each represents the U.S. Department of Agriculture ("USDA") and USFWS. This group

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continues to implement the GBRP until recovery goals are met, at which point management authority reverts back to the state wildlife agencies. Ultimately, the Secretary of the Interior makes the decisions as to who is on the CMC. The result is yet another level of bureaucracy added to the permitting process for people, communities, or companies who desire to undertake activities within the PAA. This situation could have a negative impact upon the economies of the communities in the grizzly bear recovery area.

Moreover, while the committee is selected to fulfill the following criteria, as set forth in the EIS:

> The Committee is to consist of a cross-section of interests reflecting a balance of viewpoints, be selected for their diversity of knowledge in natural resource issues, and for their commitment to collaborative decision making. The Committee is to be selected from communities within and adjacent to the recovery and experimental population areas. (p. 6-116)

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There is no guarantee this will result in balanced decision making which will consider the impact of the committee's decisions upon the communities within the PAA. On the contrary, the singular purpose guiding the committee is stated quite succinctly earlier within the same paragraph:

> All decisions of the Committee must lead to recovery of the grizzly bear in the BE.

And, of particular concern is a recurring statement in the EIS, an instance of which may be found on page 2-14:

> Mineral extraction would likely not be altered due to grizzly bear concerns in and by themselves. Recommendations would be made by the CMC to reduce potential impacts if the need arises.

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With such a focus, it would seem that with committee decisions would favor the grizzly bears over human economic interests. Moreover, when faced with an issue involving potential negative impact (economic or otherwise), the EIS often leaves resolution completely up to the CMC. The process of how the CMC will make decisions in allocating resources within the PAA is never specified. While the USFWS considers the present road density guidelines observed in the Clearwater and Nez Perce National Forest Plans to be suitable for grizzly bear recovery, no mention is made of the other National Forests within the Grizzly Bear Primary Analysis Area (PAA). In some cases, logging and mining activities can use the current road network. However, to log or mine new areas, new road networks may be necessary. Not only

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disprove" such decisions. The management of public lands in and around the Recovery Area is the purview of the public land management agencies, not the CMC.

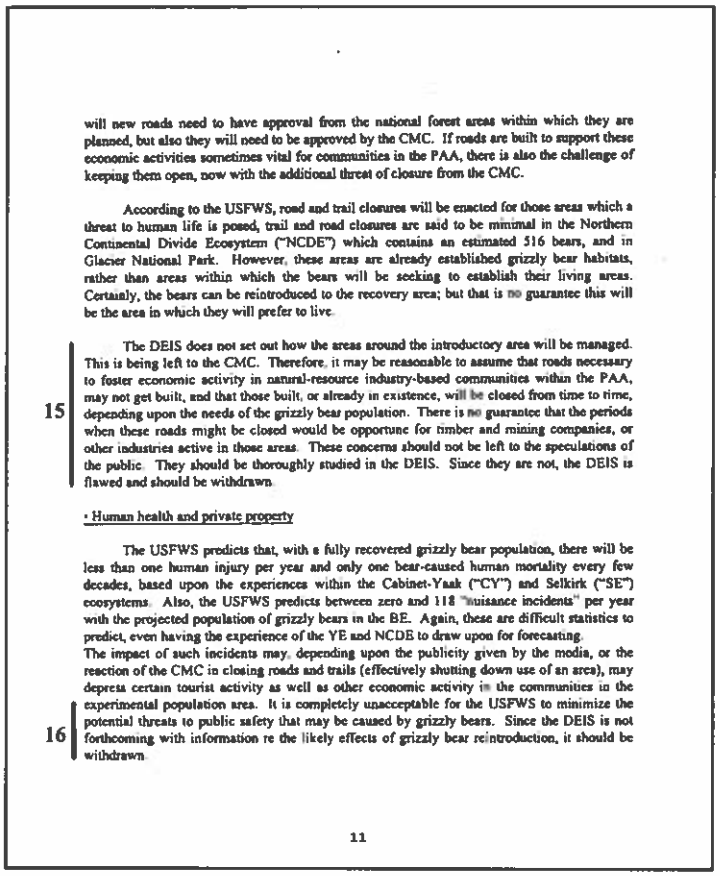
16. The DEIS does not "minimize potential threats to public safety that may be caused by grizzly bears". Threats to public safety potentially posed by grizzly bears are discussed in detail in the DEIS and FEIS using data from similar areas in Montana, Idaho, and Wyoming (see FEIS Chapter 2, Chapter 4, Appendix 11).

17. The discussion of the estimation of existence values has been expanded and reorganized in the Final EIS to address the concerns of the relationship between the estimated existence values and money spent in the local communities, and the questions of the validity and usefulness of the value estimates. Additionally, pertinent questions from the public survey (Duda and Young 1995) used in the analysis of existence values is attached as an appendix to the FEIS (Appendix 17A). In addition to these changes in the FEIS the following comments are offered to address concerns raised about the existence value estimates.

Impacts associated with grizzly reintroduction in the BE can be measured using different accounting frameworks. The one which perhaps most people are familiar with relates to expenditures; how much more or less money is spent in an area as a result of a management change. Expenditure changes are rightfully of concern to local areas impacted by management actions. Changes in local expenditures impact local workers, businesses, and governments. From a national perspective, however, expenditure gains in one area tend to be offset by expenditure losses in another. Expenditure impacts (particularly from tourism) are largely distributional impacts, benefitting one area at the expense of another.

A second accounting framework, a benefit-cost framework, measures not expenditures, but societal benefits and costs. Benefits and costs can be closely, or loosely tied to actual market transactions. In the case of grizzly reintroduction, livestock losses are closely tied to market transactions while existence values are less obviously tied to the market.

It is important not to confuse these two accounting frameworks. The estimated annual



will new roads need to have approval from the national forest areas within which they are planned, but also they will need to be approved by the CMC. If roads are built to support these economic activities sometimes vital for communities in the PAA, there is also the challenge of keeping them open, now with the additional threat of closure from the CMC.

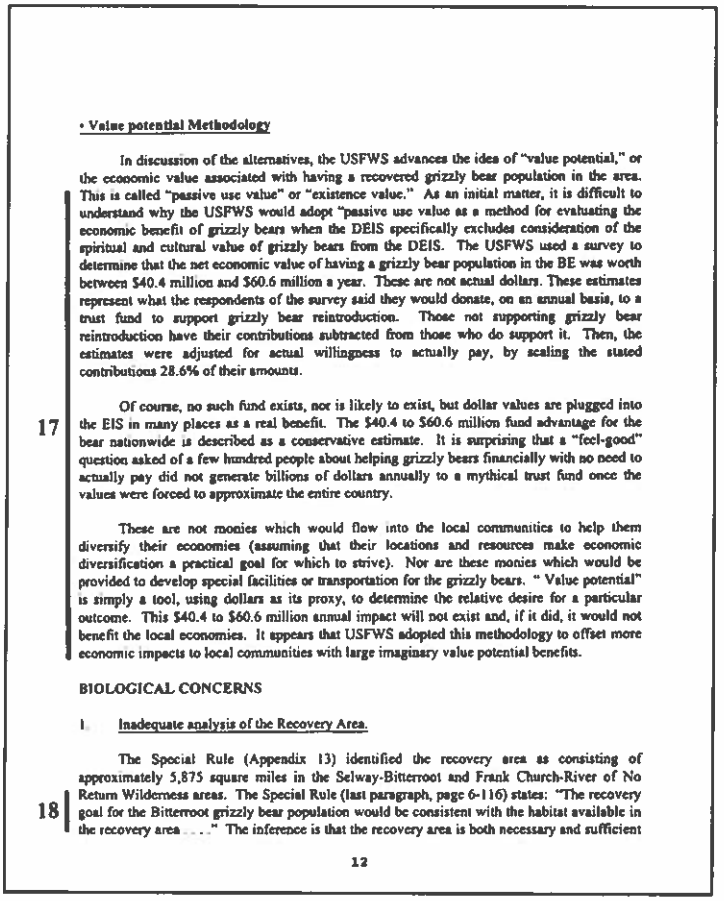
According to the USFWS, road and trail closures will be enacted for those areas which a threat to human life is posed, trail and road closures are said to be minimal in the Northern Continental Divide Ecosystem ("NCDE") which contains an estimated 516 bears, and in Glacier National Park. However, these areas are already established grizzly bear habitats, rather than areas within which the bears will be seeking to establish their living areas. Certainly, the bears can be reintroduced to the recovery area; but that is no guarantee this will be the area in which they will prefer to live.

15 The DEIS does not set out how the areas around the introductory area will be managed. This is being left to the CMC. Therefore, it may be reasonable to assume that roads necessary to foster economic activity in natural-resource industry-based communities within the PAA, may not get built, and that those built, or already in existence, will be closed from time to time, depending upon the needs of the grizzly bear population. There is no guarantee that the periods when these roads might be closed would be opportune for timber and mining companies, or other industries active in those areas. These concerns should not be left to the speculations of the public. They should be thoroughly studied in the DEIS. Since they are not, the DEIS is flawed and should be withdrawn.

• Human health and private property

The USFWS predicts that, with a fully recovered grizzly bear population, there will be less than one human injury per year and only one bear-caused human mortality every few decades, based upon the experiences within the Cabinet-Yaak ("CY") and Selkirk ("SE") ecosystems. Also, the USFWS predicts between zero and 118 "nuisance incidents" per year with the projected population of grizzly bears in the BE. Again, these are difficult statistics to predict, even having the experience of the YE and NCDE to draw upon for forecasting.
The impact of such incidents may, depending upon the publicity given by the media, or the reaction of the CMC in closing roads and trails (effectively shutting down use of an area), may depress certain tourist activity as well as other economic activity in the communities in the experimental population area. It is completely unacceptable for the USFWS to minimize the
16 potential threats to public safety that may be caused by grizzly bears. Since the DEIS is not forthcoming with information re the likely effects of grizzly bear reintroduction, it should be withdrawn.

11



• Value potential Methodology

In discussion of the alternatives, the USFWS advances the idea of "value potential," or the economic value associated with having a recovered grizzly bear population in the area. This is called "passive use value" or "existence value." As an initial matter, it is difficult to understand why the USFWS would adopt "passive use value as a method for evaluating the economic benefit of grizzly bears when the DEIS specifically excludes consideration of the spiritual and cultural value of grizzly bears from the DEIS. The USFWS used a survey to determine that the net economic value of having a grizzly bear population in the BE was worth between $40.4 million and $60.6 million a year. These are not actual dollars. These estimates represent what the respondents of the survey said they would donate, on an annual basis, to a trust fund to support grizzly bear reintroduction. Those not supporting grizzly bear reintroduction have their contributions subtracted from those who do support it. Then, the estimates were adjusted for actual willingness to actually pay, by scaling the stated contributions 28.6% of their amounts.

17 Of course, no such fund exists, nor is likely to exist, but dollar values are plugged into the EIS in many places as a real benefit. The $40.4 to $60.6 million fund advantage for the bear nationwide is described as a conservative estimate. It is surprising that a "feel-good" question asked of a few hundred people about helping grizzly bears financially with no need to actually pay did not generate billions of dollars annually to a mythical trust fund once the values were forced to approximate the entire country.

These are not monies which would flow into the local communities to help them diversify their economies (assuming that their locations and resources make economic diversification a practical goal for which to strive). Nor are these monies which would be provided to develop special facilities or transportation for the grizzly bears. " Value potential" is simply a tool, using dollars as its proxy, to determine the relative desire for a particular outcome. This $40.4 to $60.6 million annual impact will not exist and, if it did, it would not benefit the local economies. It appears that USFWS adopted this methodology to offset more economic impacts to local communities with large imaginary value potential benefits.

BIOLOGICAL CONCERNS

1. Inadequate analysis of the Recovery Area.

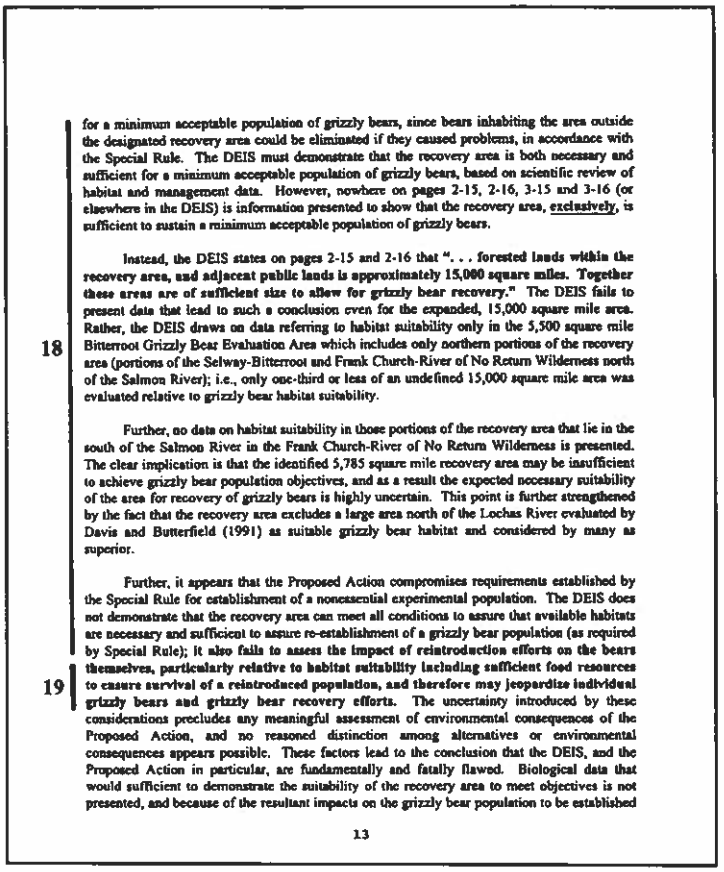
The Special Rule (Appendix 13) identified the recovery area as consisting of approximately 5,875 square miles in the Selway-Bitterroot and Frank Church-River of No Return Wilderness areas. The Special Rule (last paragraph, page 6-116) states: "The recovery
18 goal for the Bitterroot grizzly bear population would be consistent with the habitat available in the recovery area . . . ." The inference is that the recovery area is both necessary and sufficient

12

existence value associated with grizzly reintroduction as reported in the DEIS and FEIS would NOT be characterized by increased expenditures in the Recovery Area. Rather, these estimates represent aggregate increases in value to people in the U.S. accruing as a result of grizzly reintroduction. A portion (but only a very small portion) of this non-market value would accrue to residents of the local area surrounding the recovery area.

While the use of contingent valuation methods to estimate passive use values associated with proposed management changes is not a perfect tool, it is the only accepted tool currently available to economists to measure these types of non-use values. The general approach of using contingent valuation to measure passive-use values has been subject to a court test in a challenge to the 1986 DOI CERCLA regulations (Ohio v. DOI, 880 F.2d 432,474 (D.C. Circuit 1989)). Additionally, in 1992 the National Oceanic and Atmospheric Administration (NOAA) appointed a distinguished panel (including several Nobel laureates in economics) to evaluate the approach in the context of implementing the Oil Pollution Act of 1990. In both instances the method has been judged to be a useful tool for valuation in the context of litigation. For example, the NOAA panel concluded that: "CV assessment, including lost passive-use values" studies can produce estimates reliable enough to be the starting point of a judicial process of damage (Arrow et al. 1993). It is clear from the above statement that passive-use value estimation using contingent valuation does not produce an irrefutably accurate estimate of value, nor is it claimed to. Rather, the method employed in the DEIS and FEIS provides a rough approximation of the existence value associated with grizzly restoration.

18. The habitat suitability of both the Recovery Area and the area north of the Lochsa River in the North Fork of the Clearwater River drainage is evaluated in detail in the habitat evaluation appendices added in this Final EIS. The suitability of the area south of the Salmon River is also addressed separately in these appendices. The reader is referred to these appendices for a full review of this information (See Appendices 21A, B, C, D). This information has also been included in pertinent sections of FEIS Chapters 2, 3, and 4.



for a minimum acceptable population of grizzly bears, since bears inhabiting the area outside the designated recovery area could be eliminated if they caused problems, in accordance with the Special Rule. The DEIS must demonstrate that the recovery area is both necessary and sufficient for a minimum acceptable population of grizzly bears, based on scientific review of habitat and management data. However, nowhere on pages 2-15, 2-16, 3-15 and 3-16 (or elsewhere in the DEIS) is information presented to show that the recovery area, exclusively, is sufficient to sustain a minimum acceptable population of grizzly bears.

Instead, the DEIS states on pages 2-15 and 2-16 that ". . . forested lands within the recovery area, and adjacent public lands is approximately 15,000 square miles. Together these areas are of sufficient size to allow for grizzly bear recovery." The DEIS fails to present data that lead to such a conclusion even for the expanded, 15,000 square mile area. Rather, the DEIS draws on data referring to habitat suitability only in the 5,500 square mile Bitterroot Grizzly Bear Evaluation Area which includes only northern portions of the recovery area (portions of the Selway-Bitterroot and Frank Church-River of No Return Wilderness north of the Salmon River); i.e., only one-third or less of an undefined 15,000 square mile area was evaluated relative to grizzly bear habitat suitability.

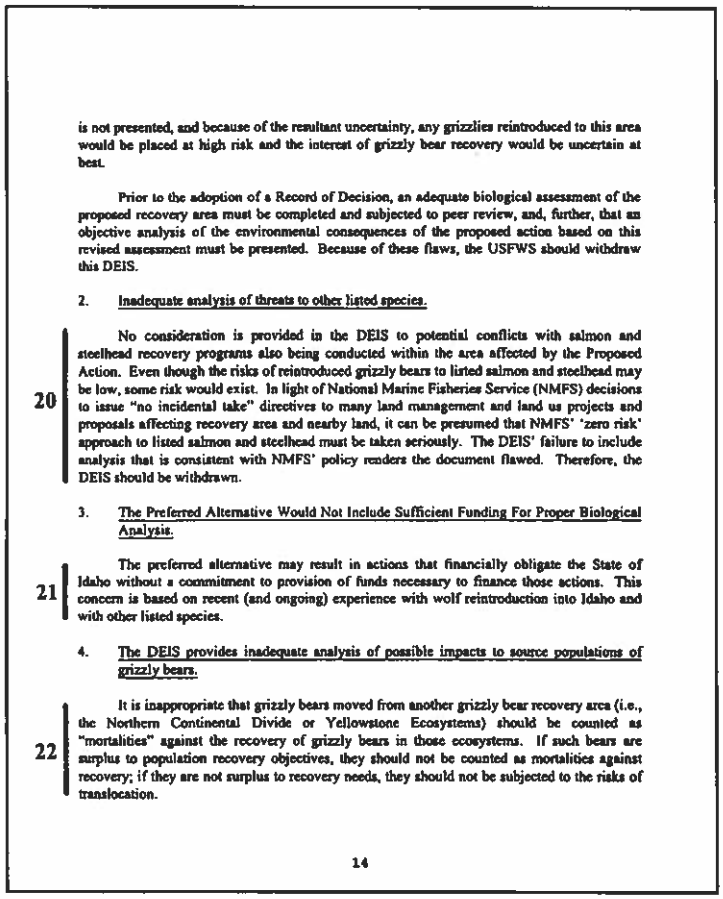
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Further, no data on habitat suitability in those portions of the recovery area that lie in the south of the Salmon River in the Frank Church-River of No Return Wilderness is presented. The clear implication is that the identified 5,785 square mile recovery area may be insufficient to achieve grizzly bear population objectives, and as a result the expected necessary suitability of the area for recovery of grizzly bears is highly uncertain. This point is further strengthened by the fact that the recovery area excludes a large area north of the Lochas River evaluated by Davis and Butterfield (1991) as suitable grizzly bear habitat and considered by many as superior.

Further, it appears that the Proposed Action compromises requirements established by the Special Rule for establishment of a nonessential experimental population. The DEIS does not demonstrate that the recovery area can meet all conditions to assure that available habitats are necessary and sufficient to assure re-establishment of a grizzly bear population (as required by Special Rule); it also fails to assess the impact of reintroduction efforts on the bears themselves, particularly relative to habitat suitability including sufficient food resources to ensure survival of a reintroduced population, and therefore may jeopardize individual grizzly bears and grizzly bear recovery efforts. The uncertainty introduced by these considerations precludes any meaningful assessment of environmental consequences of the Proposed Action, and no reasoned distinction among alternatives or environmental consequences appears possible. These factors lead to the conclusion that the DEIS, and the Proposed Action in particular, are fundamentally and fatally flawed. Biological data that would sufficient to demonstrate the suitability of the recovery area to meet objectives is not presented, and because of the resultant impacts on the grizzly bear population to be established

19

13



is not presented, and because of the resultant uncertainty, any grizzlies reintroduced to this area would be placed at high risk and the interest of grizzly bear recovery would be uncertain at best.

Prior to the adoption of a Record of Decision, an adequate biological assessment of the proposed recovery area must be completed and subjected to peer review, and, further, that an objective analysis of the environmental consequences of the proposed action based on this revised assessment must be presented. Because of these flaws, the USFWS should withdraw this DEIS.

2. Inadequate analysis of threats to other listed species.

No consideration is provided in the DEIS to potential conflicts with salmon and steelhead recovery programs also being conducted within the area affected by the Proposed Action. Even though the risks of reintroduced grizzly bears to listed salmon and steelhead may be low, some risk would exist. In light of National Marine Fisheries Service (NMFS) decisions to issue "no incidental take" directives to many land management and land us projects and proposals affecting recovery area and nearby land, it can be presumed that NMFS' 'zero risk' approach to listed salmon and steelhead must be taken seriously. The DEIS' failure to include analysis that is consistent with NMFS' policy renders the document flawed. Therefore, the DEIS should be withdrawn.

20

3. The Preferred Alternative Would Not Include Sufficient Funding For Proper Biological Analysis.

The preferred alternative may result in actions that financially obligate the State of Idaho without a commitment to provision of funds necessary to finance those actions. This concern is based on recent (and ongoing) experience with wolf reintroduction into Idaho and with other listed species.

21

4. The DEIS provides inadequate analysis of possible impacts to source populations of grizzly bears.

It is inappropriate that grizzly bears moved from another grizzly bear recovery area (i.e., the Northern Continental Divide or Yellowstone Ecosystems) should be counted as "mortalities" against the recovery of grizzly bears in those ecosystems. If such bears are surplus to population recovery objectives, they should not be counted as mortalities against recovery; if they are not surplus to recovery needs, they should not be subjected to the risks of translocation.

22

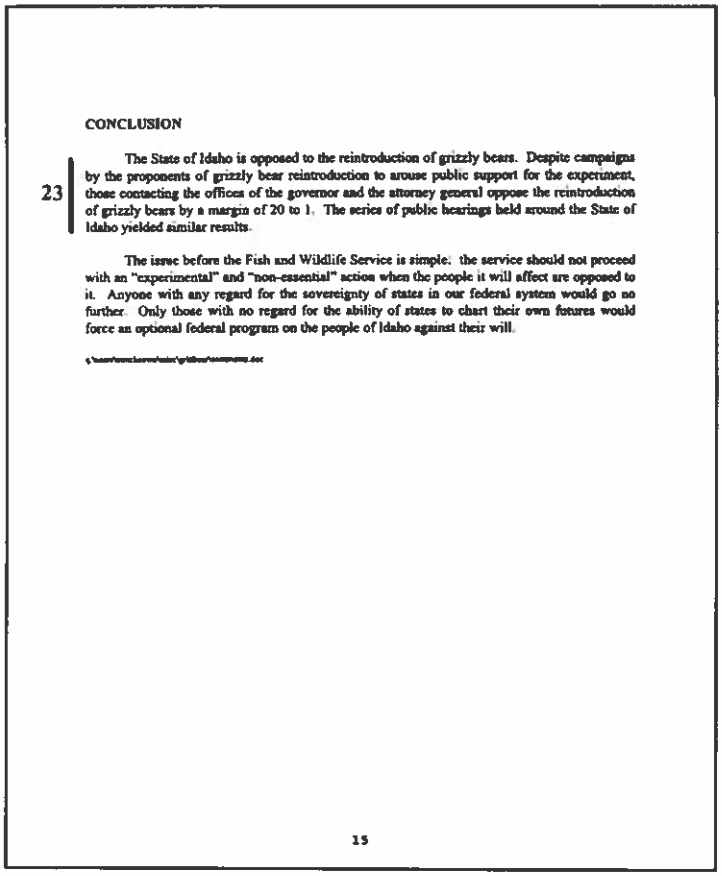
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19. The additional appendices added relating to habitat suitability in the Recovery Area and adjacent lands address this issue. These appendices show that sufficient food resources exist in the Recovery Area to provide the seasonal food requirements of any introduced grizzly bears. Significant areas of major berry-producing shrubs, and other foods exist inside and adjacent to the Recovery Area to support the needs of reintroduced bears. The reader is referred to these appendices for further details on this issue (See Appendices 21A, B, C, D).

20. Consideration of the risk to salmon and steelhead recovery is addressed in the consultation undertaken with NMFS concerning these possible effects. No impacts to these recovery programs is anticipated since all bears placed in the Bitterroot Ecosystem will be bears that have no experience eating fish or fishing. As per the consultation with NMFS, if there is taking by grizzly bears of these fish, USFWS will reinitiate consultation with NMFS to further address and minimize such effects. The NMFS Biological Opinion on the effects to anadromous fish from the restoration of grizzly bears to the Bitterroot Ecosystem is included as FEIS Appendix 9B.

21. The DEIS outlined expected costs of managing and monitoring the reintroduced grizzly bears. These costs would be provided to Montana and Idaho by USFWS should they choose to accept management responsibility. If the state of Idaho chooses not to accept management responsibility for grizzly bears, these USFWS funds will be used to manage and monitor the bears without state of Idaho involvement. Funding would be available to the state of Idaho to carry out their responsibilities if grizzly bears were reintroduced.

22. Any bears removed from within the recovery zone of any ecosystem through human causes are counted as lost to that ecosystem and are therefore equivalent to a mortality in that system. Thus, if a nuisance bear is destroyed by managers, sent to a zoo, it is a loss to that population. Any bears removed from any ecosystem in the lower 48 states is equal to a mortality - such bears no longer live in that system. Such removals are not considered "surplus", but are instead counted as mortalities

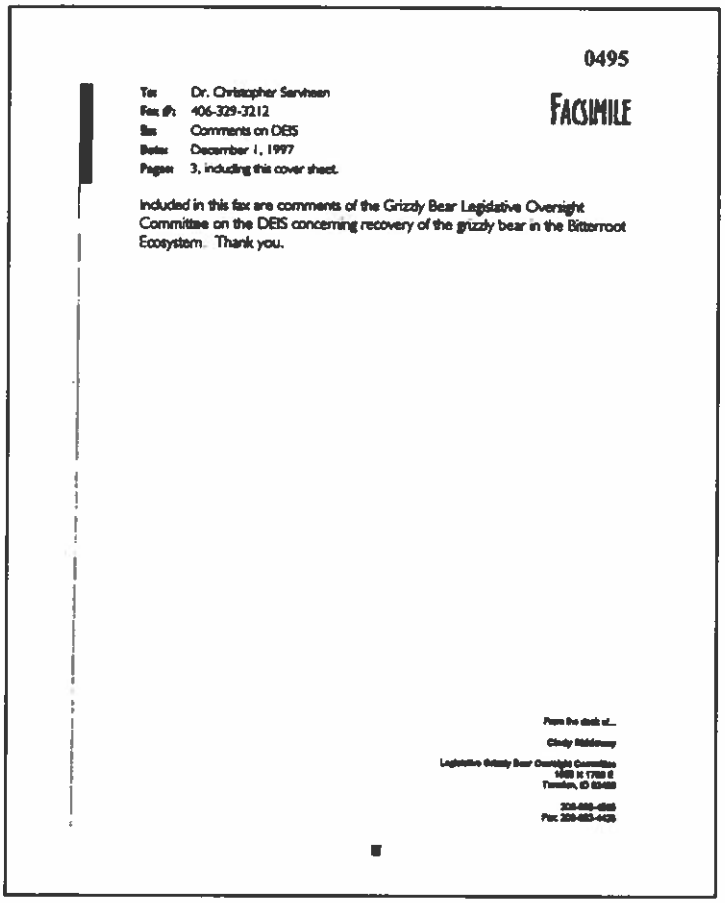


CONCLUSION

23 The State of Idaho is opposed to the reintroduction of grizzly bears. Despite campaigns by the proponents of grizzly bear reintroduction to arouse public support for the experiment, those contacting the offices of the governor and the attorney general oppose the reintroduction of grizzly bears by a margin of 20 to 1. The series of public hearings held around the State of Idaho yielded similar results.

The issue before the Fish and Wildlife Service is simple: the service should not proceed with an "experimental" and "non-essential" action when the people it will affect are opposed to it. Anyone with any regard for the sovereignty of states in our federal system would go no further. Only those with no regard for the ability of states to chart their own futures would force an optional federal program on the people of Idaho against their will.

15



0495

FACSIMILE

To: Dr. Christopher Servheen
Fax #: 406-329-3212
Re: Comments on DEIS
Date: December 1, 1997
Pages: 3, including this cover sheet.

Included in this fax are comments of the Grizzly Bear Legislative Oversight Committee on the DEIS concerning recovery of the grizzly bear in the Bitterroot Ecosystem. Thank you.

for that ecosystem. Strict mortality limits exist for each ecosystem for all human-caused removals or mortalities in order to assure population health in each ecosystem. Any bears removed from within the recovery zone of any ecosystem for introduction into the Bitterroot Ecosystem would be counted under this mortality limit system to assure the health of the source population.

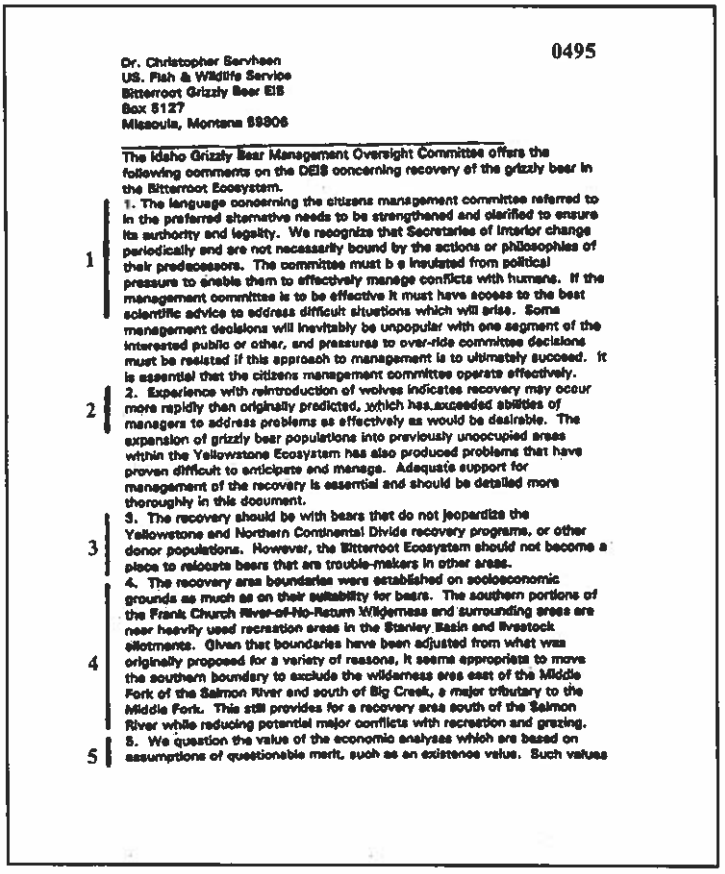
Since no bears will be removed from the YE or NCDE if the mortality limits will be exceeded, and no female bears will be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE will be nonexistent.

23. The comments received by the Governor and Attorney General of Idaho are noted. The results of the public hearings on the DEIS yielded a majority of those who commented in favor of grizzly bear recovery, supporting both Alternative 1 and Alternative 4. The public comment process is not a vote count, and the following statistics are presented solely for the purpose of responding to your comment. From the 260 total hearing testimonies that indicated a clear preference, approximately 60% testified in favor of grizzly bear recovery and 40% opposed recovery. At Idaho hearings, 148 testimonies indicated 49% favored and 51% opposed grizzly bear recovery. At Montana hearings, 112 testimonies indicated 75% favored and 25% opposed recovery of grizzly bears in the Bitterroot Ecosystem.

State, Idaho Grizzly Bear Legislative Oversight Committee: #495

1. Wording has been added to Alternative 1 establishing a Scientific Review Panel to judge the effectiveness of the CMC. If the USFWS representative on the CMC has concerns that CMC actions or decisions aren't leading to recovery, and after initial attempts to settle the dispute have failed, the USFWS representative can convene a review panel. This panel will make recommendations to the Secretary of Interior regarding the effectiveness of the CMC in making decisions that will lead to recovery. This will serve to insulate the CMC from direct political pressure and influence. To assure scientific input in CMC decisions, two scientific advisors will be appointed to serve on the CMC and to attend all meetings (see Chapter 2, Alternative 1).

2. We agree that adequate financial support is necessary to allow management and monitoring of bears. Wording has been added



0495

Dr. Christopher Servheen
US. Fish & Wildlife Service
Bitterroot Grizzly Bear EIS
Box 8127
Missoula, Montana 59806

The Idaho Grizzly Bear Management Oversight Committee offers the following comments on the DEIS concerning recovery of the grizzly bear in the Bitterroot Ecosystem.

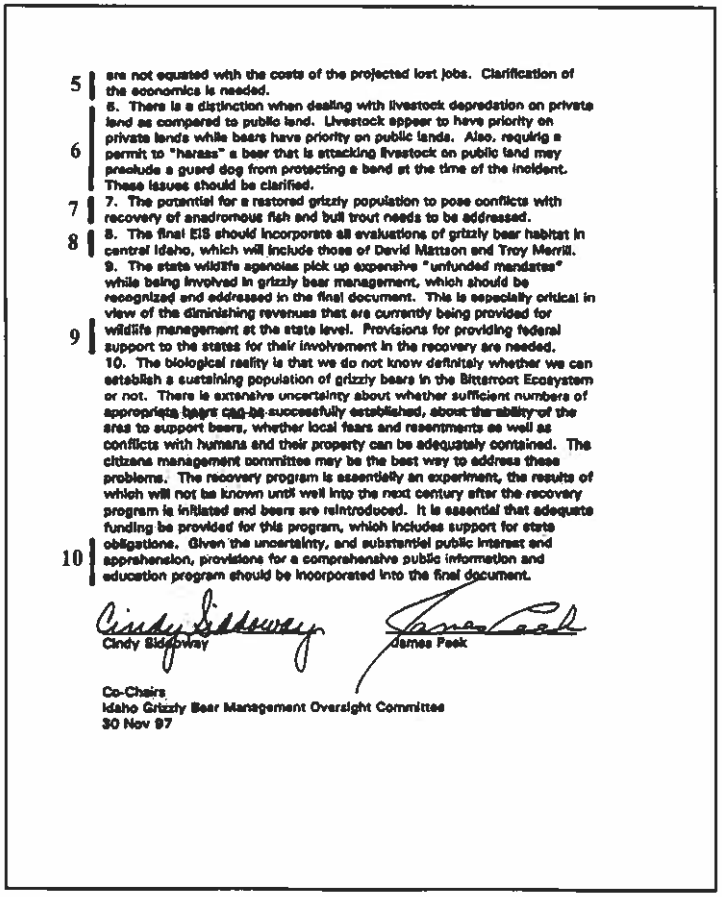
1 | 1. The language concerning the citizens management committee referred to in the preferred alternative needs to be strengthened and clarified to ensure its authority and legality. We recognize that Secretaries of Interior change periodically and are not necessarily bound by the actions or philosophies of their predecessors. The committee must b e insulated from political pressure to enable them to effectively manage conflicts with humans. If the management committee is to be effective it must have access to the best scientific advice to address difficult situations which will arise. Some management decisions will inevitably be unpopular with one segment of the interested public or other, and pressures to over-ride committee decisions must be resisted if this approach to management is to ultimately succeed. It is essential that the citizens management committee operate effectively.

2 | 2. Experience with reintroduction of wolves indicates recovery may occur more rapidly than originally predicted, which has exceeded abilities of managers to address problems as effectively as would be desirable. The expansion of grizzly bear populations into previously unoccupied areas within the Yellowstone Ecosystem has also produced problems that have proven difficult to anticipate and manage. Adequate support for management of the recovery is essential and should be detailed more thoroughly in this document.

3 | 3. The recovery should be with bears that do not jeopardize the Yellowstone and Northern Continental Divide recovery programs, or other donor populations. However, the Bitterroot Ecosystem should not become a place to relocate bears that are trouble-makers in other areas.

4 | 4. The recovery area boundaries were established on socioeconomic grounds as much as on their suitability for bears. The southern portions of the Frank Church River-of-No-Return Wilderness and surrounding areas are near heavily used recreation areas in the Stanley Basin and livestock allotments. Given that boundaries have been adjusted from what was originally proposed for a variety of reasons, it seems appropriate to move the southern boundary to exclude the wilderness area east of the Middle Fork of the Salmon River and south of Big Creek, a major tributary to the Middle Fork. This still provides for a recovery area south of the Salmon River while reducing potential major conflicts with recreation and grazing.

5 | 5. We question the value of the economic analyses which are based on assumptions of questionable merit, such as an existence value. Such values



5 | are not equated with the costs of the projected lost jobs. Clarification of the economics is needed.

6 | 6. There is a distinction when dealing with livestock depredation on private land as compared to public land. Livestock appear to have priority on private lands while bears have priority on public lands. Also, requirig a permit to "harass" a bear that is attacking livestock on public land may preclude a guard dog from protecting a bend at the time of the incident. These issues should be clarified.

7 | 7. The potential for a restored grizzly population to pose conflicts with recovery of anadromous fish and bull trout needs to be addressed.

8 | 8. The final EIS should incorporate all evaluations of grizzly bear habitat in central Idaho, which will include those of David Mattson and Troy Merrill.

9 | 9. The state wildlife agencies pick up expensive "unfunded mandates" while being involved in grizzly bear management, which should be recognized and addressed in the final document. This is especially critical in view of the diminishing revenues that are currently being provided for wildlife management at the state level. Provisions for providing federal support to the states for their involvement in the recovery are needed.

10 | 10. The biological reality is that we do not know definitely whether we can establish a sustaining population of grizzly bears in the Bitterroot Ecosystem or not. There is extensive uncertainty about whether sufficient numbers of appropriate bears can be successfully established, about the ability of the area to support bears, whether local fears and resentments as well as conflicts with humans and their property can be adequately contained. The citizens management committee may be the best way to address these problems. The recovery program is essentially an experiment, the results of which will not be known until well into the next century after the recovery program is initiated and bears are reintroduced. It is essential that adequate funding be provided for this program, which includes support for state obligations. Given the uncertainty, and substantial public interest and apprehension, provisions for a comprehensive public information and education program should be incorporated into the final document.

Cindy Siddoway — James Peek

Co-Chairs
Idaho Grizzly Bear Management Oversight Committee
30 Nov 97

to stress that the USFWS should evaluate costs of recovery on an ongoing basis. The CMC will also be responsible for evaluating management costs and requesting additional funding to meet monitoring and management needs as required. The allocation of dollars among land management agencies will be done on implementation of the program, based on responsibilities assigned the various agencies.

3. We agree that any removal of bears from either the YE or NCDE should not impact recovery efforts in those ecosystems. To assure this, bears will only be removed from those ecosystems if it is agreed by both the USFWS and the affected state that such removals will not exceed the allowable mortality quotas for that ecosystem. No bears which would be classified as nuisance bears under the Interagency Grizzly Bear Guidelines would be placed in the Bitterroot. Only those bears with no history of conflict with people or livestock would be used for reintroduction in the Bitterroot.

4. The recovery area is the area of recovery emphasis, but it is not the only area where bears are expected to eventually reside. Alternative 1 specifically directs the CMC to make recommendations to accommodate grizzly bears within the experimental area, on the adjacent public lands surrounding the recovery area. Recovery emphasis means that the initial placement of bears will be in the north wilderness - the Selway-Bitterroot Wilderness north of the Salmon River. Recovery emphasis also means that initial education and outreach efforts toward users of the Bitterroot will be directed to users inside the recovery area. It is expected that grizzly bears will occupy pubic lands inside and adjacent to the recovery area eventually, as the restored grizzly population gradually increases over decades. The occupancy of these public lands will be managed so as to be compatible with other uses. This means that bears that come into conflict with people or lawfully present livestock will be managed as per appropriate protocols. It also means that users of these public lands must apply common sense in hunting and recreation, and appropriate standards of storage of garbage and other attractants to minimize bear-human encounters. Such sanitation standards by users of public

lands will benefit many other wildlife species and maintain the values of pubic lands, as well as benefitting grizzly bears.

5. The discussion of the estimation of existence values has been expanded and reorganized in the Final EIS to address the concerns of the relationship between the estimated existence values and money spent in the local communities, and the questions of the validity and usefulness of the value estimates. Refer to response to comment letter by Idaho Governor Batt (letter # 203), issue #17, on page 5-32. This response provides further information regarding the economic analysis in the Final EIS.

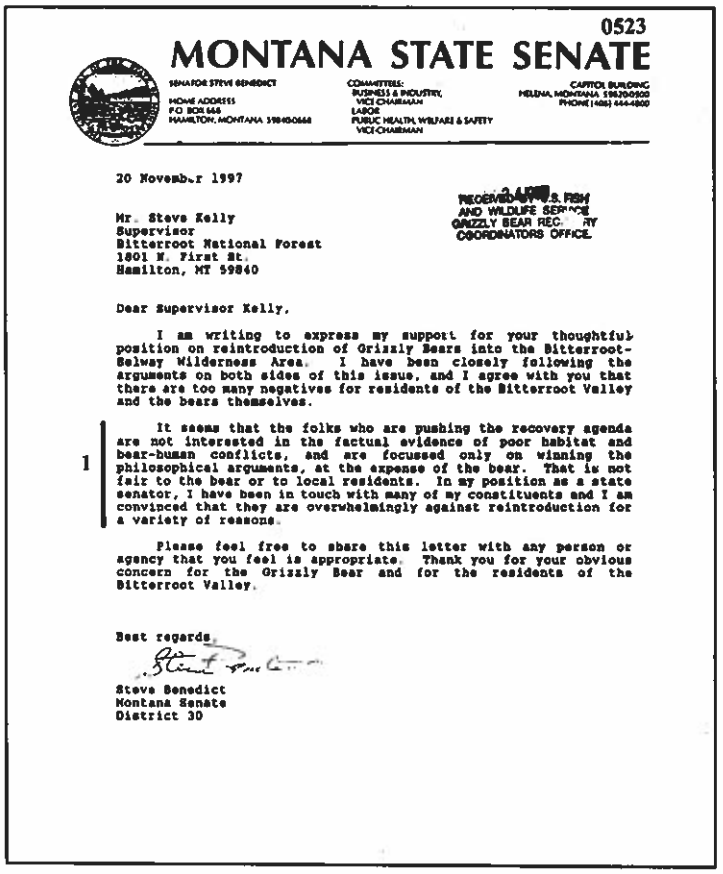
6. The preferred alternative has been revised to allow the use of guard dogs to harass problem bears. A permit would not be required.

7. Consideration of the risk to salmon and steelhead recovery is addressed in the consultation undertaken with NMFS concerning these possible effects. No impacts to these recovery programs is anticipated since all bears placed in the Bitterroot will be bears that have no experience eating fish or fishing. As per the consultation with NMFS, if there is taking by grizzly bears of these fish, USFWS will reinitiate consultation with NMFS to further address and minimize such effects (Appendix 9B).

8. These evaluations are referenced in the appendices on habitat quality for grizzly bears in the BE (Appendices 3 and 21).

9. Funding for state management is included in the budget section. We agree that the additional costs of grizzly recovery under the ESA should be provided by the USFWS.

10. We agree and a section on public outreach and education is included in the Final EIS, Chapter 2.



0523

MONTANA STATE SENATE

SENATOR STEVE BENEDICT
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20 November 1997

RECEIVED U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR REC. RY COORDINATORS OFFICE

Mr. Steve Kelly
Supervisor
Bitterroot National Forest
1801 N. First St.
Hamilton, MT 59840

Dear Supervisor Kelly,

I am writing to express my support for your thoughtful position on reintroduction of Grizzly Bears into the Bitterroot-Selway Wilderness Area. I have been closely following the arguments on both sides of this issue, and I agree with you that there are too many negatives for residents of the Bitterroot Valley and the bears themselves.

1 It seems that the folks who are pushing the recovery agenda are not interested in the factual evidence of poor habitat and bear-human conflicts, and are focussed only on winning the philosophical arguments, at the expense of the bear. That is not fair to the bear or to local residents. In my position as a state senator, I have been in touch with many of my constituents and I am convinced that they are overwhelmingly against reintroduction for a variety of reasons.

Please feel free to share this letter with any person or agency that you feel is appropriate. Thank you for your obvious concern for the Grizzly Bear and for the residents of the Bitterroot Valley.

Best regards,

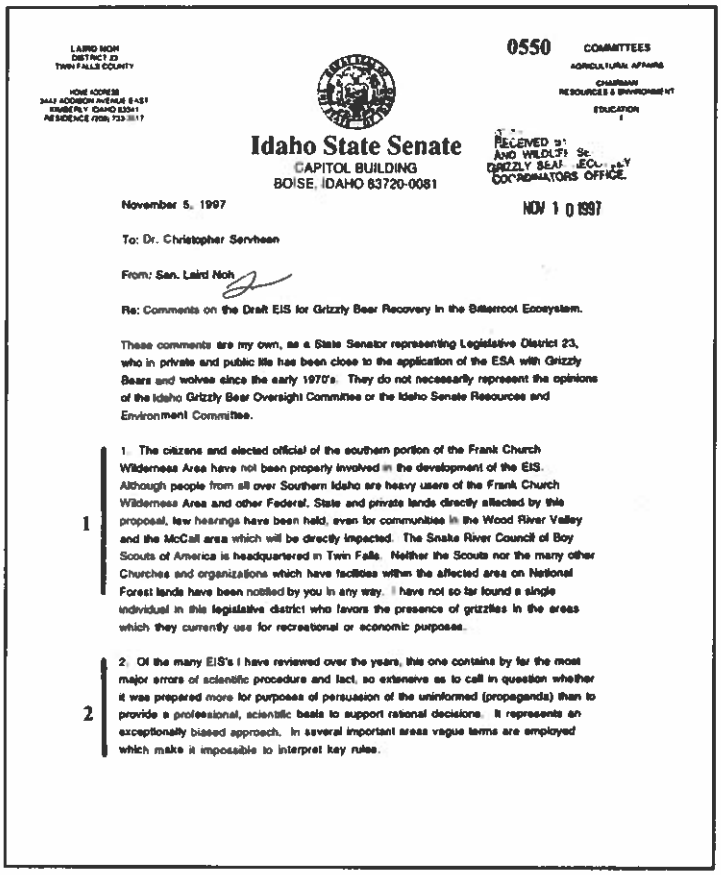
Steve Benedict
Montana Senate
District 30

State, Montana Senator Steve Benedict: #523

1. The U.S. Fish and Wildlife Service is very interested in the quality of habitat in the experimental population area and the recovery area. Butterfield and Almack (1985) and Davis and Butterfield (1991) evaluated suitability of habitats in the Bitterroot Ecosystem (BE) based on the essential grizzly bear habitat criteria of Craighead et al. (1982). Butterfield and Almack concluded that the BE is an "ecologically superior area for grizzly bear recovery" and the BE "more than satisfies these habitat criteria." Davis and Butterfield (1991) concluded from their five year comprehensive study of grizzly bear habitat in the BE, "The Bitterroot Grizzly Bear Evaluation Area appears to meet many of the criteria defined by Craighead et al. (1982) for grizzly bear habitat.

Dr. Mark Boyce was contracted by the USFWS to do a Population Viability Analysis (PVA) of the proposed BE Grizzly Bear Recovery Area. Results are presented in FEIS Appendix 21. Dr. Boyce also completed a habitat-based population assessment of the BE, and it is included as Appendix 21(A,B) in the FEIS. This assessment indicates the habitat in the BE is capable of supporting a population of 308-321 grizzly bears. This number is 10-15% higher than the USFWS recovery goal estimate because further evaluation of the habitats in the southern portion of the Ecosystem indicate that even though the forb and berry production in these dry habitats is relatively low, the southern half of the Bitterroot Ecosystem contains substantial stands of whitebark pine as well as populations of elk and deer that can provide food for grizzly bears. Appendix 21D presents data on presence of a variety of grizzly bear foods in the BE. Also, the remoteness of the area and the paucity of roads will help to ensure that a viable population of grizzly bears can persist in the Bitterroot Ecosystem of Idaho and Montana. In summary, Appendix 21 provides the best scientific information available to indicate the habitats in the BE are capable of supporting a viable population of grizzly bears.

We can assure you that human health and safety is our number one concern, and we have addressed this issue in the Final EIS. The analysis of public comments on the Draft EIS indicated of those who responded, more supported grizzly bear recovery than opposed it.



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0550

COMMITTEES
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CHAIRMAN
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Idaho State Senate
CAPITOL BUILDING
BOISE, IDAHO 83720-0081

RECEIVED BY
FWS/IDAHO GRIZZLY BEAR RECOVERY COORDINATORS OFFICE
NOV 10 1997

November 5, 1997

To: Dr. Christopher Servheen

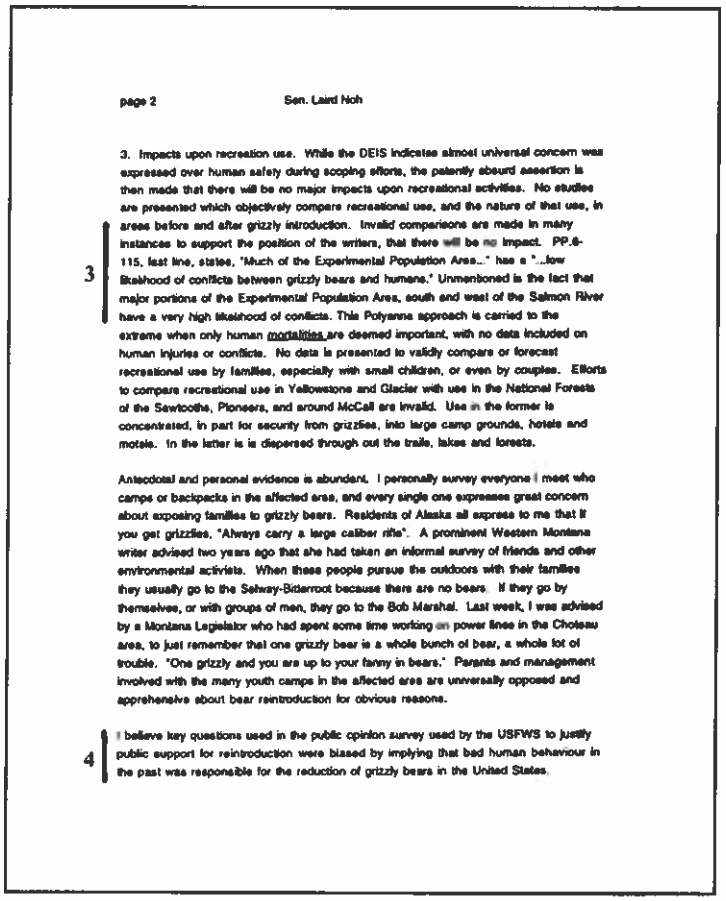
From: Sen. Laird Noh

Re: Comments on the Draft EIS for Grizzly Bear Recovery in the Bitterroot Ecosystem.

These comments are my own, as a State Senator representing Legislative District 23, who in private and public life has been close to the application of the ESA with Grizzly Bears and wolves since the early 1970's. They do not necessarily represent the opinions of the Idaho Grizzly Bear Oversight Committee or the Idaho Senate Resources and Environment Committee.

1 1. The citizens and elected official of the southern portion of the Frank Church Wilderness Area have not been properly involved in the development of the EIS. Although people from all over Southern Idaho are heavy users of the Frank Church Wilderness Area and other Federal, State and private lands directly affected by this proposal, few hearings have been held, even for communities in the Wood River Valley and the McCall area which will be directly impacted. The Snake River Council of Boy Scouts of America is headquartered in Twin Falls. Neither the Scouts nor the many other Churches and organizations which have facilities within the affected area on National Forest lands have been notified by you in any way. I have not so far found a single individual in this legislative district who favors the presence of grizzlies in the areas which they currently use for recreational or economic purposes.

2 2. Of the many EIS's I have reviewed over the years, this one contains by far the most major errors of scientific procedure and fact, so extensive as to call in question whether it was prepared more for purposes of persuasion of the uninformed (propaganda) than to provide a professional, scientific basis to support rational decisions. It represents an exceptionally biased approach. In several important areas vague terms are employed which make it impossible to interpret key rules.



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3 3. Impacts upon recreation use. While the DEIS indicates almost universal concern was expressed over human safety during scoping efforts, the patently absurd assertion is then made that there will be no major impacts upon recreational activities. No studies are presented which objectively compare recreational use, and the nature of that use, in areas before and after grizzly introduction. Invalid comparisons are made in many instances to support the position of the writers, that there will be no impact. PP.6-115, last line, states, "Much of the Experimental Population Area..." has a "...low likelihood of conflicts between grizzly bears and humans." Unmentioned is the fact that major portions of the Experimental Population Area, south and west of the Salmon River have a very high likelihood of conflicts. This Polyanna approach is carried to the extreme when only human mortalities are deemed important, with no data included on human injuries or conflicts. No data is presented to validly compare or forecast recreational use by families, especially with small children, or even by couples. Efforts to compare recreational use in Yellowstone and Glacier with use in the National Forests of the Sawtooths, Pioneers, and around McCall are invalid. Use in the former is concentrated, in part for security from grizzlies, into large camp grounds, hotels and motels. In the latter is is dispersed through out the trails, lakes and forests.

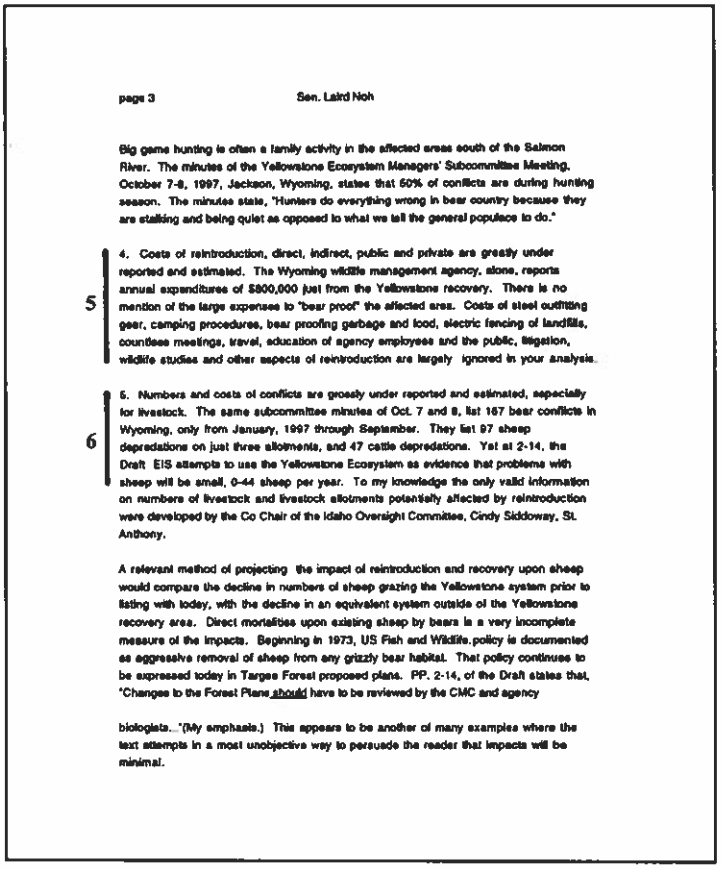
Antecdotal and personal evidence is abundant. I personally survey everyone I meet who camps or backpacks in the affected area, and every single one expresses great concern about exposing families to grizzly bears. Residents of Alaska all express to me that if you get grizzlies, "Always carry a large caliber rifle". A prominent Western Montana writer advised two years ago that she had taken an informal survey of friends and other environmental activists. When these people pursue the outdoors with their families they usually go to the Selway-Bitterroot because there are no bears. If they go by themselves, or with groups of men, they go to the Bob Marshal. Last week, I was advised by a Montana Legislator who had spent some time working on power lines in the Choteau area, to just remember that one grizzly bear is a whole bunch of bear, a whole lot of trouble. "One grizzly and you are up to your fanny in bears." Parents and management involved with the many youth camps in the affected area are universally opposed and apprehensive about bear reintroduction for obvious reasons.

4 I believe key questions used in the public opinion survey used by the USFWS to justify public support for reintroduction were biased by implying that bad human behaviour in the past was responsible for the reduction of grizzly bears in the United States.

State, Idaho Senator Laird Noh: #550

1. The USFWS has made a strong effort to involve the citizens that reside and recreate in and adjacent to the Bitterroot Ecosystem in every phase of the planning process that led to this proposal. Please refer to Appendix 1 for a detailed chronology of grizzly bear recovery efforts for the Bitterroot Ecosystem. A Citizen Involvement Group (50 members) was formed in 1992 to guide the development of the Bitterroot chapter of the recovery Plan. Several public meetings were held in 1993 to gather public comments on grizzly bear recovery in the BE. In 1993 the Idaho Legislature authorized the formation of the Grizzly Bear Oversight Committee for Idaho, consisting of the chairs of the Idaho Senate and House Resource Committees, and representatives each from timber, mining, livestock, recreation, and wildlife. This committee still exists, and is comprised of a number of members from towns adjacent to and south of the Frank Church River of No Return Wilderness. In 1994 open houses were held by the USFWS, Citizens Involvement Group, and Legislative Oversight Committee in in number of towns in Idaho and Salt Lake City, UT. And in 1995, the NEPA process for this proposal began with public scoping for 75 days, which included open houses in Grangeville, Boise, and Salt Lake City (among other locations). The Citizen Involvement Group and Legislative Oversight Committee also provided input on the proposal. Since 1995, EIS Team members have met with numerous federal and state agencies, elected officials, and public groups around the BE, including areas south of the proposed recovery area. A public comment period on the DEIS was open for 120 days, during which public hearings were held in Boise, Salmon, and Challis in southern Idaho (among other locations). The EIS Team sent 60 letters offering to meet with county commissioners, chambers of commerce, and agencies within all counties adjacent to the proposed recovery area to present results of the public comments on the DEIS and answer questions. Responses were few, but briefings were given to all that requested them, including the county commissioners in Salmon and Challis, Idaho.

2. Further scientific analyses have been conducted and their results added to the FEIS



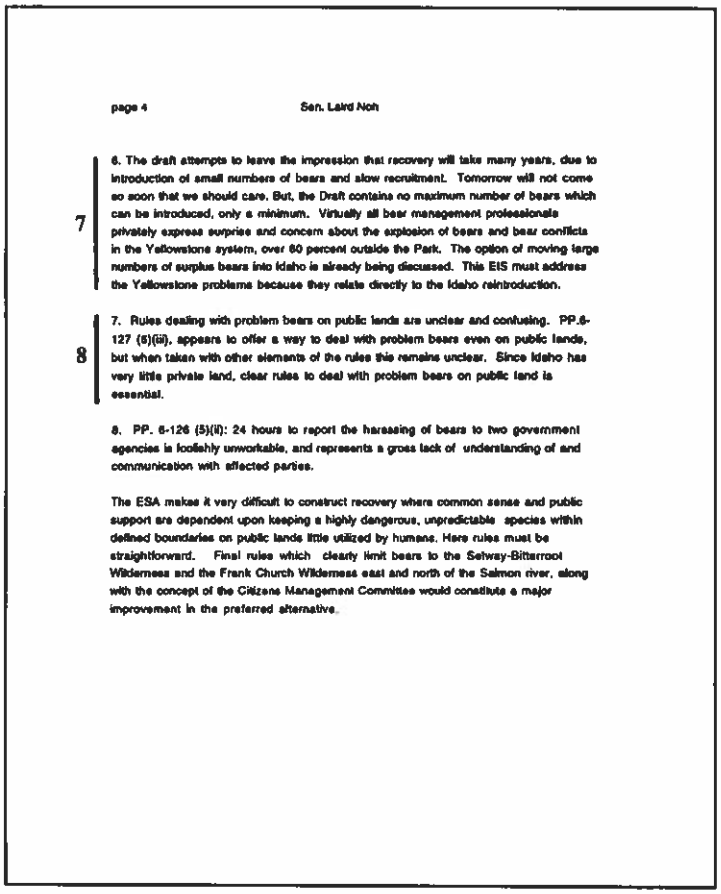
page 3 Sen. Laird Noh

Big game hunting is often a family activity in the affected areas south of the Salmon River. The minutes of the Yellowstone Ecosystem Managers' Subcommittee Meeting, October 7-8, 1997, Jackson, Wyoming, states that 50% of conflicts are during hunting season. The minutes state, "Hunters do everything wrong in bear country because they are stalking and being quiet as opposed to what we tell the general populace to do."

5 4. Costs of reintroduction, direct, indirect, public and private are greatly under reported and estimated. The Wyoming wildlife management agency, alone, reports annual expenditures of $800,000 just from the Yellowstone recovery. There is no mention of the large expenses to "bear proof" the affected area. Costs of steel outfitting gear, camping procedures, bear proofing garbage and food, electric fencing of landfills, countless meetings, travel, education of agency employees and the public, litigation, wildlife studies and other aspects of reintroduction are largely ignored in your analysis.

6 5. Numbers and costs of conflicts are grossly under reported and estimated, especially for livestock. The same subcommittee minutes of Oct. 7 and 8, list 167 bear conflicts in Wyoming, only from January, 1997 through September. They list 97 sheep depredations on just three allotments, and 47 cattle depredations. Yet at 2-14, the Draft EIS attempts to use the Yellowstone Ecosystem as evidence that problems with sheep will be small, 0-44 sheep per year. To my knowledge the only valid information on numbers of livestock and livestock allotments potentially affected by reintroduction were developed by the Co Chair of the Idaho Oversight Committee, Cindy Siddoway, St. Anthony.

A relevant method of projecting the impact of reintroduction and recovery upon sheep would compare the decline in numbers of sheep grazing the Yellowstone system prior to listing with today, with the decline in an equivalent system outside of the Yellowstone recovery area. Direct mortalities upon existing sheep by bears is a very incomplete measure of the impacts. Beginning in 1973, US Fish and Wildlife policy is documented as aggressive removal of sheep from any grizzly bear habitat. That policy continues to be expressed today in Targee Forest proposed plans. PP. 2-14, of the Draft states that, "Changes to the Forest Plans should have to be reviewed by the CMC and agency biologists." (My emphasis.) This appears to be another of many examples where the text attempts in a most unobjective way to persuade the reader that impacts will be minimal.



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7 6. The draft attempts to leave the impression that recovery will take many years, due to introduction of small numbers of bears and slow recruitment. Tomorrow will not come so soon that we should care. But, the Draft contains no maximum number of bears which can be introduced, only a minimum. Virtually all bear management professionals privately express surprise and concern about the explosion of bears and bear conflicts in the Yellowstone system, over 60 percent outside the Park. The option of moving large numbers of surplus bears into Idaho is already being discussed. This EIS must address the Yellowstone problems because they relate directly to the Idaho reintroduction.

8 7. Rules dealing with problem bears on public lands are unclear and confusing. PP.6-127 (5)(iii), appears to offer a way to deal with problem bears even on public lands, but when taken with other elements of the rules this remains unclear. Since Idaho has very little private land, clear rules to deal with problem bears on public land is essential.

8. PP. 6-126 (5)(ii): 24 hours to report the harassing of bears to two government agencies is foolishly unworkable, and represents a gross lack of understanding of and communication with affected parties.

The ESA makes it very difficult to construct recovery where common sense and public support are dependent upon keeping a highly dangerous, unpredictable species within defined boundaries on public lands little utilized by humans. Here rules must be straightforward. Final rules which clearly limit bears to the Selway-Bitterroot Wilderness and the Frank Church Wilderness east and north of the Salmon river, along with the concept of the Citizens Management Committee would constitute a major improvement in the preferred alternative.

(see Chapters 4 and 6). Also more definitions for terms used in the FEIS, specifically Alternative 1, have been added to the FEIS.

3. There are portions of the recovery area that receive greater use by humans than other areas. It would be expected that these areas could experience greater risk of grizzly/human interaction, if grizzly bears occupy these areas. However, our projections indicate an initial population reintroduced to the central portion of the Selway-Bitterroot Wilderness would require at least 40-50 years for female bears to expand their range to the Salmon River. Further, grizzly bear densities in the drier habitats south of the Salmon River are expected to be lower than in the higher quality habitats north of the Salmon River. During this time, the USFWS and its agency partners would have sanitation equipment in place across the recovery and experimental areas, and have an information and education program well-established such that backcountry users would be informed and equipped to recreate in grizzly bear habitat. The EIS does present analyses and projections for expected rates of human injury and nuisance bear incidents. These are presented for each alternative in Chapter 4. Appendix 11 provides further information on risk to human safety from grizzly bear recovery. This appendix explains the rationale for the Chapter 4 analyses to evaluate human safety effects.

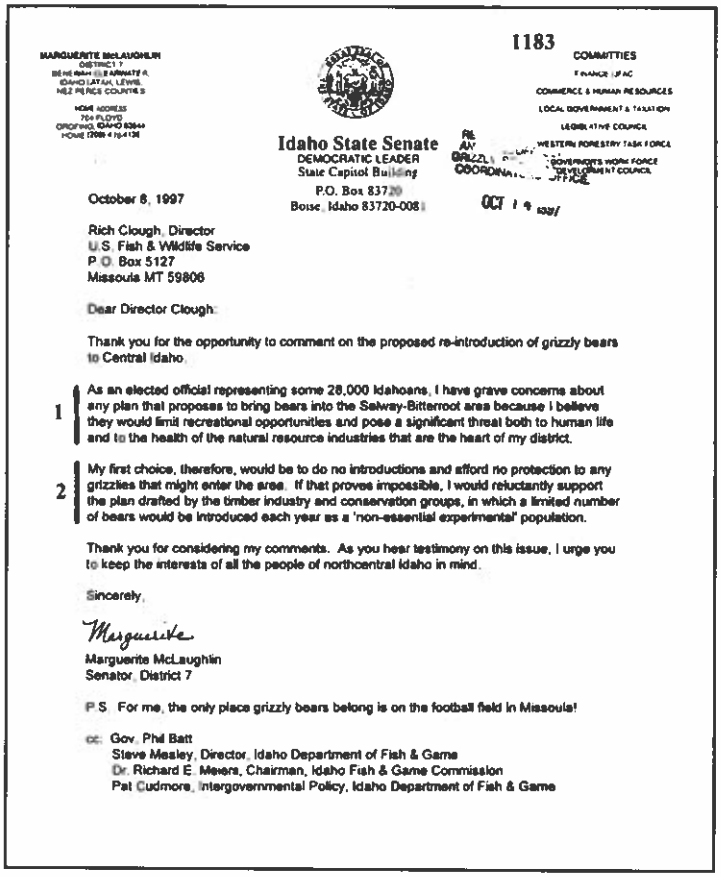
4. Thank you for your comment.

5. Appendix 7 costs are updated in the FEIS.

6. The livestock depredation analysis has been updated to include the most recent information available from the Yellowstone and Northern Continental Divide Ecosystems. See Chapter 4, "Impacts on Domestic Livestock" section for each alternative for an explanation of how and why the analyses were performed.

7. Any grizzly bears in excess of the original 25, will only be reintroduced to the BE to replace mortalities that occur. No nuisance bears from the YE will be reintroduced to the BE. YE issues relative to this proposal are addressed in the FEIS.

8. The CMC will be responsible for these management decisions. We believe 24 hrs is adequate. Alternative 1 has been updated.



1183

MARGUERITE McLAUGHLIN
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WESTERN FORESTRY TASK FORCE
WATER RIGHTS WORK FORCE
DEVELOPMENT COUNCIL

Idaho State Senate
DEMOCRATIC LEADER
State Capitol Building
P.O. Box 83720
Boise, Idaho 83720-0081

RE: AM GRIZZLY COORDINATOR

OCT 1 4 1997

October 8, 1997

Rich Clough, Director
U.S. Fish & Wildlife Service
P.O. Box 5127
Missoula MT 59806

Dear Director Clough:

Thank you for the opportunity to comment on the proposed re-introduction of grizzly bears to Central Idaho.

1 As an elected official representing some 28,000 Idahoans, I have grave concerns about any plan that proposes to bring bears into the Selway-Bitterroot area because I believe they would limit recreational opportunities and pose a significant threat both to human life and to the health of the natural resource industries that are the heart of my district.

2 My first choice, therefore, would be to do no introductions and afford no protection to any grizzlies that might enter the area. If that proves impossible, I would reluctantly support the plan drafted by the timber industry and conservation groups, in which a limited number of bears would be introduced each year as a 'non-essential experimental' population.

Thank you for considering my comments. As you hear testimony on this issue, I urge you to keep the interests of all the people of northcentral Idaho in mind.

Sincerely,

Marguerite

Marguerite McLaughlin
Senator, District 7

P.S. For me, the only place grizzly bears belong is on the football field in Missoula!

cc: Gov. Phil Batt
Steve Mealey, Director, Idaho Department of Fish & Game
Dr. Richard E. Mears, Chairman, Idaho Fish & Game Commission
Pat Cudmore, Intergovernmental Policy, Idaho Department of Fish & Game

State, Idaho Senator Marguerite McLaughlin: #1183

1. The preferred alternative would not place any additional restrictions on public access to National Forests because of grizzly bear reintroduction. Although some people would avoid recreating in the recovery area as a result of reintroduction, other people may increase their recreation use of the area due to the presence of grizzly bears. Reintroduction of a nonessential experimental population of grizzly bears into the BE is not expected to impact existing land uses in the BE, including timber harvest and minerals extraction activities. The CMC could recommend changes to current land practices, if needed, and with the least impacts to resource use industries, including recreating industries, while prioritizing grizzly bear recovery. Risk of injury related to grizzly bears would increase with reintroduction, but rates of injury would be extremely low, possibly in the range of 1:100 million visitor days. See Appendix 11 for more information on Risks to Human Safety.

2. Thank you for your comment.

(Public Hearing, Challis Idaho, October 1, 1997) 2148

MS. BARRETT: Thank you.
I am Lenore Hardy Barrett. I would assume that everyone here knows who I am, whether you like me or not, you at least know who I am. And for the U.S. Fish & Wildlife Service I would tell you that I am an Idaho State legislator representing Custer, Lemhi, Clark, and Jefferson Counties, and my testimony will relate to legislative activity in opposition to reintroduction. I do have some attachments. I don't want to take the time to go into those, so I have prepared a summary. And this is also important at this point in time.
The Idaho legislature was blindsided by the wolf recovery, and we realized and recognized that at some point in time we would be faced with the same thing relative to the grizzly bear. So what I will give you today are the steps that the legislature has in place

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relative to what is now going on.
No. 1, the first regular session, 1995, House Concurrent Resolution No. 7 was a concurrent resolution stating legislative findings and claiming sovereignty under the Tenth Amendment to the Constitution of the United States over all powers not otherwise enumerated and granted to the federal government by the United States Constitution. That was sponsored on the floor by Representative JoAn Wood.
No. 2, the first regular session 1995 Senate Bill 1009 to create a constitutional defense counsel to provide members, powers and staff and to create the Constitutional Defense Council Fund. Representative

State, Idaho Representative Lenore Hardy Barrett: Hearing Testimony #2148

1. Thank you for your comments. The USFWS intention for the proposal to recover grizzly bears in the Bitterroot Ecosystem is specifically focused on addressing recovery of a threatened species under the ESA. The USFWS is the primary agency responsible for recovery and conservation of endangered and threatened species under the Endangered Species Act. The grizzly bear was listed as a threatened species in 1975, and as such the USFWS was mandated by Congress to conserve this species and the ecosystem upon which it depends. The Bitterroot Ecosystem was listed in the 1975 Federal Register listing as an area where grizzly bears were known or thought to occur, and where USFWS should insure their conservation. The Grizzly Bear Recovery Plan (USFWS 1982, 1993) and the Bitterroot Chapter of the Recovery Plan (USFWS 1996) identify actions necessary for

14 Newcomb sponsored that on the floor, and the intent of
15 that was in matters of sovereignty, the council would
16 step in and have the funds that might be necessary to
17 pursue the protection of that sovereignty to whatever
18 level of legal resources they might need.
19 No. 3, second regular session 1996, House
20 Joint Memorial No. 6, legislative opposition to the
21 reintroduction of the grizzly bear into the State of
22 Idaho. I sponsored that, and it is opposition to the
23 reintroduction of the grizzly bear into the State of
24 Idaho, period.
25 No. 4, second regular session -- incidentally,

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1 we have, what, 70 people in the house, 35 in the
2 senate. If we have a roll call vote, you had a count.
3 I believe that on some of these there may have been one
4 vote in opposition. But by and large these were very,
5 very handily passed through both bodies, so when you
6 look at numbers, don't think of it as just a body, we
7 are individuals. I looked at some of your numbers and
8 some of your information and you seem to like numbers,
9 so we are looking at maybe a 70 and 35, at least a
10 hundred people who are speaking to this end.
11 No. 4, second regular session 1996, House
12 Joint Memorial No. 2, stating full legislative support
13 of Governor Batt's request for immediate suspension of
14 the Bitterroot Grizzly Bear Environmental Impact
15 Statement by the withdrawal of the federal intent
16 regarding grizzly reintroduction. I have included for

17 you gentlemen a copy of the governor's letter to
18 Secretary Babbitt and I sponsored that.
19 First regular session 1997 House Joint
20 Memorial No. 6 urging Congress to take action to provide
21 adequate funding to Idaho for the specific purpose of
22 conducting the wolf-related activities described in this
23 memorial. Representative Woods sponsored that in the
24 house. This is important because we feel that at some
25 point in time if we have artificial recovery of the

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1 grizzly, we will be looking at the same situation and we
2 would propose to do the same thing.
3 Maybe if you can throw me off faster than I
4 can talk, we'll get through.
5 Anyway, there are some other inclusions in
6 here, because the time is short, the grizzly debate is
7 not about bears, it is about territory and lock-steps
8 with the environmental agenda to control through land
9 grabs, lawsuits and harassment of resource industries
10 and rural lifestyle, culture and custom. Your science
11 is flawed and none of this should be happening in the
12 first place.
13 Idaho's congressional delegation, Idaho's
14 governor, Idaho's legislature, Idaho's Fish and Game
15 Commission, Idaho's Fish and Game Director and a
16 preponderance, if not all, of Idaho's county
17 commissioners oppose reintroduction into Idaho, as do
18 the citizens. And in a constitutional government, that
19 is enough to reject this proposal out of hand.

conservation and recovery of the species. The Bitterroot Chapter of the Recovery Plan calls for the preparation of an Environmental Impact Statement to evaluate the proposed action and a range of alternatives to recover the grizzly bear in the BE. The USFWS is proceeding with the National Environmental Policy Act process. The USFWS preferred alternative (Alternative 1) proposes to reintroduce grizzly bears into a recovery area comprised mainly of the Selway-Bitterroot Wilderness and the Frank Church-River of No Return Wilderness. Grizzly bears will be accommodated in a larger surrounding Experimental Population Area which is comprised of USDA National Forest lands. These two Congressionally designated wilderness areas and the surrounding USDA Forest Service lands are national resources, and are managed on behalf of the American people. Based on surveys conducted for the DEIS process, the results of public scoping, and results of public comments and hearing testimony, the majority of Americans support the USFWS efforts to recover grizzly bears in the Bitterroot Ecosystem.

2296

(Public Hearing, Hamilton, Montana, October 1, 1997)

ALLAN WALTERS: Thank you. I'm Allan Walters, House District 60. I represent the area of Hamilton, Corvalis, Pinesdale and the rural area in between. Obviously, I can't speak for all my constituents on this subject because we know we do have a

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divided -- people are divided on this subject.

However, I do believe I speak for the vast majority of the citizens in this area when I say that I'm opposed to the reintroduction of grizzly bears because of the many reasons already stated. Number one being the loss of habitat which will mean that the bears will not stay where they're put. They will be down. We've already seen that. I've had one in the Pinesdale area. We had a boy who was dragged off his porch while he was sleeping overnight by a black bear and received severe injuries from that bear.

There will be livestock damage. There will be animals destroyed. There will be loss of use because we're going to be not able to use the woods. They'll be -- when there's a conflict, we know they're going to be areas closed -- they'll be areas closed to hunting. As a

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hunter myself, I already am watchful for -- we have a great many mountain lions in this area. If we want predators, we already have them. We have lots of mountain lions.

And we really don't need to spend this money. It seems like -- I heard a thing a while back, it said, "If it's not broke, don't fix it." And I don't really see what the problem is. We haven't had grizzlies for 60 years. Why -- what's the big problem

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that we suddenly need grizzly bears here.

I know that a lot of people feel like they were here before and so we should have them again. But I must also remind you that when our forefathers came to this country, that malaria was ramped on the East Coast, and if we could reintroduce malaria on the East Coast, I would be glad to make a contribution to that effect. And we can then again have a reintroduced species on the East Coast.

I really am not opposed to grizzly bear reintroduction. Just don't do it here. Let's do it someplace else. And that's all I have. Thank you.

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State, Montana Representative Alan Walters: Hearing Testimony #2296

1. Livestock grazing occurs at very low densities within the recovery area and is not expected to be impacted. Projections indicate that a grizzly bear population level of 280 bears in the recovery area, yearly livestock losses to depredation by bears could range from 4-8 cattle and 5-44 sheep.

Recreation impacts in the form of permanent trail closures within the wilderness would likely not occur. Temporary closures of trails may occur in response to a dangerous situation that might result in human injury or bear mortality, but these closures would only last as long as necessary to prevent human-bear conflict.

Habitat would continue to be managed by the land management agencies. The USFS would still conduct its management under the guidelines of the respective Forest Plans and applicable environmental laws. State land managers and private land owners would not lose any of their management authority.

2. The grizzly bear was listed as a threatened species in the lower 48 states under the Endangered Species Act (Federal Register V. 40 No. 145, Part IV-3173-4). The US Fish and Wildlife Service was mandated by Congress to conserve listed species and the ecosystems upon which they depend. Thus, the USFWS proposes to recover the grizzly bear and restore part of the Bitterroot Ecosystem by reestablishing the species within this portion of its historical range.

(Public Hearing, Lewiston, Idaho, October 2, 1997) 2386

BY TWILA HORNBECK:

I'm Twila Hornbeck, I'm a State Rep for District 8. I live in Grangeville. I am -- I have five generations of my family that was born in Idaho County and live in Idaho County. The sixth generation was born there and they now live in Ada County. But we do have a long history of being Idaho residents. We live where these bears will be.

I have come to these grizzly hearings for so long that I forgot how long I have been here. I asked them, Why do you want to put in the grizzly, and they said, Because they are not there. Well, they promised that if they ever knew there was a grizzly, they would not reintroduce grizzlies. Now we have been told that there probably is grizzlies back there, but just not enough to re-establish the amount of grizzlies that they want. **1**

They come forward with a number that they want to establish a heard, but how do we know we can believe them now. You come and you listen to the people of Idaho, the people who live with these bears, and you will find they are all opposed to the reintroduction of the grizzly bear. Their livelihoods will suffer. The towns that they support will die and you will have the tourists coming through to see the grizzly bear because they can't get out anywhere. **2**

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I would only -- I can only warn that the reintroduction is the tip of the iceberg. These people, the young people that are advocating this kind of a thing do not care about our way of life. They do not care about our capitalist system, they are trying to tear it down. They are doing away with our livelihoods. I think that if we give in to this at this point, we have to do like Mr. Wasem said, and we are going to have to move out of the west and go back to the Mideast and give the west back to the Indians and the grizzly bears.

As far as I'm concerned, I would like no bears, but I know that you have made up your mind and there will be grizzly bears reintroduced. And if I had my druthers on the hand that's left, I'd have to go with plan No. 1 because that will at least give the local people some kind of control over what happens with the grizzly bears, but we all know that's a farce because they don't have autonomy. They will not be able to do like they want to do when they manage the bears, so I just have to opt for no grizzly bears. Thank you very much. **3**

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State, Idaho Representative Twila Hornbeck: Hearing Testimony #2386

1. The last verified death of a grizzly bear in the Bitterroot Ecosystem occurred in 1932 and the last tracks were observed in 1946. Although occasional unverified reports of grizzly sightings persist in the Bitterroot Ecosystem, no verified tracks or sightings have been documented in more than 50 years. Based on the best scientific evidence available, and the lack of verified evidence for more than 50 years, there appear to be no grizzly bears in the Bitterroot Ecosystem at this time.

2. The USFWS conducted four public hearings in Idaho to gather comments on the Draft Environmental Impact Statement. From the 148 decisive comments received at the Idaho hearings, 51% were against and 49% were supportive of grizzly bear recovery in the Bitterroot Ecosystem. The public comments are not used by the USFWS as a vote, however, these statistics indicate that the citizens of Idaho are mixed in their views of grizzly bear recovery in their state. Grizzly bear recovery in the Bitterroot Ecosystem is expected to have a negligible effect on local economies. It is expected that grizzly bear recovery efforts could cause increased tourism in central Idaho, similar to the increased tourism in Yellowstone Park as a result of gray wolf recovery efforts there.

3. Thank you for your comment.

(Public Hearing, Salmon, Idaho, October 8, 1997) 2642

MR. BURTENSHAW: My name is Don Burtenshaw. I am a senator from District 26, and I would like to tell these people who are here conducting these hearings, we appreciate the opportunity of having the hearing in our area, both in Challis and in Salmon.

I feel it is important and appropriate to have these hearings in these areas, in which this is the part of the state which is the most affected by the grizzly recovery program. And I think it's very important that their testimonies are considered and hopefully that this is just not a futile effort to fill the intent of the law, that these feelings will be respected and recorded.

I hope that the testimony given here will have an impact on the decision that the fish and game make and the Department of Interior. One of the problems with political decisions are that the decisions are made too far away from the point of impact. I am not nearly

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so afraid of the grizzly as I am the Endangered Species Act and the government rules and controls that come with them.

I love this country and the beautiful mountains, hills and streams and wildlife, and I have been in the Selway-Bitterroot area for many years of my life, and I think it's wrong to try to introduce some 200 grizzly bears over a period of from 50 to 110 years and take an area of three to four million acres to try to use it as an experimental introduction of the grizzly bear in this area.

And the reason for it is the places that have been grizzly bear introductions, there are road closures, trails and areas of logging, hiking, camping, backpacking into the willederness and other use of natural resources are greatly curtailed, and I am adamantly opposed to spending millions of dollars of costs tying up the millions of acres of ground to try for this experiment. I think it's important that the U.S. Fish and Wildlife and the Department of Interior work with the cooperation and respect the wishes of our congressional delegation from Idaho, Governor Batt, the Idaho legislators and State Department of Wildlife and, more importantly, the citizens of Challis and Salmon who are most seriously affected by the decision.

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We have been very concerned about recovery of the Salmon in this area, and it's been an important

State, Idaho Representative Don Burtenshaw: Hearing Testimony #2642

1. Thank you for your comment. If grizzly bears are reintroduced into the Bitterroot Ecosystem, it would be the first attempt by the USFWS to recover a grizzly bear population through reintroduction. In 1990-91, 4 subadult grizzly bears were released into the Cabinet-Yaak ecosystem in northwest Montana to augment the existing population. Because the other 5 ecosystems are known to support existing populations of grizzly bears, those bears are listed as "threatened" under the ESA. Since the BE does not have an existing population of grizzly bears, the USFWS has the option of listing the reintroduced population as "nonessential experimental" rather than "threatened." Such designation would allow these bears to be treated as a species "proposed for listing" rather than "threatened" for the purpose of section 7 of the ESA. This allows the USFWS greater management flexibility by limiting the consultation requirements of Section 7 and by permitting special rules to be written covering section 9 takings of the ESA. Because reintroduced grizzly bears would be classified as a "nonessential experimental" population, the Service's management practices can reduce local concerns about excessive government regulation on private lands, uncontrolled livestock depredations, and the lack of State government and local citizen involvement in the program. Under Alternative 1, the nonessential experimental population and management by the Citizen Management Committee are expected to have minimal impacts to current land use practices on federal lands in the BE.

2. The grizzly bears that inhabited the Bitterroot Ecosystem in the early 1900's prior to being extirpated by humans, made use of healthy salmon populations as a food resource. Current salmon populations are listed as either "threatened" or "endangered." If salmon populations in the BE were restored in the future, they could provide an additional food source for the reintroduced grizzly population. However, most interior grizzly bear populations in Montana, Idaho, Wyoming, Washington, and British Columbia exist in areas without access to salmon. These

issue. We all know that one of the main ingredients of a grizzly's diet is fish. So it will no doubt impact the salmon and rivers and spawning beds and will also affect other wildlife species in that area.

Also the sheep and cattle that surround the wilderness area, but most importantly our major concern is that there will be human encounters with very serious results. And the only way to prevent this encounter with the grizzlies is to either keep the people out or the bears out. And I would like to see it be the bears.

I was in Jackson, Wyoming, this morning and I read in the paper where too many grizzly bears have been destroyed by hunters and other impacts, and they were trying to figure out ways to stop this human impact with the grizzlies. One of the things that they suggested was use pepper spray on the bears instead of a gun. And I don't know about any of you, but I would hate to let a grizzly bear get within a few feet and see if the pepper spray would work.

My last thing is I would just like to say that as long as I can remember, Smoky the Bear has been a symbol of helping prevent forest fires in our country,

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and I hope that he will continue to do that, not a symbol of with the sign no trespassing or people will be prosecuted for trying to go into that area, and not especially end up with him having a badge on his chest and a gun on his hip.

Thank you.

populations are able to sustain themselves largely on vegetable food sources. The three source populations that have been identified for the Bitterroot reintroduction fit this category, and do not have access to salmon as a food source. Since the reintroduced bears would have no experience using salmon as a food source, it is not expected they would seek the few, scattered salmon that exist in the BE as a food source. The USFWS formally consulted with the National Marine Fisheries Service and prepared a Biological Assessment of the anticipated effects of grizzly bear reintroduction to the BE on listed chinook, sockeye, and steelhead salmon. If grizzly bears are reintroduced, the Biological Opinion prepared by NMFS (See Appendix 9B) lists actions both agencies would take to minimize effects of grizzly bear recovery on salmon recovery efforts.

3. Fear of the grizzly bear is a valid concern. The USFWS evaluated the potential risk to human health and safety from grizzly bear reintroduction in the Bitterroot by looking at statistics from other grizzly bear ecosystems. Grizzly bears and humans have co-existed in the Yellowstone, Northern Continental Divide, Selkirk, and Cabinet Yaak-Ecosystems for many years with minimal human injuries or mortalities. To identify actual risk factors, it is best to compare areas of similar habitat, human population, recreational activities, and grizzly bear densities. The Northern Continental Divide Ecosystem (NCDE), outside Glacier National Park, has habitats similar to those in the northern portion of the Bitterroot Ecosystem (BE). NCDE has grizzly bear population densities of about 1 bear per 20-30 square miles, which exceeds the projected recovered grizzly bear densities for the BE. The NCDE also has human recreation consisting of hiking, fishing, camping, horseback riding, and big game hunting. Within the NCDE, excluding Glacier National Park, there has been 1 bear-inflicted human mortality and one injury since 1950. Within the Yellowstone Ecosystem (YE), excluding Yellowstone National Park, there have been 3 grizzly bear-inflicted human mortalities in the last 159 years. The USFWS would take actions to reduce the risk of human/bear conflicts (See response to JoAnn Wood, letter # 2644, comment #3, page 5-47).

(Public Hearing, Salmon, Idaho, October 8, 1997) 2644

MS. WOOD: Thank you, I am representative JoAn Wood, Idaho State legislator, Representative of District 26, representing Custer, Clark, Jefferson, and Lemhi Counties. I will be presenting testimony reflecting my own concerns and opinions expressed to help my constituency in their behalf.

According to information I have been able to glean from your printed material and related subject matter, the United States Fish and Wildlife agency grizzly bear recovery plan would lock up 32 million acres of the Western United States for this species

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which is in no danger of extinction. There are no studies I can document based on creditable scientific proof that this grizzly bear is endangered or threatened.

The only thing your studies have established is that someone, possibly a Fish and Wildlife biologist, decided that there ought to be more grizzly bears in the West. I doubt a good Fish and Wildlife biologist did make this decision, they would know better. The whoever determined the need to plant grizzly bears in the Selway-Bitterroot parts of Idaho and Montana meant to establish bear corridors connecting together and in order to do that had to fill the hole that would allow corridors to be contiguous and restricted gradually and totally from human beings and their activities including their private properties.

At the June 17, 1997, so-called public meeting the ground rules were laid. It was without any public input by a public except the few environmental groups chosen to lead the process of suing the U.S. Fish and Wildlife agency in order to force them to begin the process of creating the 32 million acres of protected recovery zone in the six regions of the West that would

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be connected by migratory corridors. All this would be allowed to be implemented, rules and regulations not

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endorsed by congress since they have not ratified the UN convention on biodiversity signed by President Clinton and is the mother of invention of the biological foundation for a contrived threatened species designation.

We, as a people of the Western United States, at least a large majority, object to these plans by this administration and the Secretary of Interior to destroy the lives and livelihoods they are willing to destroy by these plans that are not based on creditable science.

The projected acceptable human mortality rate is an abomination that cannot be tolerated nor excused as humanitarian from an administration that is willing to throw stones at many other countries of this world for their unacceptable humanitarian practices. Those who wrote this factor into the studies and plans will

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have no risk to their families as the acceptable numbers of human mortality. We who will be risking our families

State, Idaho Representative JoAnn Wood: Hearing Testimony #2644

1. Between 1899 and 1975, grizzly populations in the lower 48 States receded from estimates of over 50,000 to less than 1,000 grizzly bears. Grizzly bear distribution has been reduced to less than 2 percent of historical range in the lower 48 States. In 1975, the USFWS determined the listing of grizzly bears as threatened was warranted based on biological evidence of population declines, habitat loss, and population isolation (Federal Register, Vol. 40, No. 145). The Endangered Species Act defines a "threatened species" as one which is likely to become an "endangered species" (a species which is in danger of extinction throughout all or a significant portion of its range) within the foreseeable future throughout all or a significant portion of its range. In 1975, six isolated populations of grizzly bears in the conterminous United States were officially listed as threatened under the ESA. The ESA required the USFWS as the lead agency, to develop a recovery plan detailing efforts necessary to conserve and recover grizzly bears and eventually remove the species from "threatened" status in the lower 48 States. The Grizzly Bear Recovery Plan (USFWS 1993) identifies requirements for federal agencies to make efforts to reduce human induced mortality and minimize habitat loss for grizzly bears within the identified grizzly bear ecosystems. These requirements may restrict some human activities on federal lands, but certainly do not "lock up" these areas solely for grizzly bears. Under Alternative 1, recovery would be emphasized in the Recovery Area, which encompasses 3,702,400 acres of designated wilderness. "Nonessential experimental" status allows for increased management flexibility and all decisions of the CMC would minimize social and economic impacts to the extent practicable.

2. The June 17, 1997 meeting to gather public input on grizzly bear habitat criteria for revisions to the Grizzly Bear Recovery Plan was open to the general public, and all individuals had equal opportunity to comment

3. Thank you for your comment. The USFWS would take actions to reduce the risk of human/bear conflicts. Only bears with no

19 in no way countenance any human mortality rate. How
20 hypocritical can this Secretary of Interior be -- and
3 21 the people of the United States tolerate it. We will
22 not submit nor tolerate it in Idaho. We have said so
23 clearly.
24 Our governor, our congressional delegation,
25 our Idaho legislature, our Fish and Game Commission, our

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1 Fish and Game department, our county commissioners, our
2 sportsmen's groups, our outdoor recreation groups, our
3 cattlemen, wool growers, mining and timber industries,
4 our Farm Bureau, all of us representing the citizens of
5 this state have told you unequivocally no. We do not
6 accept the planting of more grizzly bears into Idaho,
7 nor do we abide any plans other than Alternative 3 being
8 pushed on other states over their objections.
9 We do not accept any citizens advisory group
10 alternative subject to veto, replacement or coercion
11 from the Secretary of Interior of the United States
12 Government, that government is us. We would ask the
13 president of the United States to replace him with
14 someone who will serve the people.
15 We do not accept any alternative as summarized
16 in the executive summary. Alternative 3 comes closest
17 to acceptance by any of us but there are assumptions
18 made in the statements about Alternative 3 that need to
19 be challenged. I will do that in writing.

20 The arrogance of the assumption that state
21 legislation would be passed to remove grizzly bears from
22 protection of state law is a bit presumptuous. We will
23 decide that in Idaho. Agencies and the public would be
24 allowed to kill grizzly bears at any time without
25 restriction is a ridiculous assumption. We have not
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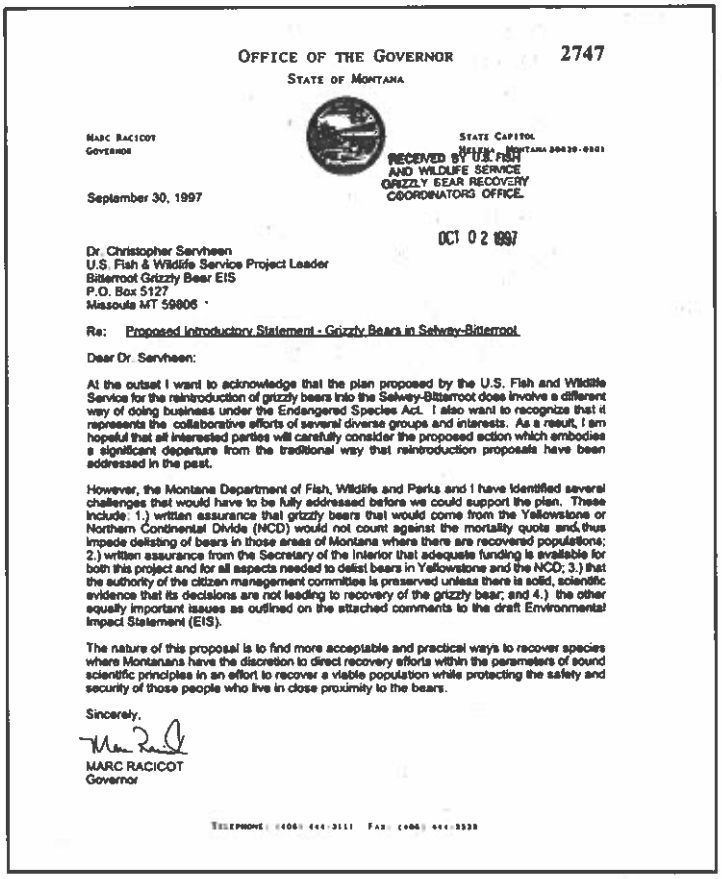
1 done so in the past before your ESA came along. We
2 challenge your Tables S-2 and S-3 and the data used to
3 compute these are scientifically questionable. The
4 expected actions and effects are mostly acceptable to us
5 but we most especially challenge that no measurable
6 benefits would result from the alternative. Maybe you
7 need to measure our lives and economy as something of
8 worth.
9 We know that there is no threat of extinction
10 of the grizzly bear. They are free to propagate in
11 Alaska, Canada, and national parks in the continental
12 United States. They are not harassed there by business
13 nor people.
5 14 If this part of Idaho were native to and
15 conducive to the propagation of these animals, they
16 would already be there. They do not stay in the
17 perimeters of Yellowstone Park, we know that from
18 experience. If they wanted to go into our wilderness,
19 there is nothing to stop them.
20 We object strenuously to the value your plans
21 place on this animal over the values of human life,
22 liberty, and the pursuit of happiness. Thank you.

history of conflicts with people would be considered candidates for reintroduction. Suitable bears would be released at remote wilderness sites within the BE to reduce the likelihood of encounters with humans. All released bears would be fitted with radio-collars and their movements would be monitored to keep the public informed of general bear locations and recovery efforts. A proactive information and education program and sanitation improvements would be initiated during the first year of implementation and would continue through the implementation phase, and into the monitoring and management phase. During the first several decades following reintroduction, chance of human injury caused by grizzly bears would be exceedingly small due to the low density of bears in the area. This risk would apply to all humans equally who use the recovery area.

4. Thank you for your comment.

5. Historically, the grizzly bear was a widespread inhabitant of the Bitterroot Mountains in central Idaho and western Montana. Conservative estimates indicate trappers and hunters killed 25 to 40 grizzly bears annually in the Bitterroot Mountains in the early 1900's. A major influx of hunters, trappers, and settlers at the turn of the century, and later sheepherders were responsible for direct mortality and elimination of grizzly bears from the Bitterroot Ecosystem. The last verified death of a grizzly bear in the BE occurred in 1932 and the last tracks were observed in 1946.

As grizzly bear populations in areas such as the Yellowstone Ecosystem recover, their numbers increase, and the population expands outside the designated recovery zone as young bears establish new home ranges. However, data indicates that in the lower 48 States, within the 4 ecosystems (Yellowstone, Northern Continental Divide, Selkirk and Cabinet-Yaak) where more than 550 grizzly bears have been radio-collared, not one radio-collared bear has been documented to move from one ecosystem to another. Thus, it is highly unlikely grizzly bears could become reestablished in their native Bitterroot Ecosystem through natural immigration from other occupied ecosystems like the Yellowstone, Cabinet-Yaak, Selkirk, or Northern Continental Divide.



OFFICE OF THE GOVERNOR 2747
STATE OF MONTANA

MARC RACICOT
GOVERNOR

STATE CAPITOL
HELENA, MONTANA 59620-0801

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE.

September 30, 1997

OCT 02 1997

Dr. Christopher Servheen
U.S. Fish & Wildlife Service Project Leader
Bitterroot Grizzly Bear EIS
P.O. Box 5127
Missoula MT 59806

Re: Proposed Introductory Statement - Grizzly Bears in Selway-Bitterroot

Dear Dr. Servheen:

At the outset I want to acknowledge that the plan proposed by the U.S. Fish and Wildlife Service for the reintroduction of grizzly bears into the Selway-Bitterroot does involve a different way of doing business under the Endangered Species Act. I also want to recognize that it represents the collaborative efforts of several diverse groups and interests. As a result, I am hopeful that all interested parties will carefully consider the proposed action which embodies a significant departure from the traditional way that reintroduction proposals have been addressed in the past.

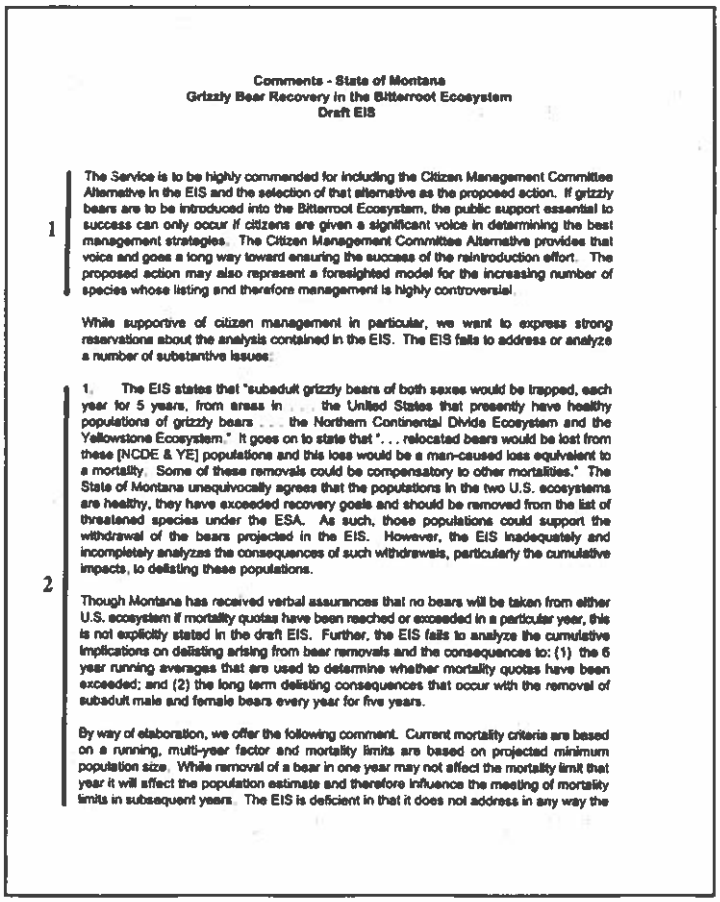
However, the Montana Department of Fish, Wildlife and Parks and I have identified several challenges that would have to be fully addressed before we could support the plan. These include: 1.) written assurance that grizzly bears that would come from the Yellowstone or Northern Continental Divide (NCD) would not count against the mortality quota and thus impede delisting of bears in those areas of Montana where there are recovered populations; 2.) written assurance from the Secretary of the Interior that adequate funding is available for both this project and for all aspects needed to delist bears in Yellowstone and the NCD; 3.) that the authority of the citizen management committee is preserved unless there is solid, scientific evidence that its decisions are not leading to recovery of the grizzly bear; and 4.) the other equally important issues as outlined on the attached comments to the draft Environmental Impact Statement (EIS).

The nature of this proposal is to find more acceptable and practical ways to recover species where Montanans have the discretion to direct recovery efforts within the parameters of sound scientific principles in an effort to recover a viable population while protecting the safety and security of those people who live in close proximity to the bears.

Sincerely,

MARC RACICOT
Governor

TELEPHONE: (406) 444-3111 FAX: (406) 444-5529



Comments - State of Montana
Grizzly Bear Recovery in the Bitterroot Ecosystem
Draft EIS

1 The Service is to be highly commended for including the Citizen Management Committee Alternative in the EIS and the selection of that alternative as the proposed action. If grizzly bears are to be introduced into the Bitterroot Ecosystem, the public support essential to success can only occur if citizens are given a significant voice in determining the best management strategies. The Citizen Management Committee Alternative provides that voice and goes a long way toward ensuring the success of the reintroduction effort. The proposed action may also represent a foresighted model for the increasing number of species whose listing and therefore management is highly controversial.

While supportive of citizen management in particular, we want to express strong reservations about the analysis contained in the EIS. The EIS fails to address or analyze a number of substantive issues:

2 1. The EIS states that "subadult grizzly bears of both sexes would be trapped, each year for 5 years, from areas in . . . the United States that presently have healthy populations of grizzly bears . . . the Northern Continental Divide Ecosystem and the Yellowstone Ecosystem." It goes on to state that ". . . relocated bears would be lost from these [NCDE & YE] populations and this loss would be a man-caused loss equivalent to a mortality. Some of these removals could be compensatory to other mortalities." The State of Montana unequivocally agrees that the populations in the two U.S. ecosystems are healthy, they have exceeded recovery goals and should be removed from the list of threatened species under the ESA. As such, those populations could support the withdrawal of the bears projected in the EIS. However, the EIS inadequately and incompletely analyzes the consequences of such withdrawals, particularly the cumulative impacts, to delisting these populations.

Though Montana has received verbal assurances that no bears will be taken from either U.S. ecosystem if mortality quotas have been reached or exceeded in a particular year, this is not explicitly stated in the draft EIS. Further, the EIS fails to analyze the cumulative implications on delisting arising from bear removals and the consequences to: (1) the 6 year running averages that are used to determine whether mortality quotas have been exceeded; and (2) the long term delisting consequences that occur with the removal of subadult male and female bears every year for five years.

By way of elaboration, we offer the following comment. Current mortality criteria are based on a running, multi-year factor and mortality limits are based on projected minimum population size. While removal of a bear in one year may not affect the mortality limit that year it will affect the population estimate and therefore influence the meeting of mortality limits in subsequent years. The EIS is deficient in that it does not address in any way the

State, Montana Governor Marc Racicot: #2747

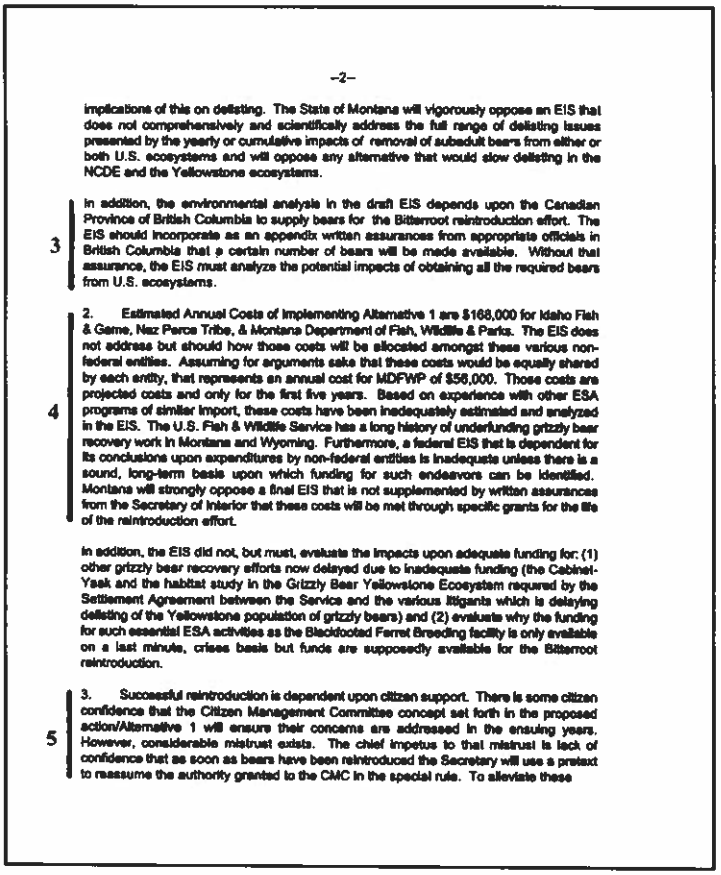
1. We agree.

2. No bears will be removed from any ecosystem in the U.S. if the mortality limits for that ecosystem have been reached or are even close to being reached. In addition, the USFWS will agree to make the decision to remove bears from any ecosystem in Montana or Wyoming only in consultation with the Fish and Game Department of that state. The USFWS has no intentions to allow the removal of any bears from any ecosystems in the U.S. to impede recovery of those source populations and will work in concert with the Fish and Game Departments of those states to judge these possible impacts to assure that this is the case.

Contribution of bears from either ecosystem will be based on the current mortality levels for that ecosystem. Mortality data are updated annually and any removal of bears from either ecosystem will be predicated on achievement of the mortality limits. Since these data are updated each year, it is necessary to recalculate mortality levels for both the NCDE and YE prior to making a decision on the origin of any relocated bears. The specific number of grizzly bears that can be obtained from the NCDE or YE is unknown at this time. The female contribution will be designed to minimize impacts on the source population and no female grizzly bears will be removed from within the NCDE or YE recovery zone boundary or from within 10 miles outside the boundary. The male contribution can be a higher number because population increase is affected little by removal of subadult males. Since no bears will be removed from the YE or NCDE if the mortality limits will be exceeded, and no female bears will be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE will be nonexistent.

Additional information and analysis of the impacts to source populations has been added to the FEIS (See Source Populations sections, Chapters 3 and 4)..

3. Since no Record of Decision (ROD) will be signed until the end of the NEPA process, there has been no decision formally made to implement any option. Upon completion of the NEPA process and signing of a ROD, we will know what alternative has been selected and what details must be completed to implement that alternative. Since there has been no formal decision to implement reintroduction, there can be no request made of the Canadians for any bears. The details of timing and number of bears required, should reintroduction be selected, will be



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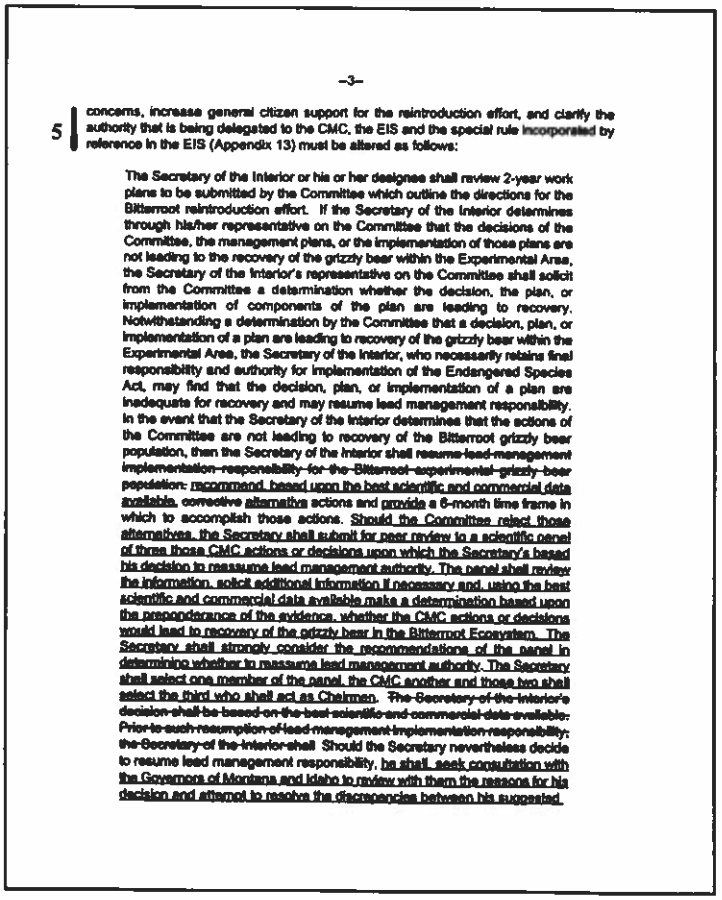
implications of this on delisting. The State of Montana will vigorously oppose an EIS that does not comprehensively and scientifically address the full range of delisting issues presented by the yearly or cumulative impacts of removal of subadult bears from either or both U.S. ecosystems and will oppose any alternative that would slow delisting in the NCDE and the Yellowstone ecosystems.

3 In addition, the environmental analysis in the draft EIS depends upon the Canadian Province of British Columbia to supply bears for the Bitterroot reintroduction effort. The EIS should incorporate as an appendix written assurances from appropriate officials in British Columbia that a certain number of bears will be made available. Without that assurance, the EIS must analyze the potential impacts of obtaining all the required bears from U.S. ecosystems.

4 2. Estimated Annual Costs of Implementing Alternative 1 are $168,000 for Idaho Fish & Game, Nez Perce Tribe, & Montana Department of Fish, Wildlife & Parks. The EIS does not address but should how those costs will be allocated amongst these various non-federal entities. Assuming for arguments sake that these costs would be equally shared by each entity, that represents an annual cost for MDFWP of $56,000. Those costs are projected costs and only for the first five years. Based on experience with other ESA programs of similar import, these costs have been inadequately estimated and analyzed in the EIS. The U.S. Fish & Wildlife Service has a long history of underfunding grizzly bear recovery work in Montana and Wyoming. Furthermore, a federal EIS that is dependent for its conclusions upon expenditures by non-federal entities is inadequate unless there is a sound, long-term basis upon which funding for such endeavors can be identified. Montana will strongly oppose a final EIS that is not supplemented by written assurances from the Secretary of Interior that these costs will be met through specific grants for the life of the reintroduction effort.

In addition, the EIS did not, but must, evaluate the impacts upon adequate funding for: (1) other grizzly bear recovery efforts now delayed due to inadequate funding (the Cabinet-Yaak and the habitat study in the Grizzly Bear Yellowstone Ecosystem required by the Settlement Agreement between the Service and the various litigants which is delaying delisting of the Yellowstone population of grizzly bears) and (2) evaluate why the funding for such essential ESA activities as the Blackfooted Ferret Breeding facility is only available on a last minute, crises basis but funds are supposedly available for the Bitterroot reintroduction.

5 3. Successful reintroduction is dependent upon citizen support. There is some citizen confidence that the Citizen Management Committee concept set forth in the proposed action/Alternative 1 will ensure their concerns are addressed in the ensuing years. However, considerable mistrust exists. The chief impetus to that mistrust is lack of confidence that as soon as bears have been reintroduced the Secretary will use a pretext to reassume the authority granted to the CMC in the special rule. To alleviate these



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5 concerns, increase general citizen support for the reintroduction effort, and clarify the authority that is being delegated to the CMC, the EIS and the special rule incorporated by reference in the EIS (Appendix 13) must be altered as follows:

The Secretary of the Interior or his or her designee shall review 2-year work plans to be submitted by the Committee which outline the directions for the Bitterroot reintroduction effort. If the Secretary of the Interior determines through his/her representative on the Committee that the decisions of the Committee, the management plans, or the implementation of those plans are not leading to the recovery of the grizzly bear within the Experimental Area, the Secretary of the Interior's representative on the Committee shall solicit from the Committee a determination whether the decision, the plan, or implementation of components of the plan are leading to recovery. Notwithstanding a determination by the Committee that a decision, plan, or implementation of a plan are leading to recovery of the grizzly bear within the Experimental Area, the Secretary of the Interior, who necessarily retains final responsibility and authority for implementation of the Endangered Species Act, may find that the decision, plan, or implementation of a plan are inadequate for recovery and may resume lead management responsibility. In the event that the Secretary of the Interior determines that the actions of the Committee are not leading to recovery of the Bitterroot grizzly bear population, then the Secretary of the Interior shall ~~resume lead management implementation responsibility for the Bitterroot experimental grizzly bear population.~~ recommend, based upon the best scientific and commercial data available, corrective alternative actions and provide a 6-month time frame in which to accomplish those actions. Should the Committee reject those alternatives, the Secretary shall submit for peer review to a scientific panel of three those CMC actions or decisions upon which the Secretary's based his decision to reassume lead management authority. The panel shall review the information, solicit additional information if necessary and, using the best scientific and commercial data available make a determination based upon the preponderance of the evidence, whether the CMC actions or decisions would lead to recovery of the grizzly bear in the Bitterroot Ecosystem. The Secretary shall strongly consider the recommendations of the panel in determining whether to reassume lead management authority. The Secretary shall select one member of the panel, the CMC another and those two shall select the third who shall act as Chairman. ~~The Secretary of the Interior's decision shall be based on the best scientific and commercial data available. Prior to such resumption of lead management implementation responsibility, the Secretary of the Interior shall~~ Should the Secretary nevertheless decide to resume lead management responsibility, he shall seek consultation with the Governors of Montana and Idaho to review with them the reasons for his decision and attempt to resolve the discrepancies between his suggested

important to the Canadian authorities in their consideration of participation in supplying some bears. The Canadians have been kept abreast of the Bitterroot grizzly bear restoration issue and are willing to consider supplying bears should that alternative be selected and if they are formally requested to do so.

4. Point noted and we agree that adequate funding is necessary and should be supplied to the states so they can participate in the recovery effort. The allocation of dollars among land management agencies will be done on implementation of an alternative, based on responsibilities assigned to the various agencies.

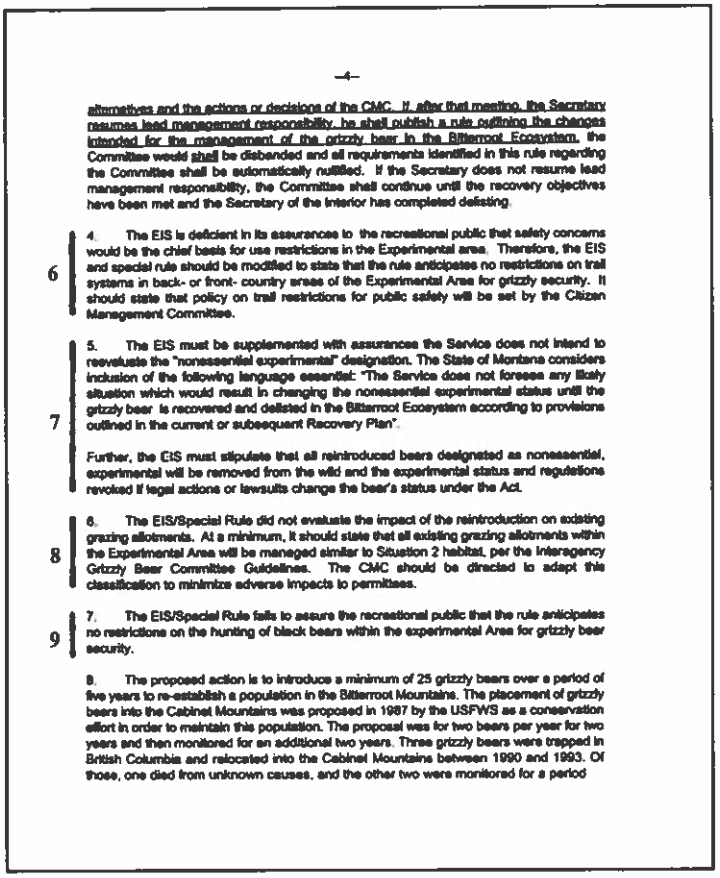
5. To address these concerns, Alternative 1 has been modified to incorporate a Scientific Review panel to evaluate the performance of the CMC instead of the Secretary of Interior alone deciding about the performance of the CMC. If it is selected, the Special Rule will reflect these changes.

6. The FEIS has been modified to state that trail use restrictions for public safety are expected to be rare, and that such restrictions, if they did occur, would be short-term in response to a rare instance such as a grizzly bear feeding next to a trail on a carrion source. We have added the additional statement that the CMC should develop a trail restriction policy to enhance public safety, as a recommendation to land management agencies.

7. The suggested wording has been added.

8. Grazing allotments on public lands are managed by land management agencies under the mandates of NFMA and other laws and policies. The CMC can make recommendations to land management agencies on such grazing allotments, but specific management direction is the responsibility of the land management agencies, not the CMC. Grizzly recovery would not supercede agency grazing policies, but the CMC could make recommendations to these agencies to modify allotment management to minimize conflicts. The specific way that the CMC chooses to view livestock grazing areas will be a discussion of the CMC. We do not believe it is desirable nor necessary to so prescribe CMC management direction in such a fashion.

9. The FEIS states that no changes in black bear hunting are anticipated, but that the CMC could recommend changes if the CMC believes that such changes are necessary to achieve recovery. The Fish and Game Departments in both Idaho and Montana would make decisions and implement any changes. This allows the CMC to be responsive to threats to grizzly bear recovery such as excessive grizzly bear mortality by black bear hunters. We do not believe it is desirable nor necessary to so



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alternatives and the actions or decisions of the CMC. If, after that meeting, the Secretary resumes lead management responsibility, he shall publish a rule outlining the changes intended for the management of the grizzly bear in the Bitterroot Ecosystem, the Committee would shall be disbanded and all requirements identified in this rule regarding the Committee shall be automatically nullified. If the Secretary does not resume lead management responsibility, the Committee shall continue until the recovery objectives have been met and the Secretary of the Interior has completed delisting.

6 4. The EIS is deficient in its assurances to the recreational public that safety concerns would be the chief basis for use restrictions in the Experimental area. Therefore, the EIS and special rule should be modified to state that the rule anticipates no restrictions on trail systems in back- or front- country areas of the Experimental Area for grizzly security. It should state that policy on trail restrictions for public safety will be set by the Citizen Management Committee.

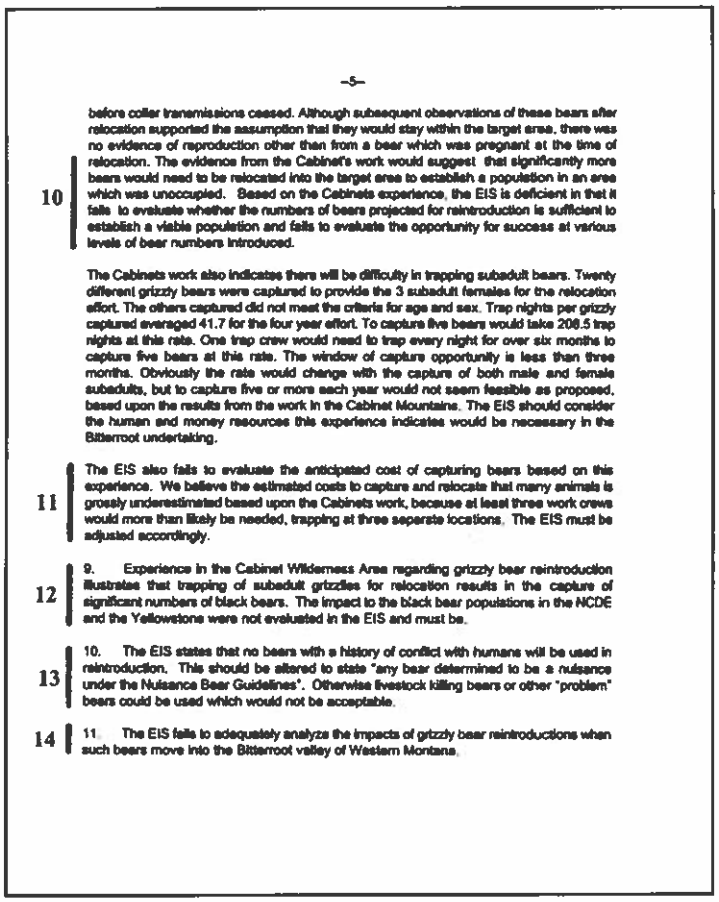
7 5. The EIS must be supplemented with assurances the Service does not intend to reevaluate the "nonessential experimental" designation. The State of Montana considers inclusion of the following language essential: "The Service does not foresee any likely situation which would result in changing the nonessential experimental status until the grizzly bear is recovered and delisted in the Bitterroot Ecosystem according to provisions outlined in the current or subsequent Recovery Plan".

Further, the EIS must stipulate that all reintroduced bears designated as nonessential, experimental will be removed from the wild and the experimental status and regulations revoked if legal actions or lawsuits change the bear's status under the Act.

8 6. The EIS/Special Rule did not evaluate the impact of the reintroduction on existing grazing allotments. At a minimum, it should state that all existing grazing allotments within the Experimental Area will be managed similar to Situation 2 habitat, per the Interagency Grizzly Bear Committee Guidelines. The CMC should be directed to adapt this classification to minimize adverse impacts to permittees.

9 7. The EIS/Special Rule fails to assure the recreational public that the rule anticipates no restrictions on the hunting of black bears within the experimental Area for grizzly bear security.

8. The proposed action is to introduce a minimum of 25 grizzly bears over a period of five years to re-establish a population in the Bitterroot Mountains. The placement of grizzly bears into the Cabinet Mountains was proposed in 1987 by the USFWS as a conservation effort in order to maintain this population. The proposal was for two bears per year for two years and then monitored for an additional two years. Three grizzly bears were trapped in British Columbia and relocated into the Cabinet Mountains between 1990 and 1993. Of those, one died from unknown causes, and the other two were monitored for a period



–5–

before collar transmissions ceased. Although subsequent observations of these bears after relocation supported the assumption that they would stay within the target area, there was no evidence of reproduction other than from a bear which was pregnant at the time of relocation. The evidence from the Cabinet's work would suggest that significantly more

10 bears would need to be relocated into the target area to establish a population in an area which was unoccupied. Based on the Cabinets experience, the EIS is deficient in that it fails to evaluate whether the numbers of bears projected for reintroduction is sufficient to establish a viable population and fails to evaluate the opportunity for success at various levels of bear numbers introduced.

The Cabinets work also indicates there will be difficulty in trapping subadult bears. Twenty different grizzly bears were captured to provide the 3 subadult females for the relocation effort. The others captured did not meet the criteria for age and sex. Trap nights per grizzly captured averaged 41.7 for the four year effort. To capture five bears would take 208.5 trap nights at this rate. One trap crew would need to trap every night for over six months to capture five bears at this rate. The window of capture opportunity is less than three months. Obviously the rate would change with the capture of both male and female subadults, but to capture five or more each year would not seem feasible as proposed, based upon the results from the work in the Cabinet Mountains. The EIS should consider the human and money resources this experience indicates would be necessary in the Bitterroot undertaking.

11 The EIS also fails to evaluate the anticipated cost of capturing bears based on this experience. We believe the estimated costs to capture and relocate that many animals is grossly underestimated based upon the Cabinets work, because at least three work crews would more than likely be needed, trapping at three seperate locations. The EIS must be adjusted accordingly.

12 9. Experience in the Cabinet Wilderness Area regarding grizzly bear reintroduction illustrates that trapping of subadult grizzlies for relocation results in the capture of significant numbers of black bears. The impact to the black bear populations in the NCDE and the Yellowstone were not evaluated in the EIS and must be.

13 10. The EIS states that no bears with a history of conflict with humans will be used in reintroduction. This should be altered to state "any bear determined to be a nuisance under the Nuisance Bear Guidelines". Otherwise livestock killing bears or other "problem" bears could be used which would not be acceptable.

14 11. The EIS fails to adequately analyze the impacts of grizzly bear reintroductions when such bears move into the Bitterroot valley of Western Montana.

proscribe CMC management direction by stating they cannot make such a recommendation should they think it necessary.

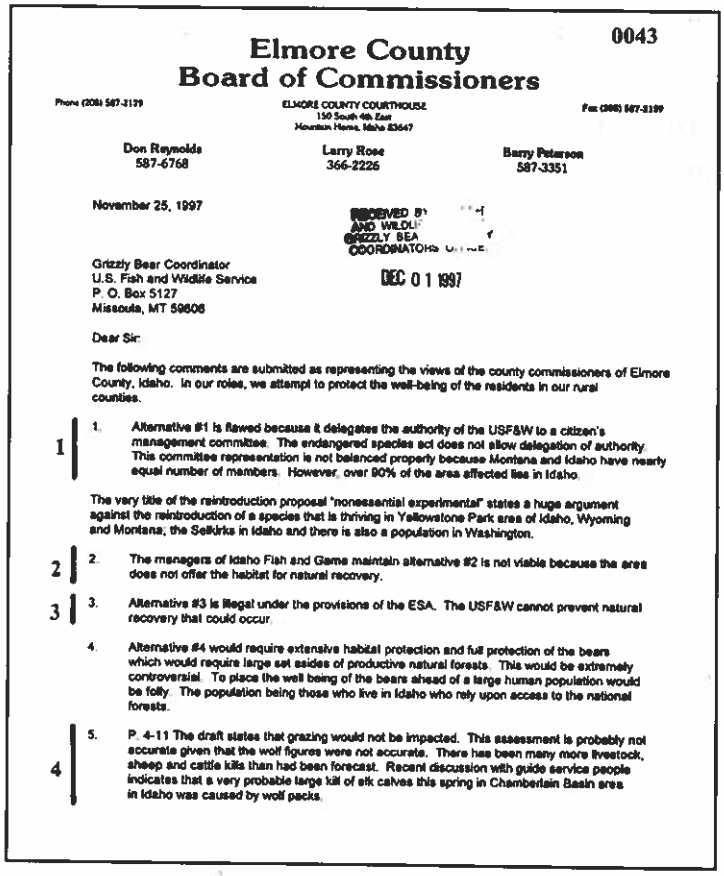
10. The FEIS does evaluate the expected time of achievement of a population of approximately 280 bears given expected survival probabilities. The number of bears chosen for reintroduction in the preferred alternative was a balance between the availability of bears, the ability to capture and relocate a given number of bears each year, and the time to reach recovered population status. While we agree that it would be desirable to place more bears each year both from the standpoint of a higher probability for success and a shorter time to recovery, we do not think it is possible to capture and relocate more than approximately 5-6 bears per year and the availability or more bears than that in any single year is also limited. Thus, we believe that the numbers selected in the preferred alternative will achieve recovery while establishing a target number of bears that can be relocated over the 5-year placement period.

11. The costs of capturing bears may be slightly low, but there are new technologies available such as helicopter capture that would allow rapid capture of the necessary number of animals in rapid fashion. For example, recent helicopter captures of grizzly bears in the Flathead area of British Columbia (the source area for the bears placed in the Cabinet Mountains) yielded 4-8 grizzly bears per day. The use of this method would allow rapid and efficient capture of the necessary bears for the Bitterroot in a cost effective manner. FEIS costs have been updated.

12. While some black bears would be captured if snares or culvert traps would be used, there would also be benefits of such captures by providing additional opportunities to gather data on age, sex, and reproductive status of resident black bears. Such data are important to management and estimation of the impacts of sport hunting on these black bear populations. In this way, any grizzly captures with associated black bear captures would benefit black bear management in the trapping areas at no cost to state fish and game departments.

13. The suggested wording has been added.

14. The private lands in the Bitterroot Valley are an exclusion zone where grizzly bears would not be tolerated. Any grizzly bears leaving public lands and entering the private lands in the Bitterroot Valley would be captured and relocated back into the wilderness, or if a repeat offender at visiting these private lands, could be destroyed. The impacts in the Bitterroot Valley would be minimal given this policy.



0043

Elmore County
Board of Commissioners

Phone (208) 587-2129 — ELMORE COUNTY COURTHOUSE, 150 South 4th East, Mountain Home, Idaho 83647 — Fax (208) 587-2199

Don Reynolds 587-6768 | Larry Rose 366-2226 | Barry Peterson 587-3351

November 25, 1997

RECEIVED BY FISH AND WILDLIFE GRIZZLY BEA COORDINATORS OFFICE
DEC 01 1997

Grizzly Bear Coordinator
U.S. Fish and Wildlife Service
P. O. Box 5127
Missoula, MT 59806

Dear Sir:

The following comments are submitted as representing the views of the county commissioners of Elmore County, Idaho. In our roles, we attempt to protect the well-being of the residents in our rural counties.

1 1. Alternative #1 is flawed because it delegates the authority of the USF&W to a citizen's management committee. The endangered species act does not allow delegation of authority. This committee representation is not balanced properly because Montana and Idaho have nearly equal number of members. However, over 80% of the area affected lies in Idaho.

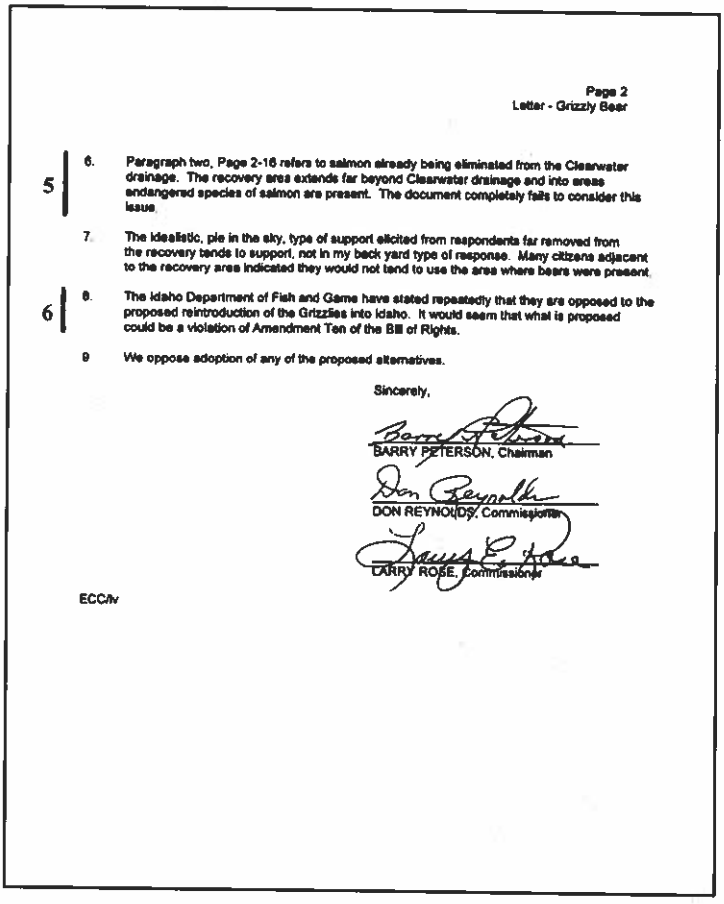
The very title of the reintroduction proposal "nonessential experimental" states a huge argument against the reintroduction of a species that is thriving in Yellowstone Park area of Idaho, Wyoming and Montana; the Selkirks in Idaho and there is also a population in Washington.

2 2. The managers of Idaho Fish and Game maintain alternative #2 is not viable because the area does not offer the habitat for natural recovery.

3 3. Alternative #3 is illegal under the provisions of the ESA. The USF&W cannot prevent natural recovery that could occur.

4. Alternative #4 would require extensive habitat protection and full protection of the bears which would require large set asides of productive natural forests. This would be extremely controversial. To place the well being of the bears ahead of a large human population would be folly. The population being those who live in Idaho who rely upon access to the national forests.

4 5. P. 4-11 The draft states that grazing would not be impacted. This assessment is probably not accurate given that the wolf figures were not accurate. There has been many more livestock, sheep and cattle kills than had been forecast. Recent discussion with guide service people indicates that a very probable large kill of elk calves this spring in Chamberlain Basin area in Idaho was caused by wolf packs.



5 6. Paragraph two, Page 2-16 refers to salmon already being eliminated from the Clearwater drainage. The recovery area extends far beyond Clearwater drainage and into areas endangered species of salmon are present. The document completely fails to consider this issue.

7. The idealistic, pie in the sky, type of support elicited from respondents far removed from the recovery lands to support, not in my back yard type of response. Many citizens adjacent to the recovery area indicated they would not tend to use the area where bears were present.

6 8. The Idaho Department of Fish and Game have stated repeatedly that they are opposed to the proposed reintroduction of the Grizzlies into Idaho. It would seem that what is proposed could be a violation of Amendment Ten of the Bill of Rights.

9. We oppose adoption of any of the proposed alternatives.

Sincerely,

BARRY PETERSON, Chairman

DON REYNOLDS, Commissioner

LARRY ROSE, Commissioner

ECC/lv

County, Elmore County Commissioners (Idaho): #43

1. ESA Section 10 permits the use of experimental populations for the conservation of listed species. The grizzly bear is listed as a threatened species. Special regulations adopted by the Secretary of the Interior would implement special conservation measures for a reintroduced population of grizzly bears. These regulations would permit a "Citizens Management Committee" type of conservation entity to oversee and manage this grizzly bear conservation project.

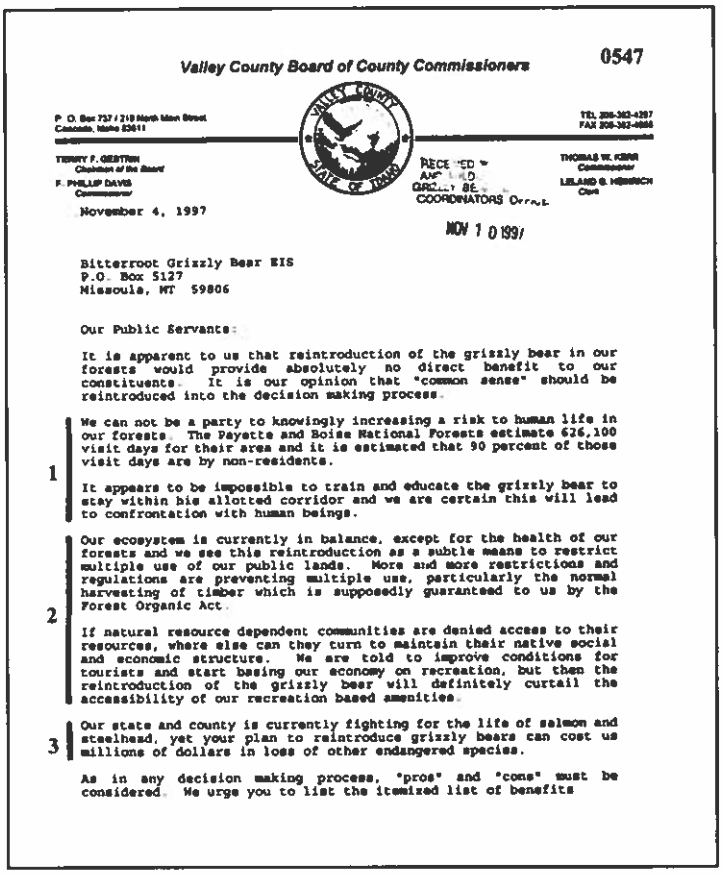
2. We believe there is sufficient suitable habitat in central Idaho to support a viable grizzly bear population. The best available scientific information supports this (see Appendix 21). However, it is highly unlikely grizzly bears could become reestablished in their native Bitterroot Ecosystem through natural immigration, as proposed in Alternative 2. Data indicates that in the lower 48 States, within the four ecosystems (YE, NCDE, CYE, SE) where more than 550 grizzly bears have been radio-collared, not one radio-collared bear has been documented to move between ecosystems.

3. A federal agency cannot legally prevent natural recovery of grizzly bears under existing laws and regulations. Under Alternative 3, legislation would need to be passed to change existing laws and regulations such that recovery could be prevented.

4. The official actual numbers of livestock losses (5 cattle, 53 sheep, 4 dogs) attributed to the reintroduced wolves in Central Idaho through March 1998 is below estimates made for livestock losses during the Wolf EIS preparation. Suspected livestock lost to wolf depredation is inspected by Animal Damage Control specialists to verify cause of death. For the above losses, ranchers have been compensated $8,946.00. The 1994 wolf EIS estimated livestock losses for 100 wolves to be approximately 10 cattle and 52 sheep per year.

5. The likely source population of grizzly bears for a reintroduction effort would be "interior" bears that are not accustomed to a fish diet. Reduced number of Salmon in this grizzly bear recovery area should not affect recovery. See response to Idaho Representative Don Burtenshaw #2642, issue #2, page 5-45. Also see Appendix 9B, Biological Opinion from National Marine Fisheries Service.

6. The congress of the United State has passed the Endangered Species Act giving Federal jurisdiction over recovery of listed species. The Act does not prohibit, and in fact encourages state action and participation. The proposed action does not violate Amendment Ten to the Bill of Rights.



Valley County Board of County Commissioners 0547

P. O. Box 737 / 219 North Main Street
Cascade, Idaho 83611
TEL 208-382-4297
FAX 208-382-4466

TERRY F. GESTRIN
Chairman of the Board
F. PHILLIP DAVIS
Commissioner
THOMAS W. KERR
Commissioner
LELAND G. HEINRICH
Clerk

RECEIVED AND FILED BY THE COORDINATORS OFFICE
NOV 10 1997

November 4, 1997

Bitterroot Grizzly Bear EIS
P.O. Box 5127
Missoula, MT 59806

Our Public Servants:

It is apparent to us that reintroduction of the grizzly bear in our forests would provide absolutely no direct benefit to our constituents. It is our opinion that "common sense" should be reintroduced into the decision making process.

1 We can not be a party to knowingly increasing a risk to human life in our forests. The Payette and Boise National Forests estimate 626,100 visit days for their area and it is estimated that 90 percent of those visit days are by non-residents.

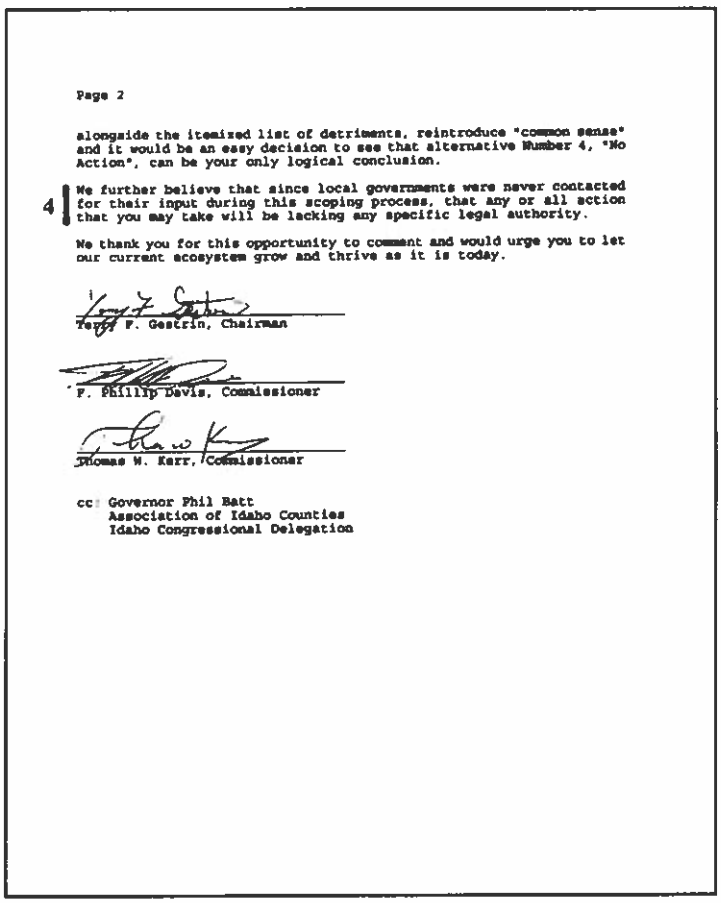
It appears to be impossible to train and educate the grizzly bear to stay within his allotted corridor and we are certain this will lead to confrontation with human beings.

2 Our ecosystem is currently in balance, except for the health of our forests and we see this reintroduction as a subtle means to restrict multiple use of our public lands. More and more restrictions and regulations are preventing multiple use, particularly the normal harvesting of timber which is supposedly guaranteed to us by the Forest Organic Act.

If natural resource dependent communities are denied access to their resources, where else can they turn to maintain their native social and economic structure. We are told to improve conditions for tourists and start basing our economy on recreation, but then the reintroduction of the grizzly bear will definitely curtail the accessibility of our recreation based amenities.

3 Our state and county is currently fighting for the life of salmon and steelhead, yet your plan to reintroduce grizzly bears can cost us millions of dollars in loss of other endangered species.

As in any decision making process, "pros" and "cons" must be considered. We urge you to list the itemized list of benefits



Page 2

alongside the itemized list of detriments, reintroduce "common sense" and it would be an easy decision to see that alternative Number 4, "No Action", can be your only logical conclusion.

4 We further believe that since local governments were never contacted for their input during this scoping process, that any or all action that you may take will be lacking any specific legal authority.

We thank you for this opportunity to comment and would urge you to let our current ecosystem grow and thrive as it is today.

Terry F. Gestrin, Chairman

F. Phillip Davis, Commissioner

Thomas W. Kerr, Commissioner

cc: Governor Phil Batt
Association of Idaho Counties
Idaho Congressional Delegation

County, Valley County Commissioners (Idaho): # 547

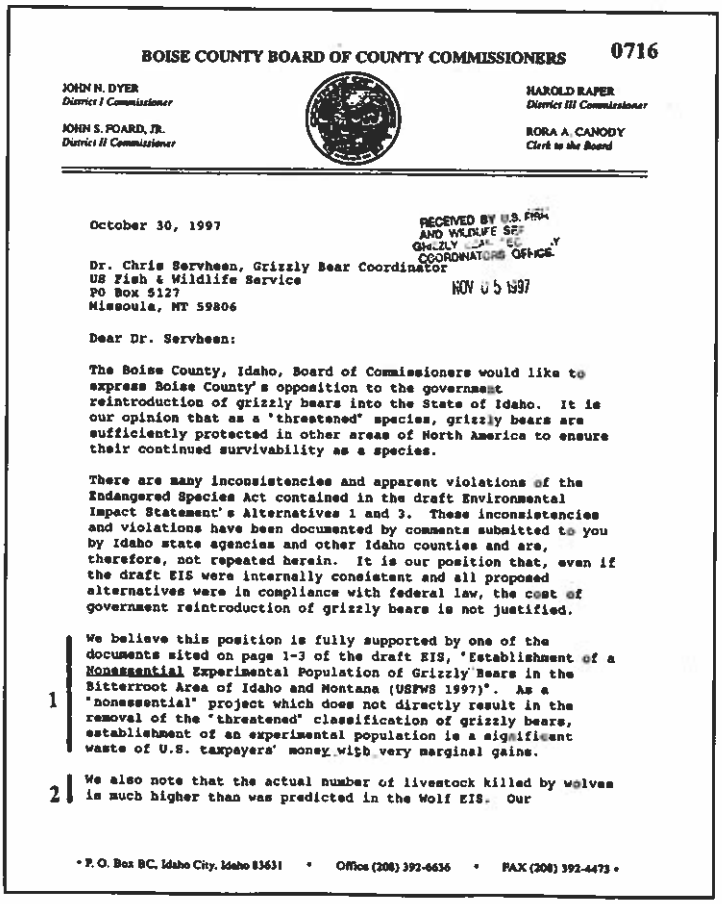
1. Thank you for your comment. The USFWS would take actions to reduce the risk of human/bear conflicts. Only bears with no history of conflicts with people would be considered candidates for reintroduction. Suitable bears would be released at remote wilderness sites within the BE to reduce the likelihood of encounters with humans. All released bears would be fitted with radio-collars and their movements would be monitored to keep the public informed of general bear locations and recovery efforts. A proactive information and education program and sanitation improvements would be initiated during the first year of implementation and would continue through the implementation phase, and into the monitoring and management phase. During the first several decades following reintroduction, chance of human injury caused by grizzly bears would be exceedingly small due to the low density of bears in the area.

2. One of the most common issues raised by the public throughout the NEPA process for the Bitterroot Grizzly Bear Recovery proposal has been the need to restore the grizzly bear as a missing component of the Bitterroot Ecosystem. This species is native to the ecosystem, and was extirpated due to human activities. The USFWS, through the NEPA process has attempted to balance the needs of the grizzly bear with the social and economic issues that have been raised by the public. Alternative 1, the USFWS preferred alternative, would reintroduce grizzly bears as a "nonessential experimental" population which would allow for flexibility in their management. This alternative is not expected to impact land uses in the BE, including timber harvest and mineral extraction activities, as long as they meet the existing standards and guidelines of the USDA Forest Service Forest Plans. The CMC comprised of local citizens of Idaho and Montana would be authorized management implementation responsibility by the Secretary of Interior for the Bitterroot grizzly bear population. Recommendations to reduce potential impacts to grizzly bear recovery would be made by the CMC to land management agencies, if the

need arises. The CMC can make recommendations to land and game management agencies regarding changes to plans and policies, but the final decision on implementation of those recommendations will be made by those agencies, and the requirements of NEPA may apply.

3. See answer #2 for letter #2642, from Idaho State Senator Don Burtenshaw (page 5-45). Also, the USFWS Biological Assessment (Appendix 9A) and the National Marine Fisheries Service Biological Opinion (Appendix 9B) both indicate there would be no significant adverse impacts to all other endangered and threatened species in the analysis area from grizzly bear recovery under Alternative 1.

4. Local governments were contacted during scoping and have had numerous opportunities to comment throughout this NEPA process. See Chapter 5, "Consultation and Coordination in Development of the Proposal and EIS," page 5-3.



BOISE COUNTY BOARD OF COUNTY COMMISSIONERS 0716

JOHN N. DYER
District I Commissioner

JOHN S. FOARD, JR.
District II Commissioner

HAROLD RAPER
District III Commissioner

RORA A. CANODY
Clerk to the Board

October 30, 1997

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE
NOV 05 1997

Dr. Chris Servheen, Grizzly Bear Coordinator
US Fish & Wildlife Service
PO Box 8127
Missoula, MT 59806

Dear Dr. Servheen:

The Boise County, Idaho, Board of Commissioners would like to express Boise County's opposition to the government reintroduction of grizzly bears into the State of Idaho. It is our opinion that as a "threatened" species, grizzly bears are sufficiently protected in other areas of North America to ensure their continued survivability as a species.

There are many inconsistencies and apparent violations of the Endangered Species Act contained in the draft Environmental Impact Statement's Alternatives 1 and 3. These inconsistencies and violations have been documented by comments submitted to you by Idaho state agencies and other Idaho counties and are, therefore, not repeated herein. It is our position that, even if the draft EIS were internally consistent and all proposed alternatives were in compliance with federal law, the cost of government reintroduction of grizzly bears is not justified.

1 We believe this position is fully supported by one of the documents sited on page 1-3 of the draft EIS, "Establishment of a Nonessential Experimental Population of Grizzly Bears in the Bitterroot Area of Idaho and Montana (USFWS 1997)". As a "nonessential" project which does not directly result in the removal of the "threatened" classification of grizzly bears, establishment of an experimental population is a significant waste of U.S. taxpayers' money with very marginal gains.

2 We also note that the actual number of livestock killed by wolves is much higher than was predicted in the Wolf EIS. Our

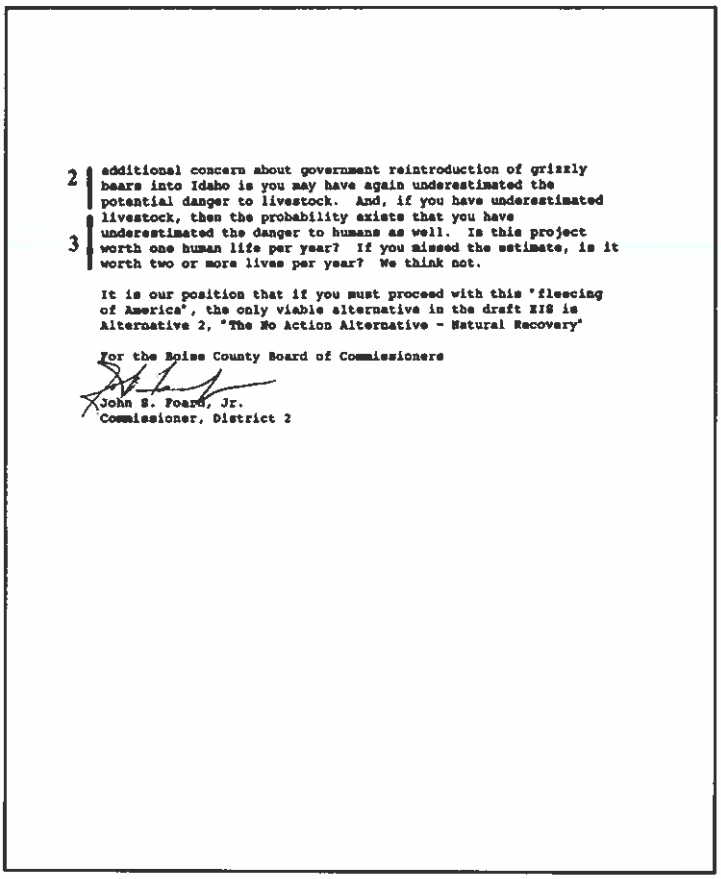
P. O. Box BC, Idaho City, Idaho 83631 • Office (208) 392-6636 • FAX (208) 392-4473 •

County, Boise County Commissioners (Idaho): # 716

1. See 50CFR 17.80 pages 175-176 for explanation of congressional intent of Experimental Nonessential population. See FEIS Appendix 12. Also see, "The Reintroduction of Gray Wolves to Yellowstone National Park and Central Idaho," FEIS 1994, USFWS. Helena, MT 59601 (pages 6-2 and 6-5).

The term "nonessential," as it is used in the Alternative 1 proposal to reintroduce a "nonessential experimental" population of grizzly bears, means that the reintroduced bears are not essential to the continued existence of the grizzly bear species. However, the term "nonessential" does not mean that the project itself is not essential to the recovery of the species in the lower 48 States.

2. The official actual numbers of livestock losses (5 cattle, 53 sheep, 4 dogs) attributed to the reintroduced wolves in Central Idaho through March 1998 is below estimates made



2 additional concern about government reintroduction of grizzly bears into Idaho is you may have again underestimated the potential danger to livestock. And, if you have underestimated livestock, then the probability exists that you have

3 underestimated the danger to humans as well. Is this project worth one human life per year? If you missed the estimate, is it worth two or more lives per year? We think not.

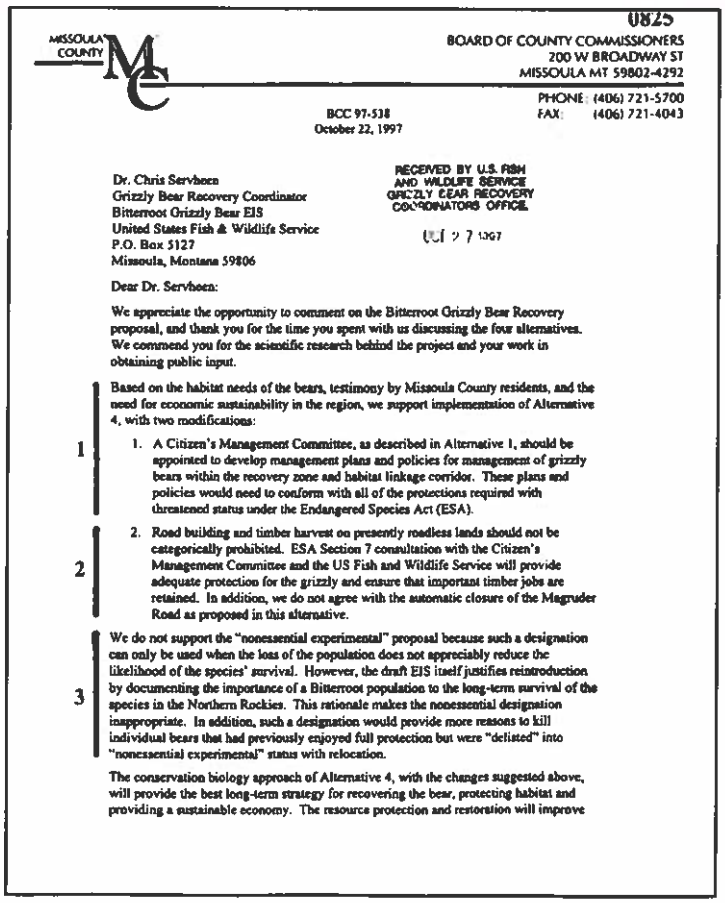
It is our position that if you must proceed with this 'fleecing of America', the only viable alternative in the draft EIS is Alternative 2, 'The No Action Alternative - Natural Recovery'

For the Boise County Board of Commissioners

John S. Foard, Jr.
Commissioner, District 2

for livestock losses during the Wolf EIS preparation. Suspected livestock lost to wolf depredation is inspected by Animal Damage Control specialists to verify cause of death. For the above losses, ranchers have been compensated $8,946.00. The 1994 wolf EIS estimated livestock losses for 100 wolves to be approximately 10 cattle and 52 sheep per year.

3. The rate and result of bear-human encounters expected in the Bitterroot is believed to be most similar to that in other wilderness and surrounding lands where bears currently exist - such as the Bob Marshall wilderness complex in Montana. The USFWS believes such comparisons of bear human encounter rates and the results of such encounters presented in the FEIS are appropriate. See page 5-57, City of Salmon, issue #1, letter #1784.



0825

MISSOULA COUNTY

BOARD OF COUNTY COMMISSIONERS
200 W BROADWAY ST
MISSOULA MT 59802-4292

PHONE (406) 721-5700
FAX (406) 721-4043

BCC 97-538
October 22, 1997

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE

OCT 27 1997

Dr. Chris Servheen
Grizzly Bear Recovery Coordinator
Bitterroot Grizzly Bear EIS
United States Fish & Wildlife Service
P.O. Box 5127
Missoula, Montana 59806

Dear Dr. Servheen:

We appreciate the opportunity to comment on the Bitterroot Grizzly Bear Recovery proposal, and thank you for the time you spent with us discussing the four alternatives. We commend you for the scientific research behind the project and your work in obtaining public input.

Based on the habitat needs of the bears, testimony by Missoula County residents, and the need for economic sustainability in the region, we support implementation of Alternative 4, with two modifications:

1 1. A Citizen's Management Committee, as described in Alternative 1, should be appointed to develop management plans and policies for management of grizzly bears within the recovery zone and habitat linkage corridor. These plans and policies would need to conform with all of the protections required with threatened status under the Endangered Species Act (ESA).

2 2. Road building and timber harvest on presently roadless lands should not be categorically prohibited. ESA Section 7 consultation with the Citizen's Management Committee and the US Fish and Wildlife Service will provide adequate protection for the grizzly and ensure that important timber jobs are retained. In addition, we do not agree with the automatic closure of the Magruder Road as proposed in this alternative.

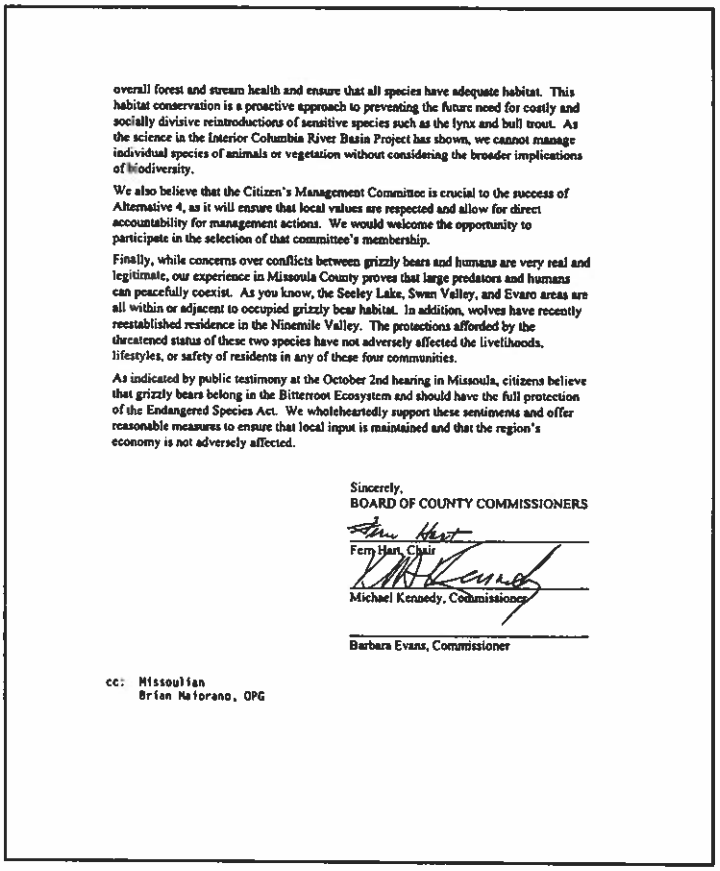
3 We do not support the "nonessential experimental" proposal because such a designation can only be used when the loss of the population does not appreciably reduce the likelihood of the species' survival. However, the draft EIS itself justifies reintroduction by documenting the importance of a Bitterroot population to the long-term survival of the species in the Northern Rockies. This rationale makes the nonessential designation inappropriate. In addition, such a designation would provide more reasons to kill individual bears that had previously enjoyed full protection but were "delisted" into "nonessential experimental" status with relocation.

The conservation biology approach of Alternative 4, with the changes suggested above, will provide the best long-term strategy for recovering the bear, protecting habitat and providing a sustainable economy. The resource protection and restoration will improve

County, Missoula County Commissioners (Montana): #825

1. Alternative 4 is restoration of a fully threatened population of bears with full protection under the ESA. All activities on federal lands within the area of a fully threatened population would be subject to Section 7 consultation by the USFWS. As such, the management of these areas would be directed by USFWS consultation and a CMC would have no role in such consultation. The experimental population reintroduction proposed in Alternative 1 allows management flexibility as per the special rule associated with creation of the experimental population. The experimental status allows creation of a CMC as no Section 7 USFWS consultation is required for an experimental population. Thus, fully threatened status does not allow for a functional citizens management concept while experimental status does.

2. The CMC can make recommendations to land and game management agencies regarding



overall forest and stream health and ensure that all species have adequate habitat. This habitat conservation is a proactive approach to preventing the future need for costly and socially divisive reintroductions of sensitive species such as the lynx and bull trout. As the science in the Interior Columbia River Basin Project has shown, we cannot manage individual species of animals or vegetation without considering the broader implications of biodiversity.

We also believe that the Citizen's Management Committee is crucial to the success of Alternative 4, as it will ensure that local values are respected and allow for direct accountability for management actions. We would welcome the opportunity to participate in the selection of that committee's membership.

Finally, while concerns over conflicts between grizzly bears and humans are very real and legitimate, our experience in Missoula County proves that large predators and humans can peacefully coexist. As you know, the Seeley Lake, Swan Valley, and Evaro areas are all within or adjacent to occupied grizzly bear habitat. In addition, wolves have recently reestablished residence in the Ninemile Valley. The protections afforded by the threatened status of these two species have not adversely affected the livelihoods, lifestyles, or safety of residents in any of these four communities.

As indicated by public testimony at the October 2nd hearing in Missoula, citizens believe that grizzly bears belong in the Bitterroot Ecosystem and should have the full protection of the Endangered Species Act. We wholeheartedly support these sentiments and offer reasonable measures to ensure that local input is maintained and that the region's economy is not adversely affected.

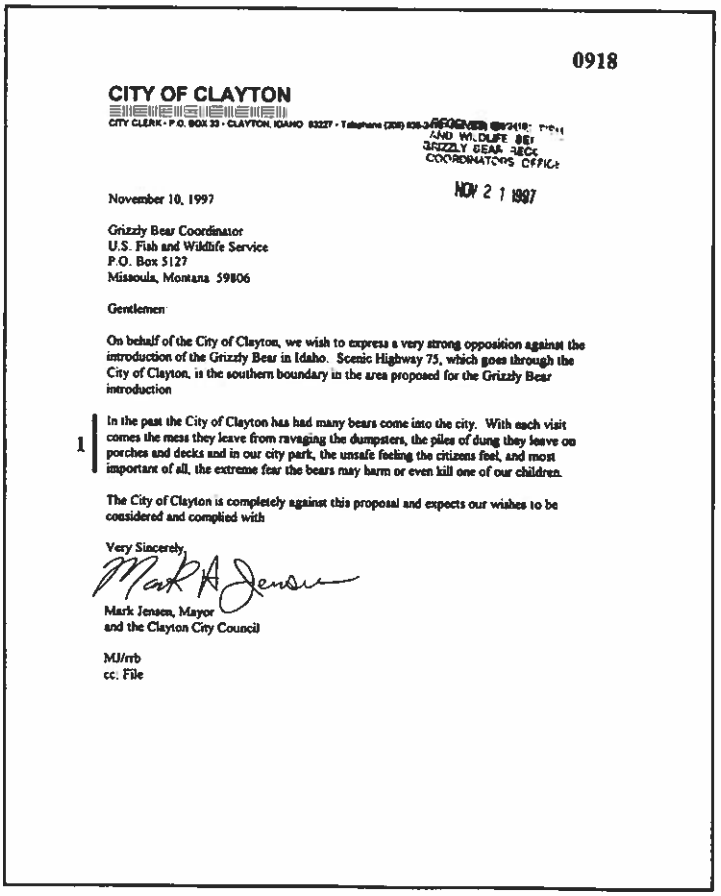
Sincerely,
BOARD OF COUNTY COMMISSIONERS

Fern Hart, Chair

Michael Kennedy, Commissioner

Barbara Evans, Commissioner

cc: Missoulian
Brian Maiorano, OPG



0918

CITY OF CLAYTON

CITY CLERK • P.O. BOX 33 • CLAYTON, IDAHO 83227 • Telephone (208) 838-3[illegible]

RECEIVED
AND WILDLIFE SER
GRIZZLY BEAR REC
COORDINATORS OFFICE
NOV 2 1 1997

November 10, 1997

Grizzly Bear Coordinator
U.S. Fish and Wildlife Service
P.O. Box 5127
Missoula, Montana 59806

Gentlemen:

On behalf of the City of Clayton, we wish to express a very strong opposition against the introduction of the Grizzly Bear in Idaho. Scenic Highway 75, which goes through the City of Clayton, is the southern boundary in the area proposed for the Grizzly Bear introduction.

1 In the past the City of Clayton has had many bears come into the city. With each visit comes the mess they leave from ravaging the dumpsters, the piles of dung they leave on porches and decks and in our city park, the unsafe feeling the citizens feel, and most important of all, the extreme fear the bears may harm or even kill one of our children.

The City of Clayton is completely against this proposal and expects our wishes to be considered and complied with.

Very Sincerely,

Mark Jensen, Mayor
and the Clayton City Council

MJ/rrb
cc: File

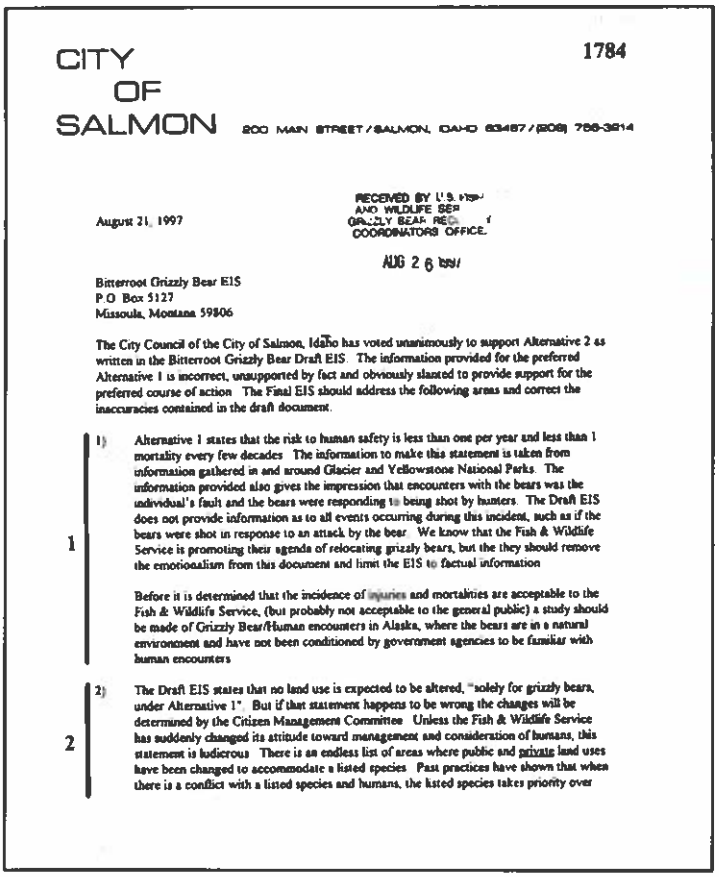
changes to plans and policies, but the final decision on implementation of those recommendations will be made by those agencies, and the requirements of NEPA may apply. Section 7 consultation would occur under fully listed status with the decision making authority on public lands in the Bitterroot area, that of the U.S. Forest Service, not the CMC. Comments on road building, timber harvest, and the Magruder Road noted.

3. The experimental designation is supported by the USFWS because the reintroduction of grizzly bears into the Bitterroot would increase the probability of maintaining health grizzly populations south of Canada, but it is not essential to maintaining such healthy populations. Bears in the experimental population in the Bitterroot would be fully protected against illegal killing under federal law under the ESA. Grizzly bears could only be killed in the Bitterroot in self defense or defense of others (as in all fully listed populations), or, in the special circumstance on private land where a depredating bear was unable to be captured by state or federal management officials, a permit could be issued to that landowner to kill that bear. Otherwise killing of bears in the experimental Bitterroot population is illegal and would be prosecuted under federal law.

City of Clayton (Idaho): #918

1. Proper sanitation is the responsibility of all citizens. Feeding of bears is not promoted nor encouraged by conservationists. Communities in and near occupied grizzly bear country use wildlife resistant dumpsters and keep household foods and pet/livestock foodstuffs properly stored. With these "common sense" precautions, these communities experience very little wildlife nuisance problems.

If the decision is made to restore grizzly bears to the BE, Information and Education and Sanitation programs would be initiated prior to reintroduction and would continue throughout the program. See Appendix 22 for a list of preliminarily identified areas in the BE that are in need of wildlife sanitation improvements.



CITY OF SALMON

1784

200 MAIN STREET / SALMON, IDAHO 83467 / (208) 756-3814

August 21, 1997

RECEIVED BY U.S. FISH AND WILDLIFE SER GRIZZLY BEAR REC. COORDINATORS OFFICE.

AUG 26 1997

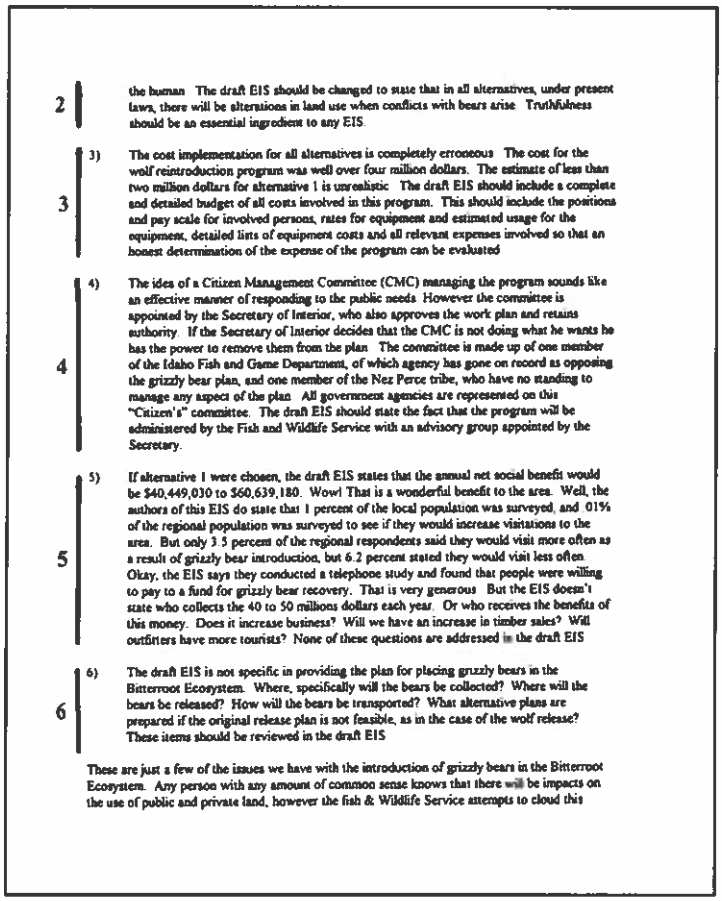
Bitterroot Grizzly Bear EIS
P.O. Box 5127
Missoula, Montana 59806

The City Council of the City of Salmon, Idaho has voted unanimously to support Alternative 2 as written in the Bitterroot Grizzly Bear Draft EIS. The information provided for the preferred Alternative 1 is incorrect, unsupported by fact and obviously slanted to provide support for the preferred course of action. The Final EIS should address the following areas and correct the inaccuracies contained in the draft document.

1 1) Alternative 1 states that the risk to human safety is less than one per year and less than 1 mortality every few decades. The information to make this statement is taken from information gathered in and around Glacier and Yellowstone National Parks. The information provided also gives the impression that encounters with the bears was the individual's fault and the bears were responding to being shot by hunters. The Draft EIS does not provide information as to all events occurring during this incident, such as if the bears were shot in response to an attack by the bear. We know that the Fish & Wildlife Service is promoting their agenda of relocating grizzly bears, but the they should remove the emotionalism from this document and limit the EIS to factual information.

Before it is determined that the incidence of injuries and mortalities are acceptable to the Fish & Wildlife Service, (but probably not acceptable to the general public) a study should be made of Grizzly Bear/Human encounters in Alaska, where the bears are in a natural environment and have not been conditioned by government agencies to be familiar with human encounters.

2 2) The Draft EIS states that no land use is expected to be altered, "solely for grizzly bears, under Alternative 1". But if that statement happens to be wrong the changes will be determined by the Citizen Management Committee. Unless the Fish & Wildlife Service has suddenly changed its attitude toward management and consideration of humans, this statement is ludicrous. There is an endless list of areas where public and private land uses have been changed to accommodate a listed species. Past practices have shown that when there is a conflict with a listed species and humans, the listed species takes priority over



2 the human. The draft EIS should be changed to state that in all alternatives, under present laws, there will be alterations in land use when conflicts with bears arise. Truthfulness should be an essential ingredient to any EIS.

3 3) The cost implementation for all alternatives is completely erroneous. The cost for the wolf reintroduction program was well over four million dollars. The estimate of less than two million dollars for alternative 1 is unrealistic. The draft EIS should include a complete and detailed budget of all costs involved in this program. This should include the positions and pay scale for involved persons, rates for equipment and estimated usage for the equipment, detailed lists of equipment costs and all relevant expenses involved so that an honest determination of the expense of the program can be evaluated.

4 4) The idea of a Citizen Management Committee (CMC) managing the program sounds like an effective manner of responding to the public needs. However the committee is appointed by the Secretary of Interior, who also approves the work plan and retains authority. If the Secretary of Interior decides that the CMC is not doing what he wants he has the power to remove them from the plan. The committee is made up of one member of the Idaho Fish and Game Department, of which agency has gone on record as opposing the grizzly bear plan, and one member of the Nez Perce tribe, who have no standing to manage any aspect of the plan. All government agencies are represented on this "Citizen's" committee. The draft EIS should state the fact that the program will be administered by the Fish and Wildlife Service with an advisory group appointed by the Secretary.

5 5) If alternative 1 were chosen, the draft EIS states that the annual net social benefit would be $40,449,030 to $60,639,180. Wow! That is a wonderful benefit to the area. Well, the authors of this EIS do state that 1 percent of the local population was surveyed, and .01% of the regional population was surveyed to see if they would increase visitations to the area. But only 3.5 percent of the regional respondents said they would visit more often as a result of grizzly bear introduction, but 6.2 percent stated they would visit less often. Okay, the EIS says they conducted a telephone study and found that people were willing to pay to a fund for grizzly bear recovery. That is very generous. But the EIS doesn't state who collects the 40 to 50 millions dollars each year. Or who receives the benefits of this money. Does it increase business? Will we have an increase in timber sales? Will outfitters have more tourists? None of these questions are addressed in the draft EIS.

6 6) The draft EIS is not specific in providing the plan for placing grizzly bears in the Bitterroot Ecosystem. Where, specifically will the bears be collected? Where will the bears be released? How will the bears be transported? What alternative plans are prepared if the original release plan is not feasible, as in the case of the wolf release? These items should be reviewed in the draft EIS.

These are just a few of the issues we have with the introduction of grizzly bears in the Bitterroot Ecosystem. Any person with any amount of common sense knows that there will be impacts on the use of public and private land, however the fish & Wildlife Service attempts to cloud this

City of Salmon (Idaho): #1784

1. Human-grizzly bear encounters are a result of various factors including surprise encounters, defense of young by female bears, defense of food sources by bears, and attacks by wounded bears after being shot. Most human-bear encounters are a result of surprise encounters where bears and people come too close inadvertently. In most such cases, the bears flee the area or there is minor injury to the people.

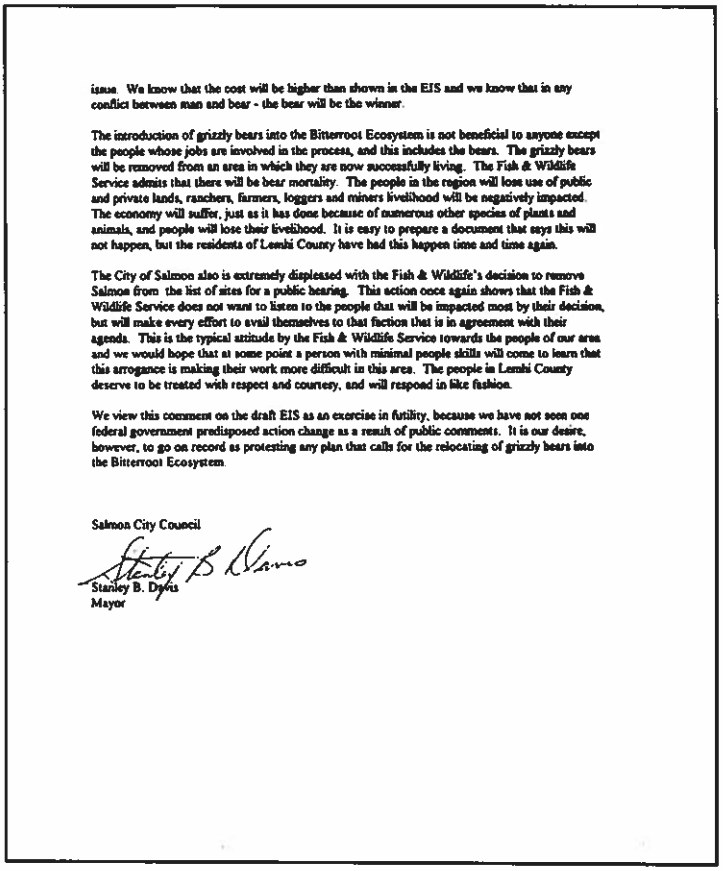
The information referred to in the City of Salmon's Comments is found in Appendix 11 of the FEIS and states, "In the Bob Marshall Wilderness in 1956, a hunter shot and injured a grizzly bear that responded by mortally injuring the hunter. In 1995, a bird hunter in the Mission Valley shot and wounded a grizzly that responded by injuring the hunter." In the incident in the Bob Marshall wilderness where a hunter was killed by a grizzly bear, the available information indicates the bear was shot by a grizzly hunter, who was subsequently killed by the wounded bear. We do not believe that the description of these two events lead the reader to believe that the individuals were at fault and further that these comments in no way represent emotionalism.

The rate and result of bear-human encounters expected in the Bitterroot is believed to be most similar to that in other wilderness and surrounding lands where bears currently exist - such as the Bob Marshall wilderness complex in Montana. The USFWS believes such comparisons of bear human encounter rates and the results of such encounters presented in the FEIS are appropriate.

You suggested that, "A study should be made of grizzly bear/human encounters in Alaska, where bears are in a natural environment and have not been conditioned by government agencies to be familiar with human encounters." We refer you to the following Alaska studies:

Miller, Sterling and Mark Chihuly. 1987. Characteristics of nonsport brown bear deaths in Alaska. Int. Conf. Bear Res. and Manage. 7:51-58.

Middaugh, J.P. 1987. Human injury from bear attacks in Alaska, 1900-1985. Alaska Medicine. 29:121-126.



issue. We know that the cost will be higher than shown in the EIS and we know that in any conflict between man and bear - the bear will be the winner.

The introduction of grizzly bears into the Bitterroot Ecosystem is not beneficial to anyone except the people whose jobs are involved in the process, and this includes the bears. The grizzly bears will be removed from an area in which they are now successfully living. The Fish & Wildlife Service admits that there will be bear mortality. The people in the region will lose use of public and private lands, ranchers, farmers, loggers and miners livelihood will be negatively impacted. The economy will suffer, just as it has done because of numerous other species of plants and animals, and people will lose their livelihood. It is easy to prepare a document that says this will not happen, but the residents of Lemhi County have had this happen time and time again.

The City of Salmon also is extremely displeased with the Fish & Wildlife's decision to remove Salmon from the list of sites for a public hearing. This action once again shows that the Fish & Wildlife Service does not want to listen to the people that will be impacted most by their decision, but will make every effort to avail themselves to that faction that is in agreement with their agenda. This is the typical attitude by the Fish & Wildlife Service towards the people of our area and we would hope that at some point a person with minimal people skills will come to learn that this arrogance is making their work more difficult in this area. The people in Lemhi County deserve to be treated with respect and courtesy, and will respond in like fashion.

We view this comment on the draft EIS as an exercise in futility, because we have not seen one federal government predisposed action change as a result of public comments. It is our desire, however, to go on record as protesting any plan that calls for the relocating of grizzly bears into the Bitterroot Ecosystem.

Salmon City Council

Stanley B. Davis
Mayor

2. We completely agree that truthfulness is an essential ingredient in any EIS. The proposed alternative is an experimental reintroduction which allows more management flexibility than the management of a fully listed grizzly bear population. All existing populations in the lower 48 states are fully listed, and comparisons between the management of those populations and the experimental Bitterroot population are limited and inappropriate. The USFWS has no statutory authority over private lands in any area of grizzly range and private land uses have not been changed as a result of grizzly management. It may be true that the CMC may recommend management changes on pubic lands such as improved storage of garbage and other attractants to bears. The final decision on such changes is up to the land management agency, not the CMC.

3. We believe that the cost estimates for the first five years of implementing Alternative 1 are realistic and reasonable. These figures are approximations based on estimated costs. An updated detailed listing of costs and relevant expenses is listed in Appendix 7 of the FEIS.

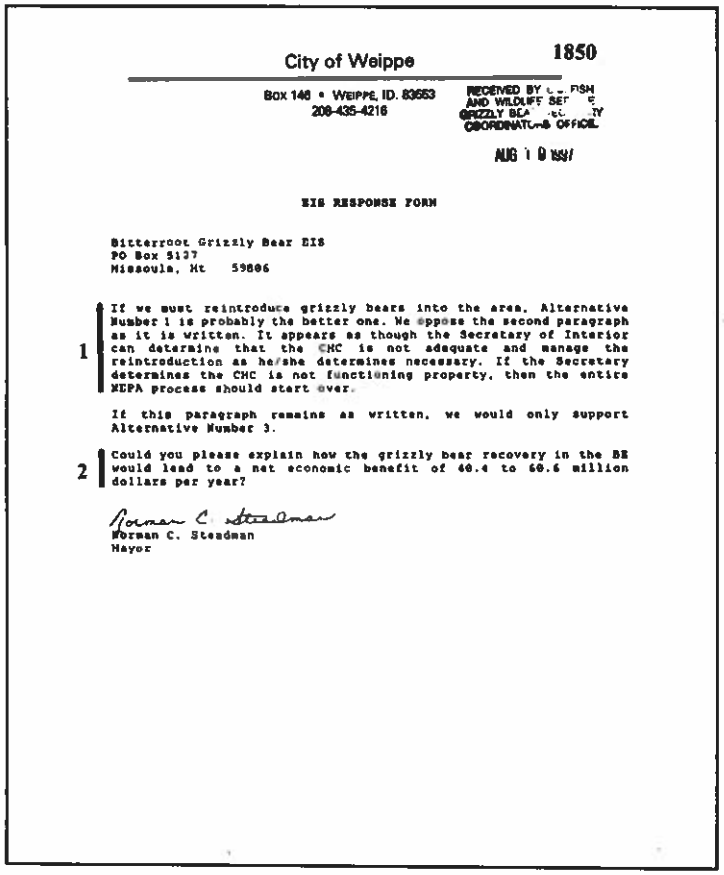
4. We feel that the idea of a Citizen Management Committee managing the program is a very effective manner of responding to local public concerns. The CMC is not an advisory group, it is a management committee. The tasks of the CMC are detailed in FEIS Chapter 2, Alternative 1. The CMC does have agency members, but the majority of the members are citizens nominated by the governors of Idaho and Montana and appointed by the Secretary of Interior. The CMC is responsible for making decisions concerning management of bear-human conflicts, placement and monitoring of bears, and making recommendations to land and wildlife management agencies concerning issues that concern grizzly recovery in the Bitterroot area.

5. The discussion of the estimation of existence values has been expanded and reorganized in the Final EIS to address the concerns of the relationship between the estimated existence values and money spent in the local communities, and the questions of the validity and usefulness of the value estimates. See response to letter #203, Idaho Governor Batt,

issue # 17, page #5-32 for more information on the economic analysis results and methodology. Also, for further information, see Appendix 17, Explanation of Existence Value Calculations from Chapter IV Economic Analysis in the FEIS.

6. The FEIS details possible origin areas for bears to be relocated into the Bitterroot and the criteria for selecting these bears. All releases of bears would be inside the Selway Bitterroot Wilderness Area north of the Salmon River unless the CMC decides otherwise. The specifics of transport would be worked out between the agencies and the CMC upon selection of an alternative. Given experience in moving grizzly bears into the Cabinet Mountains from British Columbia, bears would likely be transported in culvert traps in trucks from the origin to a site where helicopters could be used to fly the culvert trap containing the bear into the wilderness for release. They will be released during the summer months unlike the wolves which were released in January and February. The final decisions on such details would be the responsibility of the CMC. It is important to note that no requests for bears have been made at this time.

(The USFWS decision to cancel the scheduled Public Hearing in October 1997 was in response to the statement by the Sheriff of Lemhi County that he would not provide police protection for agency personnel in attendance at the hearing. A formal Public Hearing was held in Salmon, ID on October 8, 1997 after the city Chief of Police assured the USFWS that he would provide police protection.)



City of Weippe 1850

Box 148 • Weippe, ID. 83553
208-435-4216

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATOR'S OFFICE
AUG 1 9 1997

EIS RESPONSE FORM

Bitterroot Grizzly Bear EIS
PO Box 8127
Missoula, Mt 59806

1 If we must reintroduce grizzly bears into the area, Alternative Number 1 is probably the better one. We oppose the second paragraph as it is written. It appears as though the Secretary of Interior can determine that the CMC is not adequate and manage the reintroduction as he/she determines necessary. If the Secretary determines the CMC is not functioning property, then the entire NEPA process should start over.

If this paragraph remains as written, we would only support Alternative Number 3.

2 Could you please explain how the grizzly bear recovery in the BE would lead to a net economic benefit of 40.4 to 60.6 million dollars per year?

Norman C. Steadman
Mayor

City of Weippe (Idaho): #1850

1. Under the Endangered Species Act, the Secretary of Interior must retain final authority and responsibility for implementation of the Act. Based on public comment, Alternative 1 (preferred alternative) has been modified to include provisions to further facilitate the functioning of the CMC, and allow for citizen management to proceed without undue influence from the Secretary of Interior.

If the USFWS representative on the CMC has concerns that CMC actions are not leading to recovery and are not in compliance with the Special Rule, he/she would provide the CMC corrective actions and a 6-month time-frame to accomplish those actions, and would consider CMC input before making a determination that CMC actions are not leading to recovery. If that determination is made, the USFWS representative would convene a Scientific Review Panel to review CMC actions and decisions and make recommendations to the CMC as to whether CMC actions, decisions, or processes are in compliance with the Special Rule and are leading to recovery. This panel of 3 would be appointed by the Secretary, Governor of Idaho, and Governor of Montana. If the CMC rejects the recommendations, and the USFWS representative determines CMC actions are not leading to recovery, he/she would notify the Secretary of Interior. The Secretary would use these recommendations to determine whether to resume lead management responsibility. Further, if the Secretary decides to resume lead management responsibility, he/she would first consult with the Governors of Idaho and Montana to attempt to resolve discrepancies between his/her alternatives and the actions of the CMC. See Chapter 2, Alternative 1 for more information.

2. The discussion of the estimation of existence values has been expanded and reorganized in the Final EIS to address the concerns of the relationship between the estimated existence values and money spent in the local communities, and the questions of the validity and usefulness of the value estimates. See response to letter #203, Idaho Governor Batt, issue # 17, page #5-32 for more information on the economic analysis results and methodology.

(Public Hearing, Challis Idaho, October 1, 1997) 2167

MR. STRICKLER: Five minutes as a county commissioner is not very long to express the desires of all these people that I represent. So if there is a chance at some point I could have extra time, I would like to have that. My name is Ted Strickler, chairman of the county commissioners, Custer County, S-T-R-I-C-K-L-E-R.

Before I go on with my main testimony, which will probably be cut short because of this response, I want to respond to Tom France's from the National Wildlife Federation Citizen Management Program. I happened to testify in Washington, D.C., at Helen Chenoweth's grizzly bear hearing. The Fish and Wildlife made a statement, and it's a matter of record, you can get it. I have asked for this document to be sent to Challis and we will receive that. They were asked whether or not they would consider the people of Idaho's feelings when they decide whether or not to put the grizzly bear into Challis, Idaho. We were told probably not, very arrogant.

1 We also asked whether or not the citizen committee would have any authority. The citizen committee by their own words has no authority, they are absolutely a group to give some kind of comments and

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help. But Bruce Babbitt by their own words has the option to disband this citizens' committee or to override any decisions they make. Those are recorded words in Washington, D.C. So when you think about this

citizen management program, guys, you better think about how strong that citizen group is, it's not very good.

Anyhow, to go on with my other response, the

1 governor of Idaho opposes the grizzly bear. The Idaho legislature opposes the grizzly bear, the Idaho Department of Fish and Game says no, the Idaho Association of Counties says no, Custer County says no, and we believe Idaho says no.

I am going to read a little comment here that somebody wrote. It says what part of no don't you understand. We don't want grizzly bears roaming through our land. We'll be glad to explain, it's not hard to comprehend. What part of no don't you understand?

As public officials we are really first bound to support and protect the health, safety and welfare of our citizens and all other users. The Frank Church Wilderness is possibly the only area of this county where people, especially families of children, can have a true wilderness experience without the fear for their safety and the mental freedom to enjoy a total wilderness experience without the threat of wild animals

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such as the unpredictable, easily provoked, bad-attitude grizzly bear.

With the introduction of the wolf this has changed some as people are now expressing their fear in some areas of even letting their small children and their pets play outside. What is it going to be like with the grizzly bear? The citizens of Custer County have presented their commissioners with petitions that

County, Custer County Commissioners: Hearing Testimony: #2167

1. First, under Alternative 1 and the other reintroduction alternatives, grizzly bears would be placed in remote areas in the Selway-Bitterroot Wilderness (or Frank Church-River of No Return Wilderness, if the CMC recommends it). It is highly unlikely grizzly bears would expand their range south of the Salmon River for many years. The FEIS has been modified to further prevent conflicts and possible bear-human injury or the death of bears, and to promote and enhance public safety. In addition to the exclusion area in the Bitterroot Valley, Montana which was included in the DEIS, the FEIS includes the following provision. Any grizzly bear that occupies inhabited human settlement areas on private land within the Experimental Area that in the judgement of the management agencies or CMC presents a clear threat to human safety or where there is indication that it may become habituated to humans, could be relocated by management agencies.

Second, NEPA procedures mandate that the EIS process be open to a national audience. Since the ESA is federal law and public lands (Forest Service and Bureau of Land Management) are managed for the benefit of present and future generations of Americans, everyone has the opportunity to contribute their ideas and thoughts. The final proposal has been modified in response to substantive local public comment and contains provisions to address concerns of local and regional publics. Alternative 1 (preferred alternative) has been modified to include a panel to reduce political impacts to the work of the Citizen Management Committee. A Scientific Review Panel of 3 would be appointed by the Governors of Idaho and Montana and the Secretary to review decisions and/or actions of the CMC and make recommendations as to whether they are leading to recovery. The CMC would have the opportunity to correct problems based on the Review Panel recommendations before the Secretary is notified. The Secretary must also confer with the two Governors before resuming management responsibility. Also see response to City of Weippe, letter #1850, issue #1, page 5-60.

Other modifications were made to the CMC in response to public comment on the DEIS.

contain over 1,350 signatures demanding us to do whatever is necessary to protect them and their property from the grizzly. What would you do? I believe we the commissioners are committed to do exactly that, with all the power and authority we have.

We are concerned about the economy of the state, also. We believe that the grizzly bear is going to create an impact on the economy in many areas. We have already been heavily impacted by this Endangered Species Act; because of listing species in our area, grazing has been cut, logging curtailed, mining is heavily regulated and even recreation has been affected.

I am going to skip to some other -- I have got lots of good stuff -- it takes forever to tell what is wrong --

HEARING OFFICER: But you only have five minutes.

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MR. STRICKLER: Some visitors and users of our area are already expressing that the introduction of the grizzly bear here will probably keep them from using the area from now on. There is also the greater fear, I think, that's larger than the fear of the bear, that's the fear of the heavy hand of the government that's going to administer this bear.

(Applause.)

MR. STRICKLER: When a bear gets killed, you collect a hundred thousand dollars for the bear, find the man; if a child gets killed, they get nothing. Where is the value system here?

(Public Hearing, Lewiston, Idaho, October 2, 1997)

BY MR. GEORGE ENNEKING:

Thank you very much. I'm George Enneking. I'm a County Commissioner in Idaho County. I also work for Senator Kempthorne. I want to thank you for the opportunity to be here today, and I'm just going to say a couple words. Senator Kempthorne has some written testimony here and I'll submit that if I may and I'll just summarize real briefly what he says.

What he says is that he is not in favor of introducing any grizzly bears in the State of Idaho, and the only way he would be in tune with any plan that comes forth is if the people of Idaho are the authors of such a plan. And I firmly believe that is the way to go myself. I think that any time that people from outside of the state come and dictate

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to us what our best things are for the State of Idaho, I think we are on the wrong track. I think we need to do that ourselves.

And with that, all I can say is that Senator would definitely like to be here. I will give this to you for written testimony. I have I think about ten copies. I don't know how many you need. If you need more than that, I can sure arrange to get them for you.

Now I would like to say a couple words from the Idaho Association of Counties which I'm also the chairman of the

The following operating guidelines were added, to insure the public would be involved in the CMC process and decisions. CMC Operating Guidelines: "The CMC will meet a minimum of two times per year and meetings will be open to the public. Additionally, the CMC will provide reasonable public notice of meetings, produce and provide written minutes of meetings to interested persons, and involve the public in its decision-making process. This public participation process will allow members of the public and/or special interest groups to have input to CMC decisions and management actions."

2. Thank you for your comment. Your concern is noted. Under Alternative 1, reintroduction of a nonessential experimental population of grizzly bears into the Bitterroot Ecosystem is not expected to impact land uses in the BE, including timber harvest and minerals extraction activities, as long as they meet the existing standards and guidelines of the USDA Forest Service Forest Plans.

County, Idaho County Commissioners: Hearing Testimony #2352

1. NEPA policy and procedures mandate the EIS process be open to a national audience. Also grizzly bears are listed under the ESA which is federal law, and the public lands involved are managed by the U.S. Forest Service for the benefit of present and future generations of Americans. For these reasons, the general public has had input into the proposal to recover grizzly bears in the Bitterroot Ecosystem throughout the NEPA process, and in the early planning stages before the NEPA process began. See FEIS pages 5-3 to 5-12 for information regarding public involvement in the planning process for the Bitterroot Ecosystem.

The Fish and Wildlife Service preferred alternative would allow local residents in Idaho and Montana to have input into the management of the reintroduced grizzly bears, through the formation of a Citizen Management Committee. This 15-member committee including 7 Idaho and 5 Montana citizens would be authorized management implementation responsibility by the Secretary of Interior for the Bitterroot

Idaho Public Lands Committee of Idaho Association of Counties. The counties in Idaho are all adamantly opposed to grizzly bear reintroduction into the Selway Bitterroot. We have several meetings in the last two years about this and every time it has been a unanimously decision to say no, absolutely no.

And from an Idaho County prospective where these bears are to be introduced, I can only say hell no, we have no place for them. Right now, right now we are being shut down on our activities on mining production, on our forest lands. All this would be -- would be another -- what would you call it, a stone to bury us with.

I do not see where this could help in any way whatsoever. When we introduced a species that will cause more gridlock into what we are doing on our National Forests.

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There are those from the ROOTS organization that believe that this is maybe the only way to go. I sympathize with their thoughts, but I fail to see where introducing something to create a problem is going to help the problem. If this could be done without introducing bears, than I might have some different thoughts about this, but right now I do not.

And the people in Idaho County, and I think I could speak very well with the folks in Idaho County, are saying no, we do not want bears and not only no but hell no. And with that, thank you very much for being here.

grizzly bear population (See Chapter 2, Alternative 1).

2. Comment noted. Thank you.

County, Lemhi County Commissioners: Hearing Testimony #2648, #2650

(Public Hearing, Salmon , Idaho, October 8, 1997)

MR. STOKES: I am Heber Stokes. I am a Lemhi County Commissioner. This is our official Lemhi County comments on the DEIS on the grizzly bear recovery and proposed special Rule 10(J). I don't have time to read it all. Commissioner Chaffin is going to do one half

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and I will do the first half.

The following comments are submitted by the Board of County Commissioners, Lemhi County, Idaho, for consideration in reaching a decision on the proposal to import and release grizzly bears, as outlined in the Draft Environmental Impact Statement of July 1997. These comments also pertain to the proposed 10(J) rule, which is an integral part of the preferred alternative described in the DEIS.

As the local elected and governing body for Lemhi County, the county commissioners have a direct and vital interest in the matter under consideration. County responsibilities include the safety, health, and welfare of the citizens as well as a keen interest in the natural resources and wildlife of our area.

A huge portion of the proposed recovery area and experimental population area lies within Lemhi County and includes not only federally administered lands but vast areas of private land occupied by residents. Alternative 1, or any of the other action

1. Thank you for your comment. Additional habitat and population viability analyses have been performed on the Bitterroot analysis area and are included in FEIS Appendix 21. These analyses indicate the Bitterroot Ecosystem has areas of higher and lower quality habitat, and is capable of supporting a viable grizzly bear population.

Habitat quality of the BE has been studied extensively by Scaggs (1979), Butterfield and Almack (1985), Davis and Butterfield (1991), and Merrill et al. (1999). All four of these studies concluded that the BE contains suitable habitat essential to the maintenance of a grizzly bear population.

Additionally, Dr. Mark Boyce completed a habitat-based population assessment of the BE for inclusion in the FEIS. It is included as FEIS Appendix 21(A, B). This assessment analyzes the habitat suitability for grizzly bears in the Selway-Bitterroot and Frank Church-River of No Return Wilderness Areas and non-wilderness public lands to the north on the Clearwater National Forest. The entire Frank Church Wilderness was analyzed, including areas south of the Salmon River. Study results

21 alternatives, poses a high probability of serious
22 detrimental effects on the county and residents. In
23 addition, the lack of a specific and practical
24 management program for released bears and their
25 offspring places the animals in a high risk situation as

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1 well.
2 Lemhi County has been a leader in the State of
3 Idaho in developing common sense and energetic
4 on-the-ground programs and actions to aid the recovery
5 of endangered or threatened species once common to our
6 area. The model watershed program and the
7 multi-organization and agency programs such as the
8 riparian habitat agreement are prime examples of the
9 good things that can be accomplished when the federal
10 government is willing to work with people.
11 Unfortunately, for several years the grizzly
12 bear program has ignored requests from the county to
13 meet and has failed to reply to correspondence on the
14 matter. The DEIS states that the U.S. Fish & Wildlife
15 Service met with all the county commissioners in
16 adjacent counties, but that was before the introduction
17 area changed. Lemhi County Commissioners have never had
18 a meeting.
19 Most recently, the EIS coordinator would not
20 accept certified mail from the county containing a
21 Freedom of Information Act request. We did receive a

22 packet of information from the Denver office of the U.S.
23 Fish & Wildlife Service. This packet was reported to be
24 the complete study of the grizzly bear reintroduction
25 area. There is no study on the area south of the Salmon

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1 River or in the Frank Church.
2 In the packet of information there were
3 letters from the National Wildlife Federation and
4 Alliance for the Wild Rockies to Chris Servheen stating
5 that they were answering his letters, but there were no
6 letters from Chris Servheen to those agencies. The
7 letters to Chris Servheen from these agencies were
8 quoted almost verbatim in the DEIS.
9 With this background, we offer the following
10 specific comments:
11 The preferred alternative and other action
12 alternatives are biologically flawed. No analysis of
13 the vegetative characteristics, habitat components and
14 so forth for the recovery area exists. The analysis
15 work that has been performed and documented covers only
16 part of the proposed recovery area, and the proposed
17 recovery area excludes significant habitat. In other
18 words, the analysis and proposal do not correspond and
19 this constitutes a major violation of NEPA. If the
20 packet of information we received from the U.S. Fish &
21 Wildlife Service was everything that has been studied as
22 proclaimed, then the printing of the DEIS has to be
23 illegal, because there is no study of the area south of
24 the Salmon River or the new grizzly bear reintroduction
25 area.

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1

indicate the habitat in the BE is capable of supporting a population of 308-321 grizzly bears. This number is 10-15% higher than the USFWS recovery goal estimate because further evaluation of the habitats in the southern portion of the analysis area indicate that even though the forb and berry production in these dry habitats is relatively low, the southern half of the analysis area contains substantial stands of whitebark pine as well as populations of elk and deer that can provide food for grizzly bears.

Appendix 21D presents data on presence of a variety of grizzly bear foods in the BE. The study by Craighead Wildlife-Wildlands Institute evaluates distribution and abundance of habitats and vegetation suitable for grizzly bears in the Bitterroot Ecosystem. In summary, Appendix 21 provides the best scientific information available to indicate the habitats in the BE are capable of supporting a viable population of grizzly bears.

2. Thank you for your comment. An extensive information and education effort associated with sanitation is part of all alternatives involving reintroduction of grizzly bears. Under Alternatives 1, 1A, and 4A these efforts would begin one year in advance of any bear releases in the Selway-Bitterroot Wilderness. Efforts would be directed at back country and front country users of bear habitat. Funding is included for upgrading garbage handling facilities to wildlife resistant containers. Appendix 22 identifies sites within the Bitterroot Ecosystem that are in need of sanitation improvements for wildlife. Any Sanitation effort implemented would use this information to prioritize sanitation work.

Further, the following clarifications/ additions were made to the preferred alternative in response to the issue concerning human health and safety. If a grizzly bear enters the Bitterroot Valley exclusion area, state and federal wildlife management agencies would attempt to capture it and notify the public immediately of its presence, and the public would be updated until the bear is caught. Further, any grizzly bear that occupies inhabited human settlement areas on private land within the Experimental Area that in the judgement of the management agencies or CMC presents a clear threat to human safety or where there is indication that it may become habituated to

No. 2, the addition of the Frank Church-River of No Return Wilderness to the proposed recovery area was not done for biological reasons, but it was done in order to provide an impressive total acreage figure when the better bear habitat was deleted from the recovery area. Lemhi County understands the motivation for the economic and special interests involved with the U.S. Fish & Wildlife Service in the formulation of the preferred alternatives recovery area configuration, but points out that this type of planning relationship with the DEIS responsible agency is not proper under NEPA.

****

MR. CHAFFIN: I am Tom Chaffin, Lemhi County Commissioner. This is a continuation of the commissioners' testimony as initiated by Heber Stokes previously.

Our Point No. 3, inspite of Lemhi County's repeated requests for involvement and consultation with the U.S. Fish & Wildlife Service in grizzly bear planning, the county was excluded from the special

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relationship formulated between the responsible agency and the proponents of the preferred alternative.

And as a point of emphasis, I will repeat that the DEIS states that U.S. Fish & Wildlife Service met with all county commissioners in adjacent counties, and the Lemhi County Commissioners have never had a meeting concerning grizzly bear reintroduction with the U.S. Fish & Wildlife Service. Most recently, the EIS coordinator would not accept certified mail from the county containing the Freedom of Information Act requests.

Point No. 4, there is failure to develop and describe appropriate management programs, which would ensure that conflicts are prevented rather than responded to after the fact, is a serious deficiency with all action alternatives as well as the proposed

2

10(J) rule. Merely bringing in bears and monitoring is not adequate. If bears are released with the full knowledge and certainty that they will move beyond federally administered boundaries, then the citizens of those affected localities are entitled to effective and responsible programs that ensure human protection, property protection, and low risk to the animals themselves.

Point No. 5, the effects on recreational and

62

economic activities are not described and evaluated in

3

realistic or probable terms. The notion that restrictions or requirements on human activities, or restrictions on human activities such as hunting, humans, could be relocated by management agencies in cooperation with the landowner if a suitable relocation site is available. This is to prevent conflicts and possible bear-human injury or the death of bears, and to promote and enhance public safety.

3. Section 10(j) of the Endangered Species Act(ESA) permits greater management flexibility for species that are reintroduced to their historic range. The purpose of the added flexibility is to garner more local support for recovery efforts. Such populations may be designated as "experimental" and managed within a delineated area according to special rules designed to balance needs of both people and listed species. Citizens can be involved in crafting such management rules.

Under Alternative 1 of the FEIS, the USFWS proposes to designate the reintroduced population of grizzly bears in the Bitterroot Ecosystem as "nonessential experimental". Because reintroduced grizzly bears would be classified as a nonessential experimental population, the Service's management practices can reduce local concerns about excessive government regulation on private lands, uncontrolled livestock depredations, excessive big game predation, and the lack of State government and local citizen involvement in the program.

The concept of management flexibility is related both to decisions made and to who is making those decisions. An analogy is travel from one city to another. Several routes, speeds, and dates of departure are possible, but the destination is the same. We believe that when a person is making his or her own decisions, they generally feel more comfortable than when such decisions are made by others.

This is the concept that is the foundation of the Alternative 1 CMC. If local people are making the decisions that will lead to recovery, they will feel more involved and more in control and therefore more comfortable than if those decisions were being made by others. The CMC will be making the decisions that will lead to grizzly bear recovery in the Bitterroot ecosystem. As an example of management differences, the CMC may choose to implement a hunter education program in response to illegal killing of bears with eventual recommendations to limit hunting in certain areas if the education program is unsuccessful

5 boating, camping and so on or resource use programs such
6 as grazing, roads, logging, et cetera, will vary by
7 action alternative is contrary to logic. If bears are
3 8 present and some program or activity is perceived as
9 detrimental under one alternative, it would certainly be
10 so perceived under another. The residents of Lemhi
11 County are entitled to full and accurate disclosure of
12 the effects of the alternatives on their livelihood and
13 recreational pursuits.
14 Point No. 6. The DEIS description and
15 estimates of economic effects is quite unrealistic. No
16 actual responsible analysis of economic costs or
4 17 benefits was performed. The techniques used for
18 estimating economic effects with reasonable reliability
19 exists and should be applied, and the failure to do so
20 is a major NEPA deficiency.
21 Point No. 7, future management of grizzlies in
22 this area would be extremely expensive. Experience to
23 date with the U.S. Fish & Wildlife Service suggests that
24 the agency, once the enthusiasm of capturing and
5 25 releasing the animals fades, would seek to place the

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1 costs of management on the state. It is irresponsible
2 to undertake a high cost program where no guarantee of
3 future funding exists. The State of Idaho does not have
4 funds available and does not anticipate funds will
5 become available for this type of unnecessary program.
6 Point No. 8, the 10(J) rule, purporting to
6 7 place management of imported bears in the hands of a
8 citizens committee, does not do so. The reality is that

9 authority would be retained by the Secretary of the
10 Interior, and we can rest assured that he will have our
6 11 best interests in mind. The county questions that the
12 secretary can in fact delegate final authority, and if
13 that is indeed the case, then the notion of a citizens
14 committee is merely a public relations ploy.
15 We contend that the U.S. Fish & Wildlife
16 Service techniques to assess local public opinion on
7 17 grizzly reintroduction is flawed. Appendix A of the
18 DEIS shows 62 percent of locals support introduction.
19 This is false. A phone survey conducted by a local
20 radio station reveals that out of 156 respondents, 154
21 opposed introduction, with two supporting, for a ratio
22 of 98.7 percent against.
23 It seems to me that this is actually a social
24 issue rather than biological issue. The perception
25 being that a significant event happening to the people

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1 of Idaho rather than with them. This has a potential to
2 seriously limit the traditional lifestyle of this area.
3 Those of you who will be threatened by these animals
4 should have the loudest voice in this decision.
5 It's interesting to me that if there ever were
6 a grizzly in this area, probably the prime food source
8 7 were the salmon runs on the Salmon and Little Fork
8 Rivers. With those runs gone now, where will the bear
9 turn for a food supply. The biggest food supply on
10 these main rivers comes in the summer with our summer
11 floaters, something to think about.

in stopping illegal killing. The USFWS, if it were managing the situation, might choose to suggest immediate limits on hunting. Different possible approaches to the same problem are evidence of management flexibility. The objective of both actions is the same. How they achieve the same result may be different. The creation of a CMC to manage a listed species is possible because of the increased flexibility afforded by the experimental approach of reintroduction under section 10(j) of the Endangered Species Act. Such local management by citizens is not possible under fully listed status.

Under Alternative 1, all decisions of the CMC, including components of its management plans, must lead toward recovery of the grizzly bear and minimize social and economic impacts to the extent practicable. Reintroduction of a nonessential experimental population of grizzly bears into the Bitterroot Ecosystem is not expected to impact land uses in the BE, including timber harvest and minerals extraction activities, as long as they meet the existing standards and guidelines of the USDA Forest Service Forest Plans. Minerals extraction would likely not be altered due to grizzly bear concerns alone. Recommendations would be made to land management agencies by the CMC to reduce potential impacts if the need arises.

Management of a reintroduced grizzly bear population in the BE under the fully threatened status, as proposed in Alternatives 4 and 4A, would result in more restrictive management decisions, and greater economic and social impacts.

4. The discussion of the estimation of existence values has been expanded and reorganized in the Final EIS to address the concerns of the relationship between the estimated existence values and money spent in the local communities, and the questions of the validity and usefulness of the value estimates. See response to letter #203, Idaho Governor Batt, issue #17, page#5-32 for more information on the economic analysis methodology and results.

5. The FEIS outlines expected costs of managing and monitoring the reintroduced grizzly bears. These costs would be provided to Montana and Idaho by USFWS should they choose to accept management responsibility. If the state of Idaho chooses not to accept management responsibility for grizzly bears, these USFWS funds will be used to manage and monitor the bears without Idaho involvement. Funding would be available to the state of Idaho to carry out their responsibilities if grizzly bears were reintroduced.

6. Under the Endangered Species Act, the Secretary of Interior must retain final authority and responsibility for implementation of the Act. Alternative 1 (preferred) indicates the CMC would be authorized management implementation

12 In closing, the Lemhi Board of County
13 Commissioners recommends that the DEIS be withdrawn and
14 a revised DEIS be prepared with an additional
9 15 alternative providing for their natural recovery
16 utilizing a citizens committee that has clear authority
17 that is enforceable.
18 Thank you.

0752

THE CONFEDERATED SALISH AND KOOTENAI TRIBES
OF THE FLATHEAD NATION
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RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR COORDINATORS OFFICE
NOV 05 1997

October 23, 1997

Dr. Christopher Servheen, Grizzly Bear Recovery Coordinator
U. S. Fish and Wildlife Service
P. O. Box 5127
Missoula, Montana 59806

Dear Dr. Servheen:

The Confederated Salish and Kootenai Tribes of the Flathead Nation have reviewed the Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem. Our comments on the document follow.

As you are aware, much of the Bitterroot Ecosystem is located within the aboriginal territory of the Salish and Kootenai people. We co-existed there with the grizzly bear just as we do today on the Flathead Indian Reservation. While compromises in human activities are often necessary to do so, our experience has shown that these compromises do not provide insurmountable obstacles. Our management of grizzly bears and the important features of their habitat have not precluded timber harvest, forest access, recreation, subsistence activities or agricultural pursuits. It is quite clear that these activities can occur in conjunction with proper management, a reasonable degree of knowledge and an understanding of the characteristics and requirements of the bear.

Alternative One (The Proposed Action) - Reintroduction of a Nonessential Experimental Population

1 While we found many aspects of this alternative interesting, we have several concerns with the proposal. We believe that the designation of the Citizens' Management Committee is a very worthy endeavor, but we have previously seen such committees of diverse interests bogged down by disagreement to a point where they become ineffective. We also are concerned about the potential lack of effectiveness of such a group if it does not have the ability, both real and legal, to institute its recommendations.

responsibility by the Secretary. It has also been modified to include a panel to reduce political impacts to the work of the CMC. Also see response to City of Weippe, letter #1850, issue #1, page 5-60.

7. The difference in the survey results is due to the population that was surveyed. The 1995 survey reported in FEIS Appendix 5 polled local, regional, and national populations. The radio station phone survey polled only a local population.

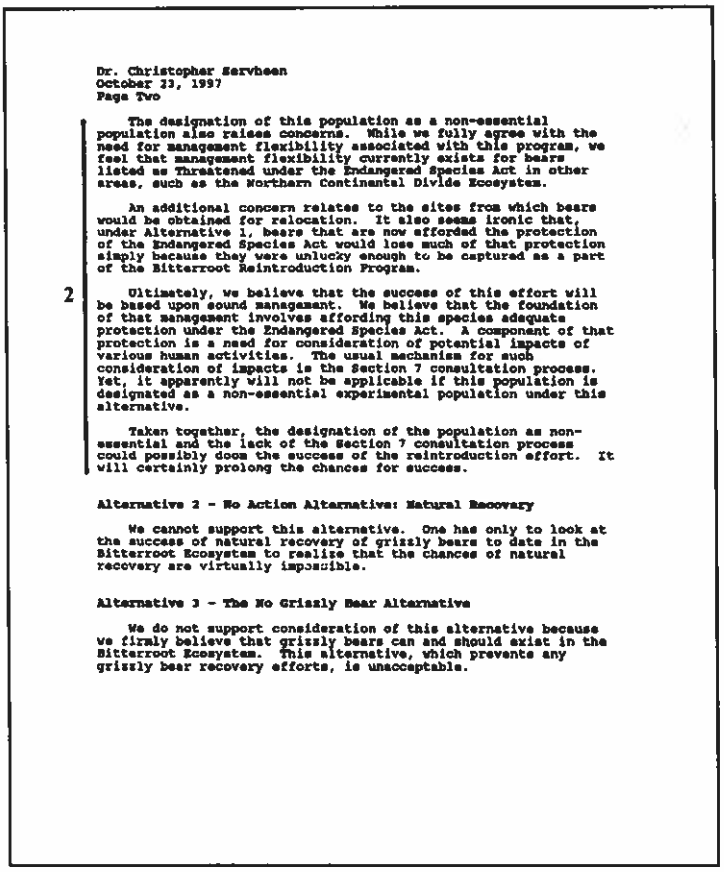
8. Certainly salmon population recovery could mean an additional food source for grizzly bears in the Bitterroot. However most interior grizzly bear populations in Montana, Idaho, Wyoming, Washington, and British Columbia exist in areas without access to salmon. These populations are able to sustain themselves largely on vegetable food sources. Appendix 21 contains 4 reports that indicate the Bitterroot Ecosystem provides adequate habitat to support a viable population of grizzly bears. Additionally, proactive information and education and sanitation programs would be implemented to reduce potential impacts to river recreation.

9. Thank you for your comment.

Tribal, Confederated Salish and Kootenai Tribes: #752

1. We recognize and agree with your concerns about the possible effectiveness of the Citizen Management Committee (CMC). However, similar committees such as the state Fish and Game Commissioners function quite well and we believe this committee will operate similarly. The CMC would be authorized management implementation responsibility by the Secretary of the Interior, and its mission would be to facilitate recovery of the grizzly bear in the BE by assisting in implementing the Bitterroot Chapter of the Recovery Plan. All decisions and actions of the CMC must lead to recovery of the Bitterroot population. See Chapter 2, Alternative 1 for more information.

2. We feel that reintroducing grizzly bears designated as a nonessential experimental population to central Idaho and implementing provisions within Section 10(j) of the Endangered Species Act (ESA) to conduct special management will more adequately address local concerns. The bears would still



Dr. Christopher Servheen
October 23, 1997
Page Two

The designation of this population as a non-essential population also raises concerns. While we fully agree with the need for management flexibility associated with this program, we feel that management flexibility currently exists for bears listed as Threatened under the Endangered Species Act in other areas, such as the Northern Continental Divide Ecosystem.

An additional concern relates to the sites from which bears would be obtained for relocation. It also seems ironic that, under Alternative 1, bears that are now afforded the protection of the Endangered Species Act would lose much of that protection simply because they were unlucky enough to be captured as a part of the Bitterroot Reintroduction Program.

2 Ultimately, we believe that the success of this effort will be based upon sound management. We believe that the foundation of that management involves affording this species adequate protection under the Endangered Species Act. A component of that protection is a need for consideration of potential impacts of various human activities. The usual mechanism for such consideration of impacts is the Section 7 consultation process. Yet, it apparently will not be applicable if this population is designated as a non-essential experimental population under this alternative.

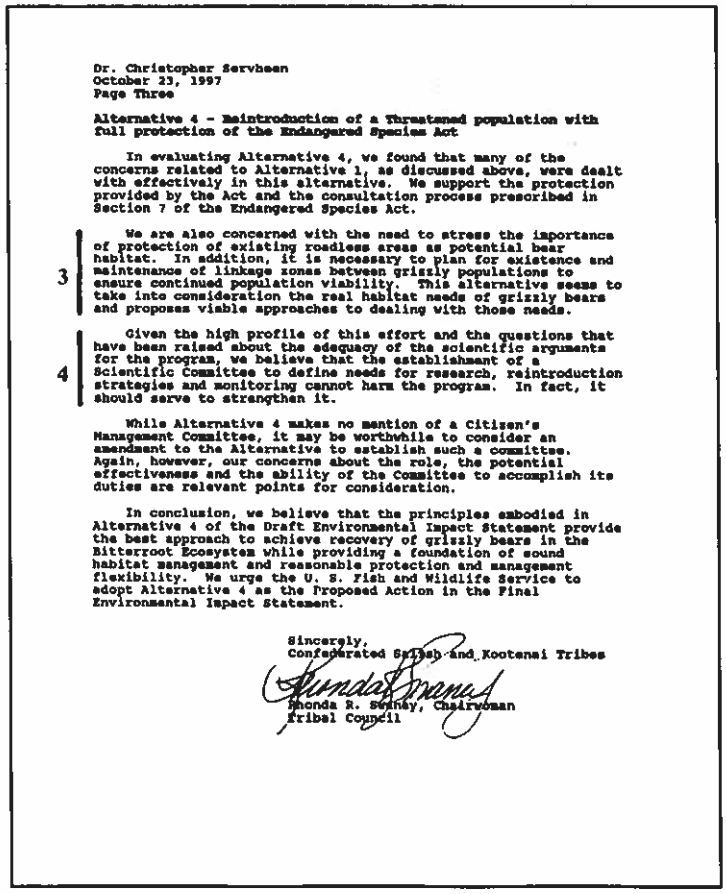
Taken together, the designation of the population as non-essential and the lack of the Section 7 consultation process could possibly doom the success of the reintroduction effort. It will certainly prolong the chances for success.

Alternative 2 - No Action Alternative: Natural Recovery

We cannot support this alternative. One has only to look at the success of natural recovery of grizzly bears to date in the Bitterroot Ecosystem to realize that the chances of natural recovery are virtually impossible.

Alternative 3 - The No Grizzly Bear Alternative

We do not support consideration of this alternative because we firmly believe that grizzly bears can and should exist in the Bitterroot Ecosystem. This alternative, which prevents any grizzly bear recovery efforts, is unacceptable.



Dr. Christopher Servheen
October 23, 1997
Page Three

Alternative 4 - Reintroduction of a Threatened population with full protection of the Endangered Species Act

In evaluating Alternative 4, we found that many of the concerns related to Alternative 1, as discussed above, were dealt with effectively in this alternative. We support the protection provided by the Act and the consultation process prescribed in Section 7 of the Endangered Species Act.

3 We are also concerned with the need to stress the importance of protection of existing roadless areas as potential bear habitat. In addition, it is necessary to plan for existence and maintenance of linkage zones between grizzly populations to ensure continued population viability. This alternative seems to take into consideration the real habitat needs of grizzly bears and proposes viable approaches to dealing with those needs.

4 Given the high profile of this effort and the questions that have been raised about the adequacy of the scientific arguments for the program, we believe that the establishment of a Scientific Committee to define needs for research, reintroduction strategies and monitoring cannot harm the program. In fact, it should serve to strengthen it.

While Alternative 4 makes no mention of a Citizen's Management Committee, it may be worthwhile to consider an amendment to the Alternative to establish such a committee. Again, however, our concerns about the role, the potential effectiveness and the ability of the Committee to accomplish its duties are relevant points for consideration.

In conclusion, we believe that the principles embodied in Alternative 4 of the Draft Environmental Impact Statement provide the best approach to achieve recovery of grizzly bears in the Bitterroot Ecosystem while providing a foundation of sound habitat management and reasonable protection and management flexibility. We urge the U. S. Fish and Wildlife Service to adopt Alternative 4 as the Proposed Action in the Final Environmental Impact Statement.

Sincerely,
Confederated Salish and Kootenai Tribes

Rhonda R. Swaney, Chairwoman
Tribal Council

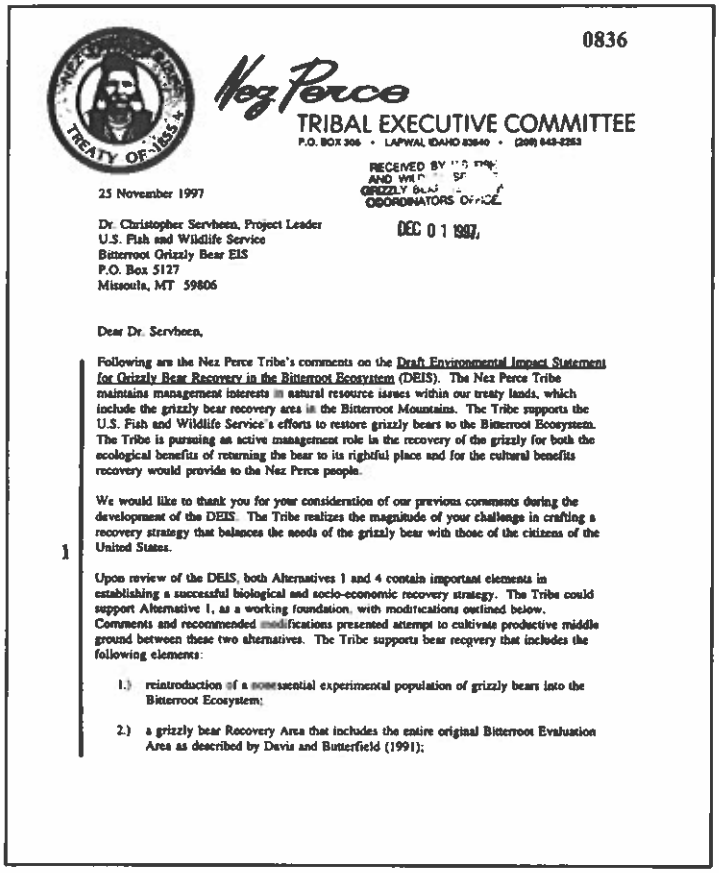
be protected under the ESA. We do not agree that the designation of the population as nonessential and the lesser consultation requirements under Section 7 could possibly doom the success of the reintroduction effort.

Bears in the Bitterroot nonessential experimental population would be fully protected against illegal killing under federal law of the ESA. Grizzly bears could only be killed in the Bitterroot in self defense or defense of others (as in all fully listed populations), or in the special circumstance on private land where state or federal management officials were unable to capture a depredating bear. In that case, a permit could be issued to that landowner to kill that bear. Otherwise killing of bears in the experimental Bitterroot population is illegal and would be prosecuted under federal law.

The use of listed members of a species to create an experimental population of that species in a currently unoccupied area is what was intended by Congress in the amendments adding the 10(j) experimental population opportunity. See 50 CFR 17.80 pages 175-176, and FEIS Appendix 12 for further information. Thus, experimental populations of California condors, blackfooted ferrets, and Mexican wolves have all used animals from listed populations as founders.

3. The roadless area issue raised in Alternative 4 - Restoration of a Threatened Population with Full Protection of the ESA and Habitat Restoration is beyond the scope of this document (FEIS). Roadless areas listed in this alternative are managed by the USDA Forest Service and fall outside the scope of authority of the U.S. Fish and Wildlife Service.

4. We believe that science has an important role in the reintroduction of grizzly bears to the Bitterroot Ecosystem. Scientific input is important to the CMC in their decision process but by no means should take the lead in making decisions. In response to public comment on the DEIS, Alternative 1 has been modified. Two scientific advisors would be appointed by the Secretary to the CMC as non-voting members, to attend all meetings and provide scientific expertise in support of CMC management recommendations.



0836

Nez Perce

TRIBAL EXECUTIVE COMMITTEE

P.O. BOX 305 • LAPWAI, IDAHO 83540 • (208) 843-2253

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR COORDINATORS OFFICE

DEC 01 1997

25 November 1997

Dr. Christopher Servheen, Project Leader
U.S. Fish and Wildlife Service
Bitterroot Grizzly Bear EIS
P.O. Box 5127
Missoula, MT 59806

Dear Dr. Servheen,

Following are the Nez Perce Tribe's comments on the Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem (DEIS). The Nez Perce Tribe maintains management interests in natural resource issues within our treaty lands, which include the grizzly bear recovery area in the Bitterroot Mountains. The Tribe supports the U.S. Fish and Wildlife Service's efforts to restore grizzly bears to the Bitterroot Ecosystem. The Tribe is pursuing an active management role in the recovery of the grizzly for both the ecological benefits of returning the bear to its rightful place and for the cultural benefits recovery would provide to the Nez Perce people.

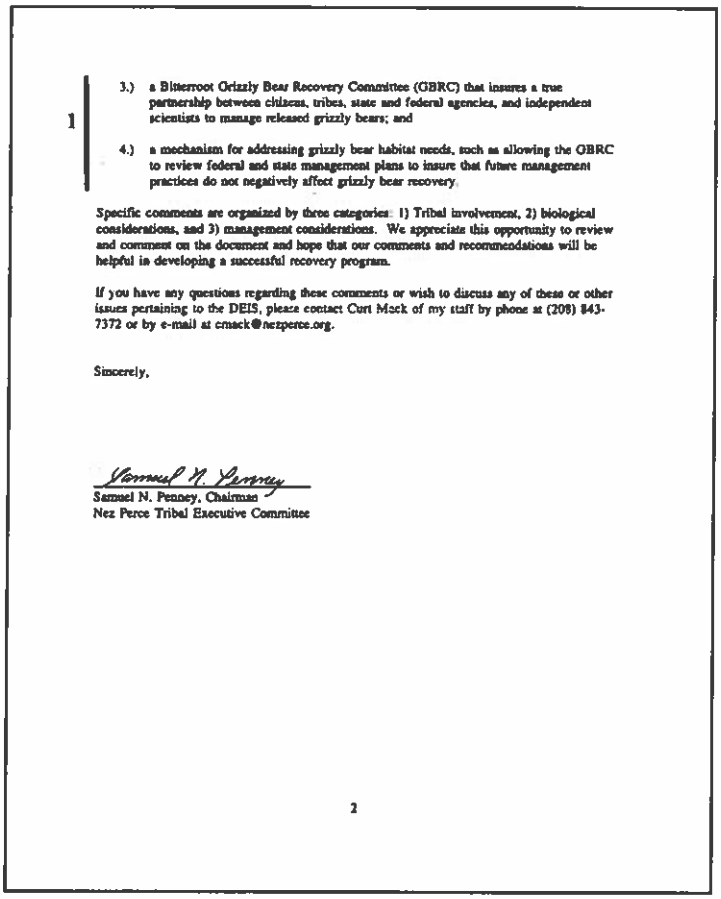
We would like to thank you for your consideration of our previous comments during the development of the DEIS. The Tribe realizes the magnitude of your challenge in crafting a recovery strategy that balances the needs of the grizzly bear with those of the citizens of the United States.

1

Upon review of the DEIS, both Alternatives 1 and 4 contain important elements in establishing a successful biological and socio-economic recovery strategy. The Tribe could support Alternative 1, as a working foundation, with modifications outlined below. Comments and recommended modifications presented attempt to cultivate productive middle ground between these two alternatives. The Tribe supports bear recovery that includes the following elements:

1.) reintroduction of a nonessential experimental population of grizzly bears into the Bitterroot Ecosystem;

2.) a grizzly bear Recovery Area that includes the entire original Bitterroot Evaluation Area as described by Davis and Butterfield (1991);



1

3.) a Bitterroot Grizzly Bear Recovery Committee (GBRC) that insures a true partnership between citizens, tribes, state and federal agencies, and independent scientists to manage released grizzly bears; and

4.) a mechanism for addressing grizzly bear habitat needs, such as allowing the GBRC to review federal and state management plans to insure that future management practices do not negatively affect grizzly bear recovery.

Specific comments are organized by three categories: 1) Tribal involvement, 2) biological considerations, and 3) management considerations. We appreciate this opportunity to review and comment on the document and hope that our comments and recommendations will be helpful in developing a successful recovery program.

If you have any questions regarding these comments or wish to discuss any of these or other issues pertaining to the DEIS, please contact Curt Mack of my staff by phone at (208) 843-7372 or by e-mail at cmack@nezperce.org.

Sincerely,

Samuel N. Penney

Samuel N. Penney, Chairman
Nez Perce Tribal Executive Committee

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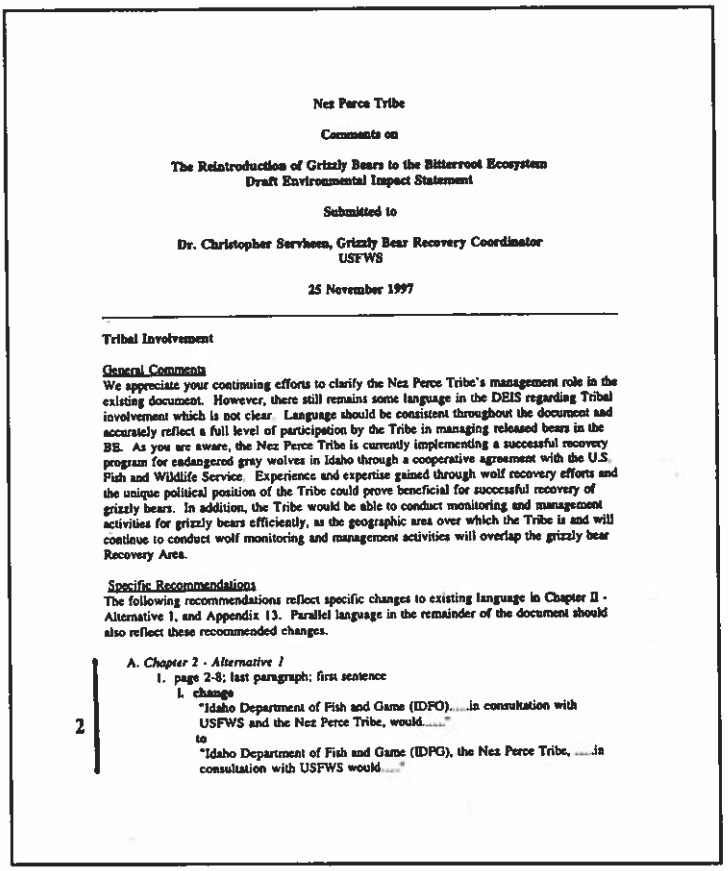
Tribal, Nez Perce Tribe: #836

1. Thank you for your comment.

2. Thank you for your comment. The FEIS has been edited to respond to your concern (see Chapter 2- Alternative 1).

3. Thank you for your comment. Based on similar comments from a number of respondents, the EIS Team contracted an additional habitat and population viability analysis for the entire experimental area. The results of this analysis are included in Appendix 21. The four reports in Appendix 21 indicate the recovery area contains areas of higher and lower quality bear habitat, and is capable of supporting a viable population. The analysis included areas both inside and outside the Selway-Bitterroot and Frank Church-River of No Return Wilderness areas. The suitability of the area south of the Salmon River is also addressed separately in these appendices. The reader is referred to these appendices for a full review of this information. While the recovery area is the area of initial placement of bears and of recovery emphasis, grizzly bear occupancy of adjacent public lands outside the wilderness is expected and the CMC is directed to make recommendations to accommodate grizzly bear presence on these lands. Thus, recovery and occupancy is not solely confined to the recovery area.

The terms "recovery emphasis" and "accommodate" are defined in the FEIS. The term "recovery emphasis" means grizzly bear management decisions in the recovery area will favor bear recovery so that this area can serve as core habitat for survival, reproduction, and dispersal of the recovering population; and reintroduction of bears will occur within the recovery area and all reintroduction will occur within the Selway-Bitterroot Wilderness portion of the recovery area. The word "accommodate" means grizzly bears that move outside the recovery area onto public land in the Experimental Area will not be disturbed unless they demonstrate a real and imminent threat to human safety or livestock. Bears will not be disturbed or moved unless conflicts are both significant and cannot be corrected as determined by the CMC, including conflicts



Nez Perce Tribe

Comments on

The Reintroduction of Grizzly Bears to the Bitterroot Ecosystem
Draft Environmental Impact Statement

Submitted to

Dr. Christopher Servheen, Grizzly Bear Recovery Coordinator
USFWS

25 November 1997

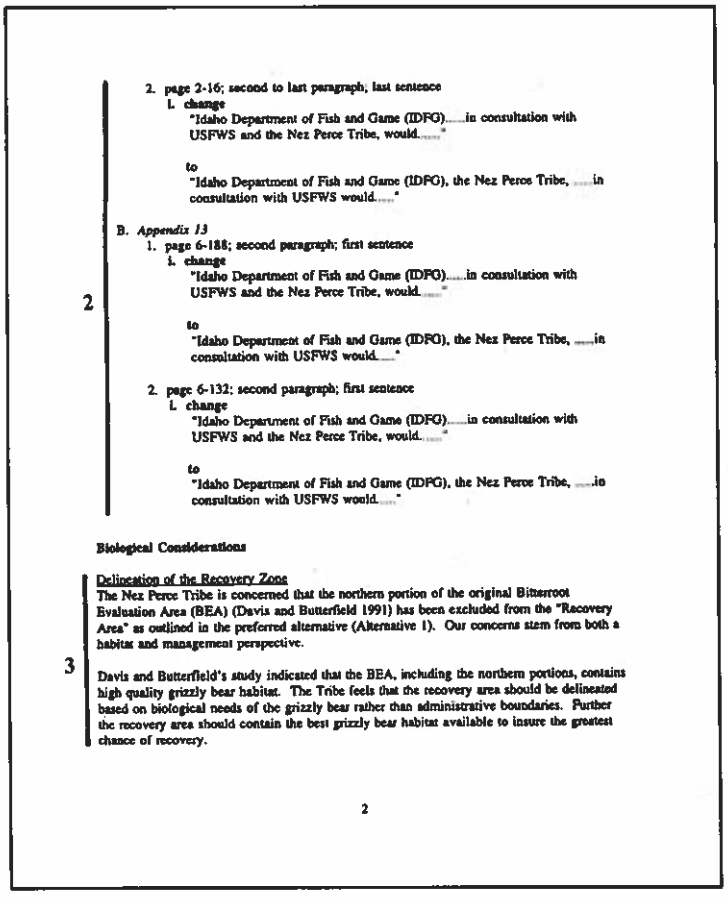
Tribal Involvement

General Comments
We appreciate your continuing efforts to clarify the Nez Perce Tribe's management role in the existing document. However, there still remains some language in the DEIS regarding Tribal involvement which is not clear. Language should be consistent throughout the document and accurately reflect a full level of participation by the Tribe in managing released bears in the BE. As you are aware, the Nez Perce Tribe is currently implementing a successful recovery program for endangered gray wolves in Idaho through a cooperative agreement with the U.S. Fish and Wildlife Service. Experience and expertise gained through wolf recovery efforts and the unique political position of the Tribe could prove beneficial for successful recovery of grizzly bears. In addition, the Tribe would be able to conduct monitoring and management activities for grizzly bears efficiently, as the geographic area over which the Tribe is and will continue to conduct wolf monitoring and management activities will overlap the grizzly bear Recovery Area.

Specific Recommendations
The following recommendations reflect specific changes to existing language in Chapter II - Alternative 1, and Appendix 13. Parallel language in the remainder of the document should also reflect these recommended changes.

2

A. *Chapter 2 - Alternative 1*
1. page 2-8; last paragraph; first sentence
i. change
"Idaho Department of Fish and Game (IDFG).....in consultation with USFWS and the Nez Perce Tribe, would....."
to
"Idaho Department of Fish and Game (IDFG), the Nez Perce Tribe, ...in consultation with USFWS would....."



2. page 2-16; second to last paragraph, last sentence
i. change
"Idaho Department of Fish and Game (IDFG).....in consultation with USFWS and the Nez Perce Tribe, would....."

to
"Idaho Department of Fish and Game (IDFG), the Nez Perce Tribe, ...in consultation with USFWS would....."

2

B. *Appendix 13*
1. page 6-188; second paragraph; first sentence
i. change
"Idaho Department of Fish and Game (IDFG).....in consultation with USFWS and the Nez Perce Tribe, would....."

to
"Idaho Department of Fish and Game (IDFG), the Nez Perce Tribe, ...in consultation with USFWS would....."

2. page 6-132; second paragraph; first sentence
i. change
"Idaho Department of Fish and Game (IDFG).....in consultation with USFWS and the Nez Perce Tribe, would....."

to
"Idaho Department of Fish and Game (IDFG), the Nez Perce Tribe, ...in consultation with USFWS would....."

Biological Considerations

Delineation of the Recovery Zone
The Nez Perce Tribe is concerned that the northern portion of the original Bitterroot Evaluation Area (BEA) (Davis and Butterfield 1991) has been excluded from the "Recovery Area" as outlined in the preferred alternative (Alternative 1). Our concerns stem from both a habitat and management perspective.

3

Davis and Butterfield's study indicated that the BEA, including the northern portions, contains high quality grizzly bear habitat. The Tribe feels that the recovery area should be delineated based on biological needs of the grizzly bear rather than administrative boundaries. Further the recovery area should contain the best grizzly bear habitat available to insure the greatest chance of recovery.

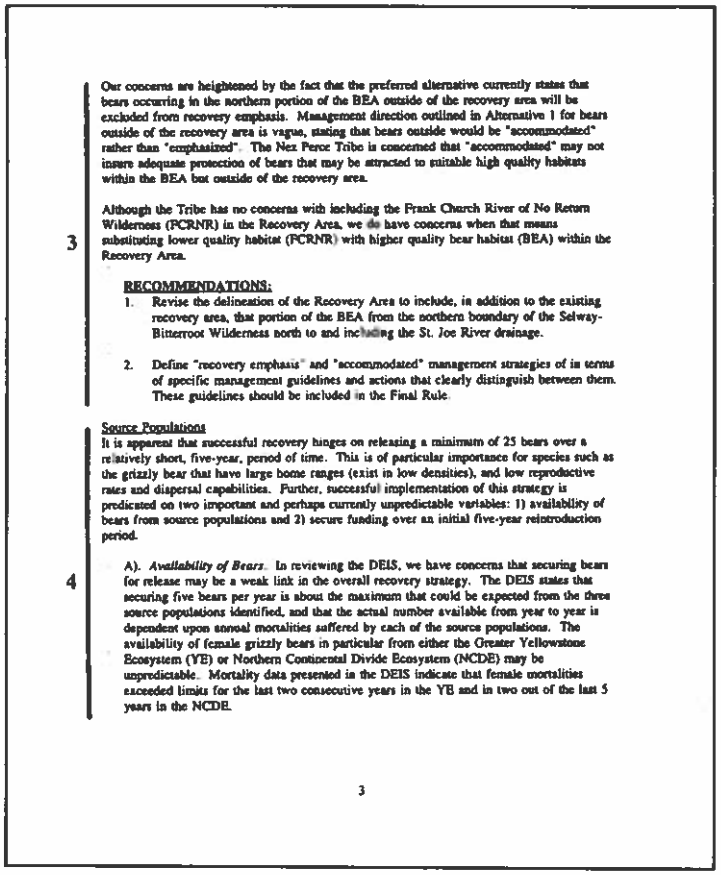
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associated with livestock, in which case the CMC will develop strategies to discourage grizzly bear occupancy in portions of the Experimental Area.

4. The Yellowstone population is increasing and has been for the last 6-8 years. In the last 3 years in the Yellowstone ecosystem, 204 cubs have been known to be born while 18 bears have been known to die due to human causes. This difference between births and deaths is why this population is increasing. No bears will be removed from any ecosystem in the U.S. if the mortality limits for that ecosystem have been reached or are even close to being reached. In addition, the USFWS will agree to make the decision to remove bears from any ecosystem in Montana or Wyoming only in consultation with the Fish and Game Department of that state. The USFWS has no intention to allow the removal of grizzly bears from any ecosystem in the U.S. to impede recovery of that source population. The USFWS will work in concert with the Fish and Game Departments of those states to judge these possible impacts to assure that this is the case. Any bears removed from Canadian populations would be removed under the management constraints on Canadian grizzly bear management which limit human-caused mortalities. We fully support those constraints.

5. The number of bears chosen for reintroduction in the preferred alternative was a balance between the availability of bears, the ability to capture and relocate a given number of bears each year, and the time to reach recovered population status. While we agree that it would be desirable to place more bears each year both from the standpoint of a higher probability for success and a shorter time to recovery, we do not think it is possible to capture and relocate more than approximately 5-6 bears per year and the availability or more bears than that in any single year is also limited. Thus, we believe that the numbers selected in the preferred alternative will achieve recovery while establishing a target number of bears that can be relocated over the 5-year placement period.

6. In response to agency and public comment on the Draft EIS proposal, several changes were made to the Final EIS Alternative 1. Modifications to the structure and function of



Our concerns are heightened by the fact that the preferred alternative currently states that bears occurring in the northern portion of the BEA outside of the recovery area will be excluded from recovery emphasis. Management direction outlined in Alternative 1 for bears outside of the recovery area is vague, stating that bears outside would be "accommodated" rather than "emphasized". The Nez Perce Tribe is concerned that "accommodated" may not insure adequate protection of bears that may be attracted to suitable high quality habitats within the BEA but outside of the recovery area.

3 Although the Tribe has no concerns with including the Frank Church River of No Return Wilderness (FCRNR) in the Recovery Area, we do have concerns when that means substituting lower quality habitat (FCRNR) with higher quality bear habitat (BEA) within the Recovery Area.

RECOMMENDATIONS:

1. Revise the delineation of the Recovery Area to include, in addition to the existing recovery area, that portion of the BEA from the northern boundary of the Selway-Bitterroot Wilderness north to and including the St. Joe River drainage.

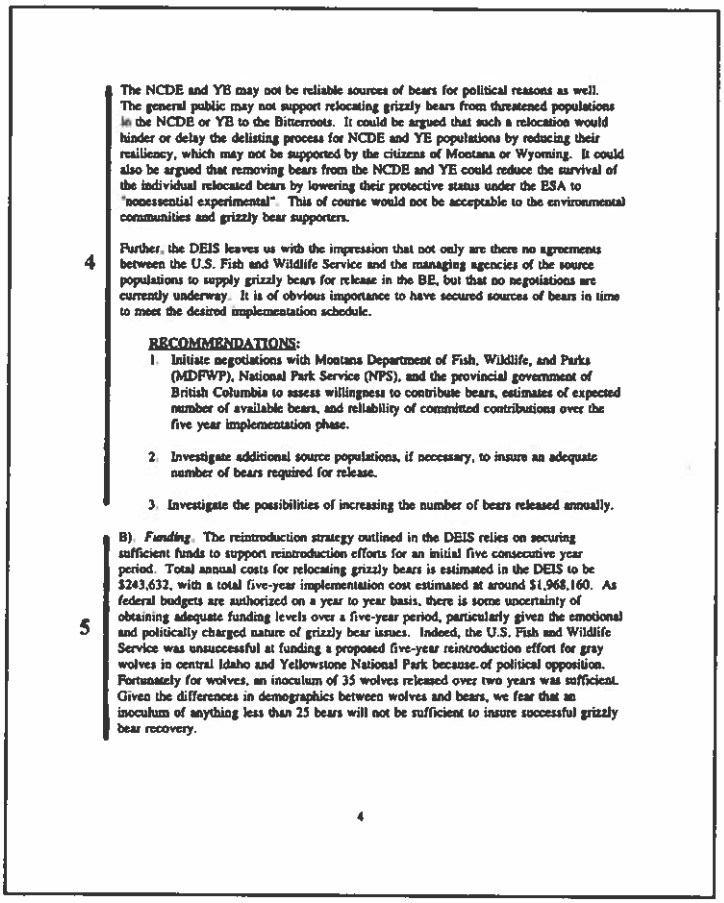
2. Define "recovery emphasis" and "accommodated" management strategies of in terms of specific management guidelines and actions that clearly distinguish between them. These guidelines should be included in the Final Rule.

Source Populations

It is apparent that successful recovery hinges on releasing a minimum of 25 bears over a relatively short, five-year, period of time. This is of particular importance for species such as the grizzly bear that have large home ranges (exist in low densities), and low reproductive rates and dispersal capabilities. Further, successful implementation of this strategy is predicated on two important and perhaps currently unpredictable variables: 1) availability of bears from source populations and 2) secure funding over an initial five-year reintroduction period.

4 A). *Availability of Bears*. In reviewing the DEIS, we have concerns that securing bears for release may be a weak link in the overall recovery strategy. The DEIS states that securing five bears per year is about the maximum that could be expected from the three source populations identified, and that the actual number available from year to year is dependent upon annual mortalities suffered by each of the source populations. The availability of female grizzly bears in particular from either the Greater Yellowstone Ecosystem (YE) or Northern Continental Divide Ecosystem (NCDE) may be unpredictable. Mortality data presented in the DEIS indicate that female mortalities exceeded limits for the last two consecutive years in the YE and in two out of the last 5 years in the NCDE.

3



The NCDE and YE may not be reliable sources of bears for political reasons as well. The general public may not support relocating grizzly bears from threatened populations in the NCDE or YE to the Bitterroots. It could be argued that such a relocation would hinder or delay the delisting process for NCDE and YE populations by reducing their resiliency, which may not be supported by the citizens of Montana or Wyoming. It could also be argued that removing bears from the NCDE and YE could reduce the survival of the individual relocated bears by lowering their protective status under the ESA to "nonessential experimental". This of course would not be acceptable to the environmental communities and grizzly bear supporters.

4 Further, the DEIS leaves us with the impression that not only are there no agreements between the U.S. Fish and Wildlife Service and the managing agencies of the source populations to supply grizzly bears for release in the BE, but that no negotiations are currently underway. It is of obvious importance to have secured sources of bears in time to meet the desired implementation schedule.

RECOMMENDATIONS:

1. Initiate negotiations with Montana Department of Fish, Wildlife, and Parks (MDFWP), National Park Service (NPS), and the provincial government of British Columbia to assess willingness to contribute bears, estimates of expected number of available bears, and reliability of committed contributions over the five year implementation phase.

2. Investigate additional source populations, if necessary, to insure an adequate number of bears required for release.

3. Investigate the possibilities of increasing the number of bears released annually.

5 B). *Funding*. The reintroduction strategy outlined in the DEIS relies on securing sufficient funds to support reintroduction efforts for an initial five consecutive year period. Total annual costs for relocating grizzly bears is estimated in the DEIS to be $243,632, with a total five-year implementation cost estimated at around $1,968,160. As federal budgets are authorized on a year to year basis, there is some uncertainty of obtaining adequate funding levels over a five-year period, particularly given the emotional and politically charged nature of grizzly bear issues. Indeed, the U.S. Fish and Wildlife Service was unsuccessful at funding a proposed five-year reintroduction effort for gray wolves in central Idaho and Yellowstone National Park because of political opposition. Fortunately for wolves, an inoculum of 35 wolves released over two years was sufficient. Given the differences in demographics between wolves and bears, we fear that an inoculum of anything less than 25 bears will not be sufficient to insure successful grizzly bear recovery.

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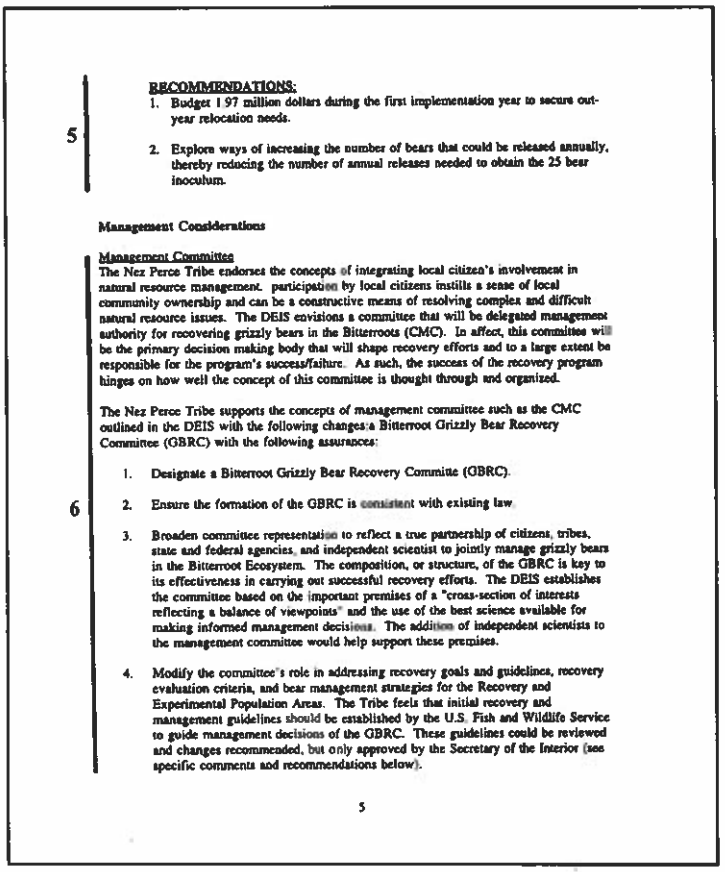
the CMC include:

Two scientific advisors would be appointed by the Secretary to the CMC as non-voting members, to attend all meetings and provide scientific expertise in support of CMC management recommendations.

Mission and Operating Guidelines Statements for the CMC were added. The Mission Statement for the CMC is; "The mission of the CMC is to facilitate recovery of the grizzly bear in the Bitterroot Ecosystem by assisting in implementing the Bitterroot Chapter of the Recovery Plan. Regarding the land and wildlife management agencies, the role of the CMC is to make recommendations to them that the CMC believes will lead to recovery of the grizzly bear. Decisions on, and implementation of these recommendations is the responsibility of the land and wildlife management agencies." The preliminary Operating Guidelines for the CMC are; "The CMC will meet a minimum of two times per year and meetings will be open to the public. Additionally, the CMC will provide reasonable public notice of meetings, produce and provide written minutes of meetings to interested persons, and involve the public in its decision-making process. This public participation process will allow members of the public and/or special interest groups to have input to CMC decisions and management actions."

Clarification that the CMC would implement the Bitterroot Chapter of the Recovery Plan as consistent with the Final Rule. Also the CMC could make recommendations to land and wildlife management agencies regarding changes to plans and policies, but the final decision on implementation of those recommendations would be made by those agencies, and the requirements of NEPA may apply.

Changes were made to the procedure whereby the Secretary could resume lead management implementation responsibility from the CMC if the determination is made that their decisions are not leading to recovery. If the USFWS representative on the CMC has concerns that CMC actions are not leading to recovery and are not in compliance with the Special Rule, he/she would provide the CMC corrective actions and a 6-month time-frame to accomplish those actions, and would consider CMC input before making a determination that



RECOMMENDATIONS:

1. Budget 1.97 million dollars during the first implementation year to secure out-year relocation needs.

5

2. Explore ways of increasing the number of bears that could be released annually, thereby reducing the number of annual releases needed to obtain the 25 bear inoculum.

Management Considerations

Management Committee

The Nez Perce Tribe endorses the concepts of integrating local citizen's involvement in natural resource management. participation by local citizens instills a sense of local community ownership and can be a constructive means of resolving complex and difficult natural resource issues. The DEIS envisions a committee that will be delegated management authority for recovering grizzly bears in the Bitterroots (CMC). In affect, this committee will be the primary decision making body that will shape recovery efforts and to a large extent be responsible for the program's success/failure. As such, the success of the recovery program hinges on how well the concept of this committee is thought through and organized.

The Nez Perce Tribe supports the concepts of management committee such as the CMC outlined in the DEIS with the following changes: a Bitterroot Grizzly Bear Recovery Committee (GBRC) with the following assurances:

1. Designate a Bitterroot Grizzly Bear Recovery Commite (GBRC).

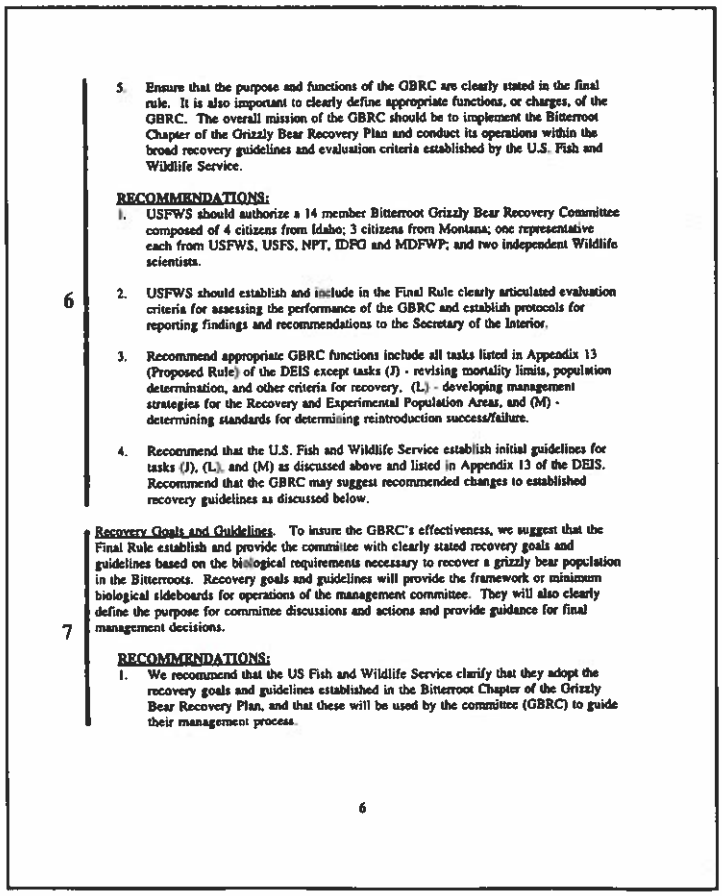
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2. Ensure the formation of the GBRC is consistent with existing law.

3. Broaden committee representation to reflect a true partnership of citizens, tribes, state and federal agencies, and independent scientist to jointly manage grizzly bears in the Bitterroot Ecosystem. The composition, or structure, of the GBRC is key to its effectiveness in carrying out successful recovery efforts. The DEIS establishes the committee based on the important premises of a "cross-section of interests reflecting a balance of viewpoints" and the use of the best science available for making informed management decisions. The addition of independent scientists to the management committee would help support these premises.

4. Modify the committee's role in addressing recovery goals and guidelines, recovery evaluation criteria, and bear management strategies for the Recovery and Experimental Population Areas. The Tribe feels that initial recovery and management guidelines should be established by the U.S. Fish and Wildlife Service to guide management decisions of the GBRC. These guidelines could be reviewed and changes recommended, but only approved by the Secretary of the Interior (see specific comments and recommendations below).

5



5. Ensure that the purpose and functions of the GBRC are clearly stated in the final rule. It is also important to clearly define appropriate functions, or charges, of the GBRC. The overall mission of the GBRC should be to implement the Bitterroot Chapter of the Grizzly Bear Recovery Plan and conduct its operations within the broad recovery guidelines and evaluation criteria established by the U.S. Fish and Wildlife Service.

RECOMMENDATIONS:

1. USFWS should authorize a 14 member Bitterroot Grizzly Bear Recovery Committee composed of 4 citizens from Idaho; 3 citizens from Montana; one representative each from USFWS, USFS, NPT, IDFG and MDFWP; and two independent Wildlife scientists.

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2. USFWS should establish and include in the Final Rule clearly articulated evaluation criteria for assessing the performance of the GBRC and establish protocols for reporting findings and recommendations to the Secretary of the Interior.

3. Recommend appropriate GBRC functions include all tasks listed in Appendix 13 (Proposed Rule) of the DEIS except tasks (J) - revising mortality limits, population determination, and other criteria for recovery, (L) - developing management strategies for the Recovery and Experimental Population Areas, and (M) - determining standards for determining reintroduction success/failure.

4. Recommend that the U.S. Fish and Wildlife Service establish initial guidelines for tasks (J), (L), and (M) as discussed above and listed in Appendix 13 of the DEIS. Recommend that the GBRC may suggest recommended changes to established recovery guidelines as discussed below.

Recovery Goals and Guidelines. To insure the GBRC's effectiveness, we suggest that the Final Rule establish and provide the committee with clearly stated recovery goals and guidelines based on the biological requirements necessary to recover a grizzly bear population in the Bitterroots. Recovery goals and guidelines will provide the framework or minimum biological sideboards for operations of the management committee. They will also clearly define the purpose for committee discussions and actions and provide guidance for final management decisions.

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RECOMMENDATIONS:

1. We recommend that the US Fish and Wildlife Service clarify that they adopt the recovery goals and guidelines established in the Bitterroot Chapter of the Grizzly Bear Recovery Plan, and that these will be used by the committee (GBRC) to guide their management process.

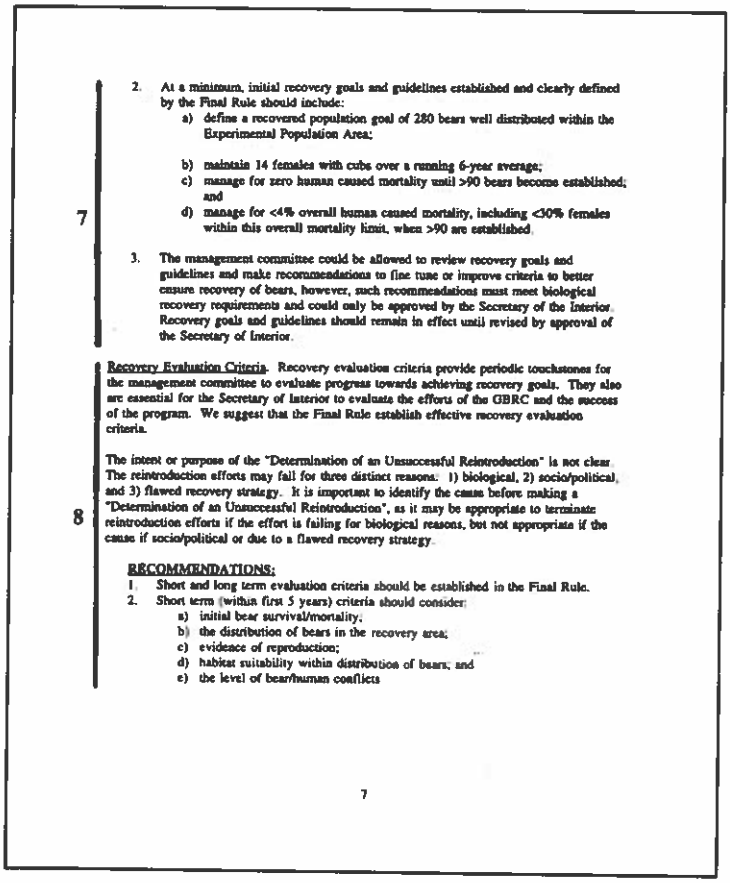
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CMC actions are not leading to recovery. If that determination is made, the USFWS representative would convene a Scientific Review Panel to review CMC actions and decisions and make recommendations to the CMC as to whether CMC actions, decisions, or processes are in compliance with the Special Rule and are leading to recovery. Members of the panel will be professional scientists who have had no involvement with the CMC and would not be employed by federal agencies responsible for grizzly bear recovery efforts. This panel of 3 would be appointed by the Secretary, Governor of Idaho, and Governor of Montana. If the CMC rejects the recommendations, and the USFWS representative determines CMC actions are not leading to recovery, he/she would notify the Secretary of Interior.

The Secretary would use these recommendations to determine whether to resume lead management responsibility. Further, if the Secretary decides to resume lead management responsibility, he/she would first consult with the Governors of Idaho and Montana to attempt to resolve discrepancies between his/her alternatives and the actions of the CMC. See Chapter 2, Alternative 1 for information.

7. A clarification in was added to Alternative 1 regarding how a refined recovery goal for the Bitterroot experimental population would be calculated. The proposed rule indicates if the CMC refines the recovery goal for the Bitterroot grizzly bear population after grizzly bears are reintroduced and occupy suitable habitats in the Experimental Area, the recovery goal would be consistent with the habitat available within the Recovery Area. A clarification was made that additional adjacent areas of public land could be considered when setting the recovery goal if it is shown to be necessary by the best scientific and commercial data available.

8. The following monitoring requirements were added to Alternative 1. The status of Bitterroot grizzly bear recovery will be reevaluated by the CMC and Secretary of Interior at 5-year intervals. The following parameters would be monitored during the reintroduction and recovery phases, and should be considered in any evaluation of success or



2. At a minimum, initial recovery goals and guidelines established and clearly defined by the Final Rule should include:
   a) define a recovered population goal of 280 bears well distributed within the Experimental Population Area;
   b) maintain 14 females with cubs over a running 6-year average;
   c) manage for zero human caused mortality until >90 bears become established; and
   d) manage for <4% overall human caused mortality, including <30% females within this overall mortality limit, when >90 are established.

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3. The management committee could be allowed to review recovery goals and guidelines and make recommendations to fine tune or improve criteria to better ensure recovery of bears, however, such recommendations must meet biological recovery requirements and could only be approved by the Secretary of the Interior. Recovery goals and guidelines should remain in effect until revised by approval of the Secretary of Interior.

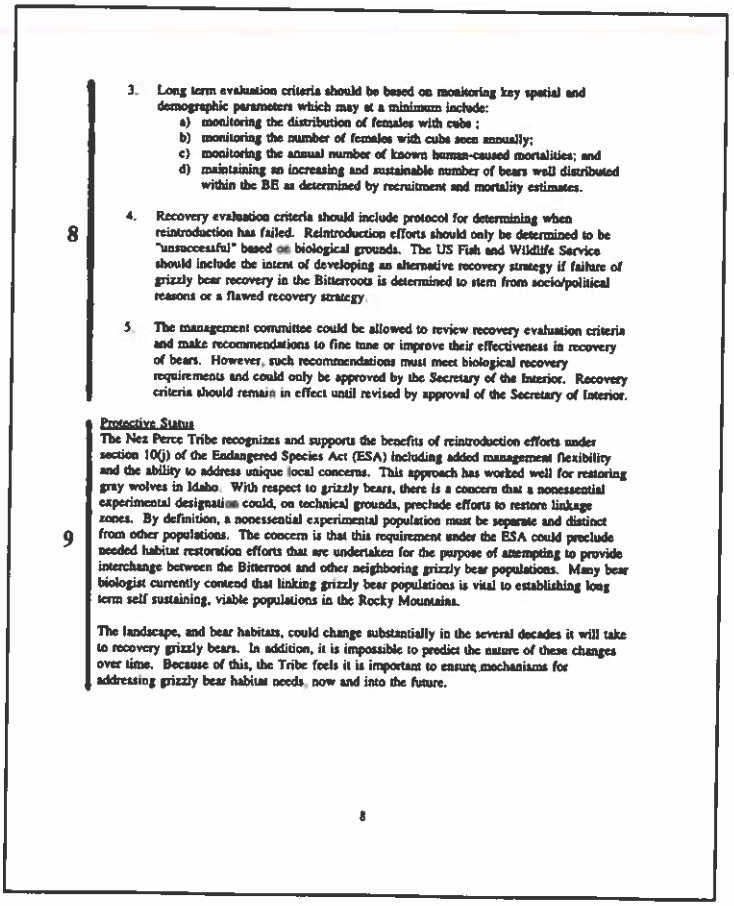
Recovery Evaluation Criteria. Recovery evaluation criteria provide periodic touchstones for the management committee to evaluate progress towards achieving recovery goals. They also are essential for the Secretary of Interior to evaluate the efforts of the GBRC and the success of the program. We suggest that the Final Rule establish effective recovery evaluation criteria.

The intent or purpose of the "Determination of an Unsuccessful Reintroduction" is not clear. The reintroduction efforts may fail for three distinct reasons: 1) biological, 2) socio/political, and 3) flawed recovery strategy. It is important to identify the cause before making a "Determination of an Unsuccessful Reintroduction", as it may be appropriate to terminate reintroduction efforts if the effort is failing for biological reasons, but not appropriate if the cause if socio/political or due to a flawed recovery strategy.

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RECOMMENDATIONS:
1. Short and long term evaluation criteria should be established in the Final Rule.
2. Short term (within first 5 years) criteria should consider:
   a) initial bear survival/mortality;
   b) the distribution of bears in the recovery area;
   c) evidence of reproduction;
   d) habitat suitability within distribution of bears; and
   e) the level of bear/human conflicts

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3. Long term evaluation criteria should be based on monitoring key spatial and demographic parameters which may at a minimum include:
   a) monitoring the distribution of females with cubs ;
   b) monitoring the number of females with cubs seen annually;
   c) monitoring the annual number of known human-caused mortalities; and
   d) maintaining an increasing and sustainable number of bears well distributed within the BE as determined by recruitment and mortality estimates.

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4. Recovery evaluation criteria should include protocol for determining when reintroduction has failed. Reintroduction efforts should only be determined to be "unsuccessful" based on biological grounds. The US Fish and Wildlife Service should include the intent of developing an alternative recovery strategy if failure of grizzly bear recovery in the Bitterroots is determined to stem from socio/political reasons or a flawed recovery strategy.

5. The management committee could be allowed to review recovery evaluation criteria and make recommendations to fine tune or improve their effectiveness in recovery of bears. However, such recommendations must meet biological recovery requirements and could only be approved by the Secretary of the Interior. Recovery criteria should remain in effect until revised by approval of the Secretary of Interior.

Protective Status
The Nez Perce Tribe recognizes and supports the benefits of reintroduction efforts under section 10(j) of the Endangered Species Act (ESA) including added management flexibility and the ability to address unique local concerns. This approach has worked well for restoring gray wolves in Idaho. With respect to grizzly bears, there is a concern that a nonessential experimental designation could, on technical grounds, preclude efforts to restore linkage zones. By definition, a nonessential experimental population must be separate and distinct from other populations. The concern is that this requirement under the ESA could preclude needed habitat restoration efforts that are undertaken for the purpose of attempting to provide interchange between the Bitterroot and other neighboring grizzly bear populations. Many bear biologist currently contend that linking grizzly bear populations is vital to establishing long term self sustaining, viable populations in the Rocky Mountains.

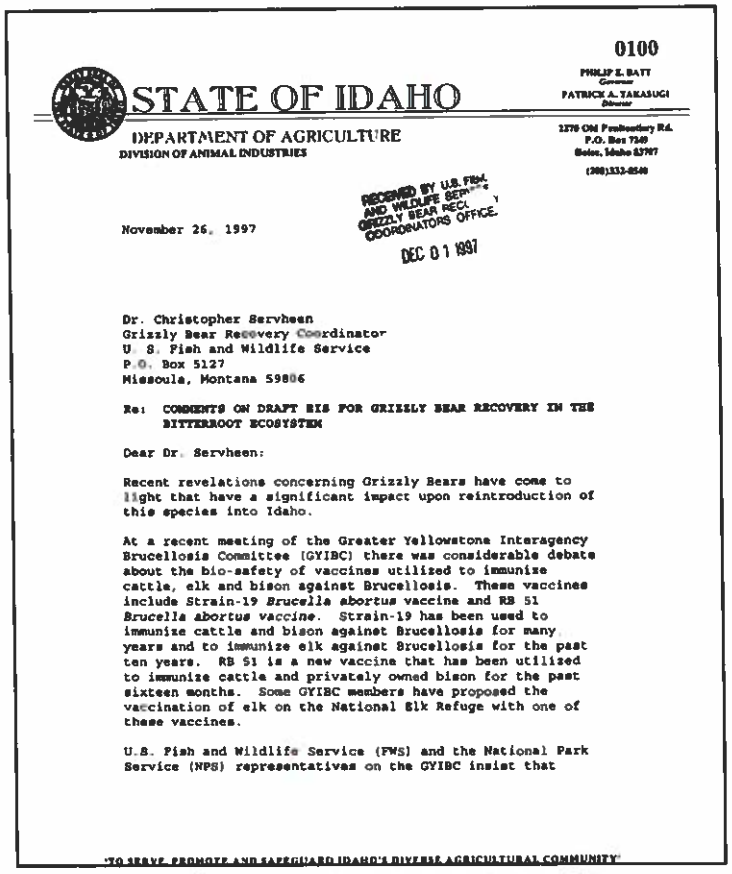
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The landscape, and bear habitats, could change substantially in the several decades it will take to recovery grizzly bears. In addition, it is impossible to predict the nature of these changes over time. Because of this, the Tribe feels it is important to ensure mechanisms for addressing grizzly bear habitat needs, now and into the future.

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failure: bear mortality (minimal bear/human conflicts); movements (bears remain within the Recovery Area and adjacent public lands); survival (a majority of reintroduced bears survive); reproduction (evidence of reproduction by reintroduced bears).

9. The preferred alternative does not preclude linkage areas. In fact, the linkage zone analysis between all ecosystems is a separate task under the grizzly bear recovery plan that will be completed with or without Bitterroot grizzly restoration. The linkage zone analysis will identify the areas where it is possible for bears to move between ecosystems and will outline strategies to maintain such opportunities. By any measure, the restoration of a grizzly bear population in an area of more than 5700 square miles of wilderness and additional thousands of square miles of adjacent public lands increases habitat size and extent for grizzly bears. The majority of grizzly bear habitat in the lower 48 states is not in wilderness areas but on other public lands. Extensive limits currently exist on public lands on activities such as road building and timber harvest due to issues on anadromous fish and elk management. These constraints serve to enhance the value of these lands to grizzly bears as well. Experimental status does not preclude linkage with other ecosystems at some future point in time, it requires that there be no population of the animal in question present and that the area be geographically separated. The Bitterroot qualifies for experimental status for grizzly bears on both counts. If the Bitterroot is eventually linked to other existing populations, which is desirable and so stated in the grizzly bear recovery plan, such linkage may be in fact initiated by the grizzly bears of the Bitterroot population expanding their range toward the closest population (Cabinet-Yaak), not the other way around. If that happened, then experimental status would be reevaluated. However, given the fact that none of the more than 550 grizzly bears that have been radio-collared and tracked over the past 23 years have ever moved between any existing ecosystems, the likelihood of such linkage is not a near-term possibility. Thus, placement of bears in the Bitterroot now will allow this population to begin to grow into a healthy population now rather than waiting for the possible future dispersal of bears from distant geographically separated ecosystems.



0100

STATE OF IDAHO

DEPARTMENT OF AGRICULTURE
DIVISION OF ANIMAL INDUSTRIES

PHILIP E. BATT
Governor
PATRICK A. TAKASUGI
Director

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Boise, Idaho 83707
(208)332-8540

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE
DEC 01 1997

November 26, 1997

Dr. Christopher Servheen
Grizzly Bear Recovery Coordinator
U. S. Fish and Wildlife Service
P.O. Box 5127
Missoula, Montana 59806

Re: COMMENTS ON DRAFT EIS FOR GRIZZLY BEAR RECOVERY IN THE BITTERROOT ECOSYSTEM

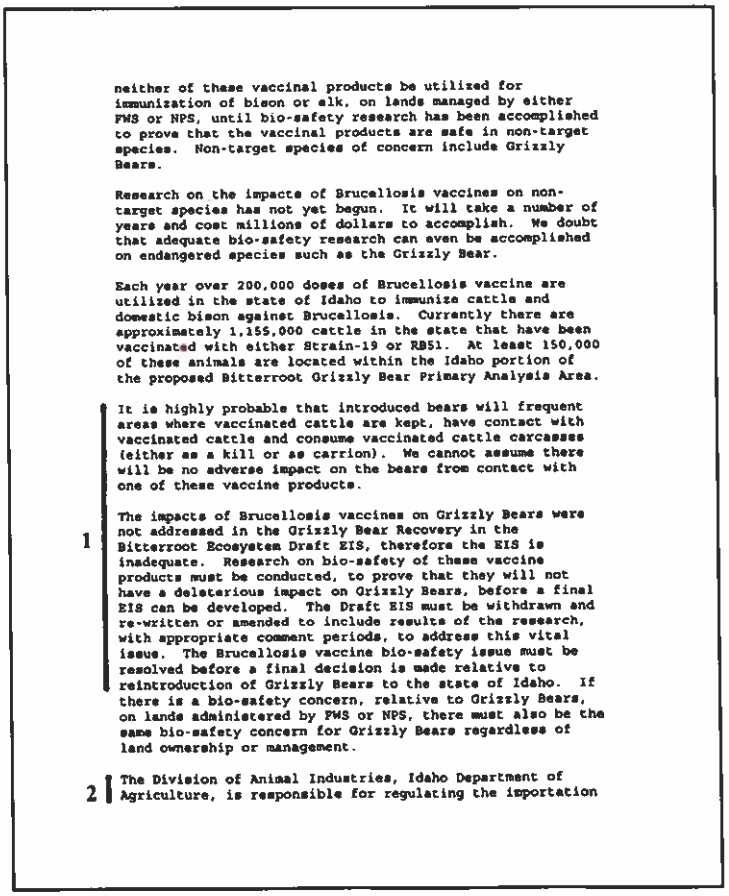
Dear Dr. Servheen:

Recent revelations concerning Grizzly Bears have come to light that have a significant impact upon reintroduction of this species into Idaho.

At a recent meeting of the Greater Yellowstone Interagency Brucellosis Committee (GYIBC) there was considerable debate about the bio-safety of vaccines utilized to immunize cattle, elk and bison against Brucellosis. These vaccines include Strain-19 *Brucella abortus* vaccine and RB 51 *Brucella abortus vaccine*. Strain-19 has been used to immunize cattle and bison against Brucellosis for many years and to immunize elk against Brucellosis for the past ten years. RB 51 is a new vaccine that has been utilized to immunize cattle and privately owned bison for the past sixteen months. Some GYIBC members have proposed the vaccination of elk on the National Elk Refuge with one of these vaccines.

U.S. Fish and Wildlife Service (FWS) and the National Park Service (NPS) representatives on the GYIBC insist that

"TO SERVE, PROMOTE AND SAFEGUARD IDAHO'S DIVERSE AGRICULTURAL COMMUNITY"



neither of these vaccinal products be utilized for immunization of bison or elk, on lands managed by either FWS or NPS, until bio-safety research has been accomplished to prove that the vaccinal products are safe in non-target species. Non-target species of concern include Grizzly Bears.

Research on the impacts of Brucellosis vaccines on non-target species has not yet begun. It will take a number of years and cost millions of dollars to accomplish. We doubt that adequate bio-safety research can even be accomplished on endangered species such as the Grizzly Bear.

Each year over 200,000 doses of Brucellosis vaccine are utilized in the state of Idaho to immunize cattle and domestic bison against Brucellosis. Currently there are approximately 1,155,000 cattle in the state that have been vaccinated with either Strain-19 or RB51. At least 150,000 of these animals are located within the Idaho portion of the proposed Bitterroot Grizzly Bear Primary Analysis Area.

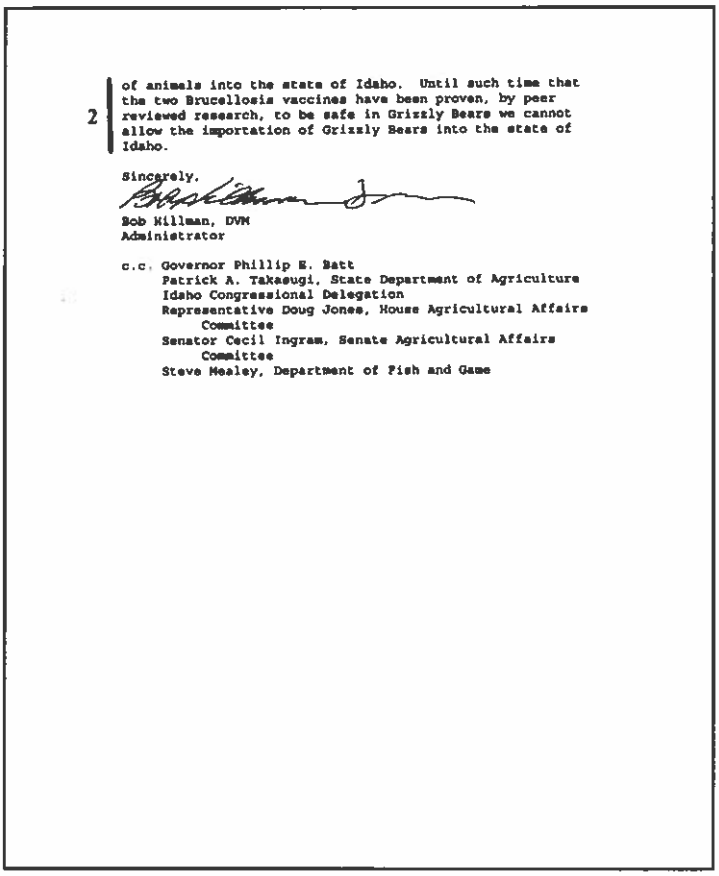
It is highly probable that introduced bears will frequent areas where vaccinated cattle are kept, have contact with vaccinated cattle and consume vaccinated cattle carcasses (either as a kill or as carrion). We cannot assume there will be no adverse impact on the bears from contact with one of these vaccine products.

1 The impacts of Brucellosis vaccines on Grizzly Bears were not addressed in the Grizzly Bear Recovery in the Bitterroot Ecosystem Draft EIS, therefore the EIS is inadequate. Research on bio-safety of these vaccine products must be conducted, to prove that they will not have a deleterious impact on Grizzly Bears, before a final EIS can be developed. The Draft EIS must be withdrawn and re-written or amended to include results of the research, with appropriate comment periods, to address this vital issue. The Brucellosis vaccine bio-safety issue must be resolved before a final decision is made relative to reintroduction of Grizzly Bears to the state of Idaho. If there is a bio-safety concern, relative to Grizzly Bears, on lands administered by FWS or NPS, there must also be the same bio-safety concern for Grizzly Bears regardless of land ownership or management.

2 The Division of Animal Industries, Idaho Department of Agriculture, is responsible for regulating the importation

State, Idaho Department of Agriculture, Animal Industries: #100

1. and 2. Thank you for your comment. It is possible that reintroduced grizzly bears could consume cattle inoculated with these new vaccines, though we believe that probability to be low given the expected depredation rates of 4-8 cattle per year when a recovered population of 280 animals is achieved. It is also possible that existing, native populations of grizzly bears in eastern Idaho near Yellowstone and northern Idaho in the Selkirk and Cabinet Mountains could consume these vaccinated cattle. Black bears, mountain lions, coyotes, wolves, bald eagles, golden eagles, and numerous other predators or scavengers may also come in contact with these substances though we are not aware of any problems with these animals that could be attributed to these vaccines. We assume these vaccines are judged safe when used in animals destined for human consumption. If the Department of Agriculture has any information regarding health problems arising from the use of such vaccines, the hunting public of the State of Idaho and the U.S. Fish and Wildlife Service should be informed.

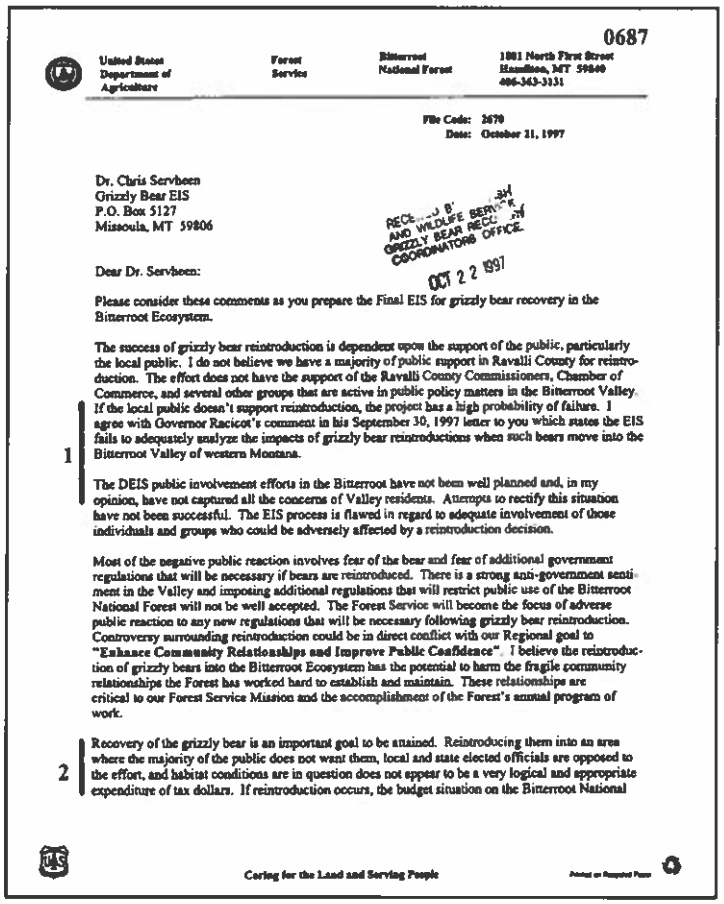


of animals into the state of Idaho. Until such time that the two Brucellosis vaccines have been proven, by peer reviewed research, to be safe in Grizzly Bears we cannot allow the importation of Grizzly Bears into the state of Idaho. 2

Sincerely,

Bob Hillman, DVM
Administrator

c.c. Governor Phillip E. Batt
Patrick A. Takasugi, State Department of Agriculture
Idaho Congressional Delegation
Representative Doug Jones, House Agricultural Affairs Committee
Senator Cecil Ingram, Senate Agricultural Affairs Committee
Steve Mealey, Department of Fish and Game



0687

United States Department of Agriculture | Forest Service | Bitterroot National Forest | 1801 North First Street, Hamilton, MT 59840, 406-363-3131

File Code: 2670
Date: October 21, 1997

Dr. Chris Servheen
Grizzly Bear EIS
P.O. Box 5127
Missoula, MT 59806

RECEIVED BY WILDLIFE BEAR AND GRIZZLY BEAR RECOVERY COORDINATORS OFFICE
OCT 22 1997

Dear Dr. Servheen:

Please consider these comments as you prepare the Final EIS for grizzly bear recovery in the Bitterroot Ecosystem.

The success of grizzly bear reintroduction is dependent upon the support of the public, particularly the local public. I do not believe we have a majority of public support in Ravalli County for reintroduction. The effort does not have the support of the Ravalli County Commissioners, Chamber of Commerce, and several other groups that are active in public policy matters in the Bitterroot Valley. If the local public doesn't support reintroduction, the project has a high probability of failure. I agree with Governor Racicot's comment in his September 30, 1997 letter to you which states the EIS fails to adequately analyze the impacts of grizzly bear reintroductions when such bears move into the Bitterroot Valley of western Montana. 1

The DEIS public involvement efforts in the Bitterroot have not been well planned and, in my opinion, have not captured all the concerns of Valley residents. Attempts to rectify this situation have not been successful. The EIS process is flawed in regard to adequate involvement of those individuals and groups who could be adversely affected by a reintroduction decision.

Most of the negative public reaction involves fear of the bear and fear of additional government regulations that will be necessary if bears are reintroduced. There is a strong anti-government sentiment in the Valley and imposing additional regulations that will restrict public use of the Bitterroot National Forest will not be well accepted. The Forest Service will become the focus of adverse public reaction to any new regulations that will be necessary following grizzly bear reintroduction. Controversy surrounding reintroduction could be in direct conflict with our Regional goal to **"Enhance Community Relationships and Improve Public Confidence"**. I believe the reintroduction of grizzly bears into the Bitterroot Ecosystem has the potential to harm the fragile community relationships the Forest has worked hard to establish and maintain. These relationships are critical to our Forest Service Mission and the accomplishment of the Forest's annual program of work.

Recovery of the grizzly bear is an important goal to be attained. Reintroducing them into an area where the majority of the public does not want them, local and state elected officials are opposed to the effort, and habitat conditions are in question does not appear to be a very logical and appropriate expenditure of tax dollars. If reintroduction occurs, the budget situation on the Bitterroot National 2

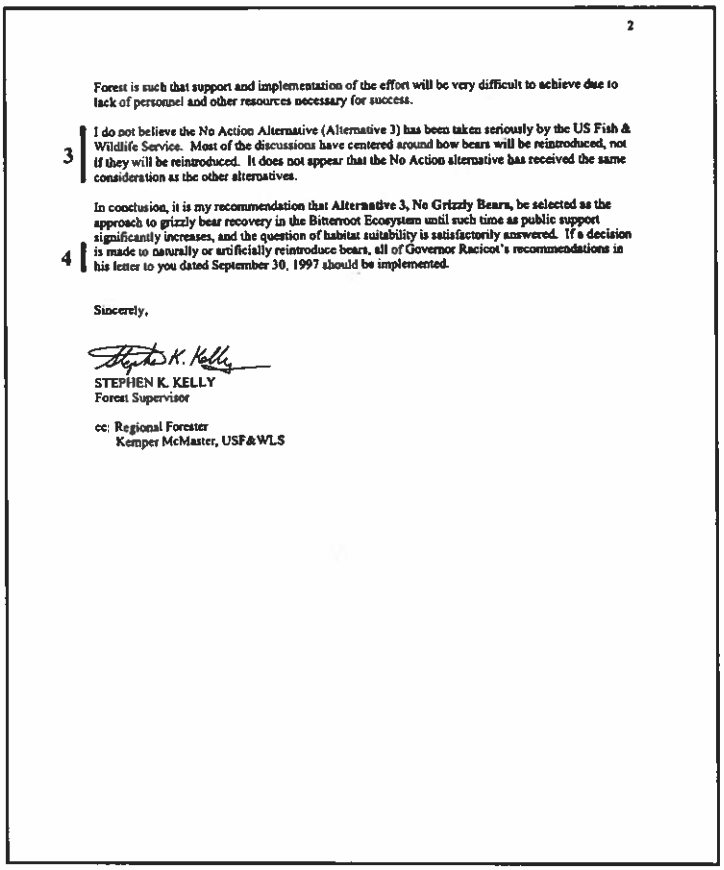
Caring for the Land and Serving People

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Federal, USDA Forest Service, Bitterroot National Forest: #687

1. We agree that if the local public doesn't support reintroduction, the project has a high probability of failure. Unless the Citizen Management Committee (CMC) determines otherwise, private lands outside the National Forest boundary in the Bitterroot Valley (private lands lying within the experimental population area and outside the Bitterroot Forest boundary south of Highway 12 to Lost Trail Pass) would be an area where and human/grizzly conflict would be considered significant. Grizzly bear occupancy would be discouraged in these areas and grizzly bears would be captured, destroyed or returned to the recovery area. Through the lengthy public comment period on the Draft Environmental Impact Statement (DEIS) we believe that we have captured most of the concerns of the Bitterroot Valley residents.

2. Your statement that "the majority of the public does not want them (grizzly bears), local and state elected officials are opposed to the



2

Forest is such that support and implementation of the effort will be very difficult to achieve due to lack of personnel and other resources necessary for success.

3 I do not believe the No Action Alternative (Alternative 3) has been taken seriously by the US Fish & Wildlife Service. Most of the discussions have centered around how bears will be reintroduced, not if they will be reintroduced. It does not appear that the No Action alternative has received the same consideration as the other alternatives.

In conclusion, it is my recommendation that Alternative 3, No Grizzly Bears, be selected as the approach to grizzly bear recovery in the Bitterroot Ecosystem until such time as public support significantly increases, and the question of habitat suitability is satisfactorily answered. If a decision 4 is made to naturally or artificially reintroduce bears, all of Governor Racicot's recommendations in his letter to you dated September 30, 1997 should be implemented.

Sincerely,

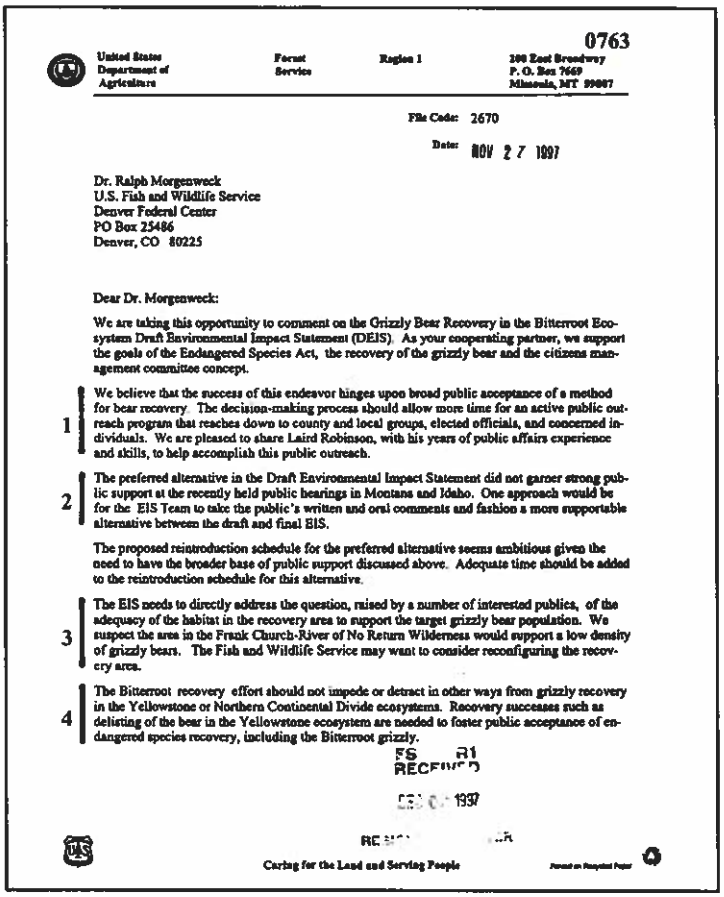
STEPHEN K. KELLY
Forest Supervisor

cc: Regional Forester
Kemper McMaster, USF&WLS

effort," is a generalization and not accurate. A public survey conducted in 1995 (Duda and Young 1995) indicated that 64% of local, 74% of regional and 77% of national respondents were supportive of reintroducing grizzly bears into the Bitterroot Ecosystem. Responses to the DEIS indicated strong local support for grizzly bear reintroduction.

3. Due to the length of the response necessary to address your concern, we refer you to FEIS Chapter 2, Alternative 3, "Background."

4. We strongly support Governor Racicot's recommendations in his September 30, 1997 letter.



0763

United States Department of Agriculture | Forest Service | Region 1 | 200 East Broadway P. O. Box 7669 Missoula, MT 59807

File Code: 2670

Date: NOV 2 7 1997

Dr. Ralph Morgenweck
U.S. Fish and Wildlife Service
Denver Federal Center
PO Box 25486
Denver, CO 80225

Dear Dr. Morgenweck:

We are taking this opportunity to comment on the Grizzly Bear Recovery in the Bitterroot Ecosystem Draft Environmental Impact Statement (DEIS). As your cooperating partner, we support the goals of the Endangered Species Act, the recovery of the grizzly bear and the citizens management committee concept.

1 We believe that the success of this endeavor hinges upon broad public acceptance of a method for bear recovery. The decision-making process should allow more time for an active public outreach program that reaches down to county and local groups, elected officials, and concerned individuals. We are pleased to share Laird Robinson, with his years of public affairs experience and skills, to help accomplish this public outreach.

2 The preferred alternative in the Draft Environmental Impact Statement did not garner strong public support at the recently held public hearings in Montana and Idaho. One approach would be for the EIS Team to take the public's written and oral comments and fashion a more supportable alternative between the draft and final EIS.

The proposed reintroduction schedule for the preferred alternative seems ambitious given the need to have the broader base of public support discussed above. Adequate time should be added to the reintroduction schedule for this alternative.

3 The EIS needs to directly address the question, raised by a number of interested publics, of the adequacy of the habitat in the recovery area to support the target grizzly bear population. We suspect the area in the Frank Church-River of No Return Wilderness would support a low density of grizzly bears. The Fish and Wildlife Service may want to consider reconfiguring the recovery area.

4 The Bitterroot recovery effort should not impede or detract in other ways from grizzly recovery in the Yellowstone or Northern Continental Divide ecosystems. Recovery successes such as delisting of the bear in the Yellowstone ecosystem are needed to foster public acceptance of endangered species recovery, including the Bitterroot grizzly.

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1997

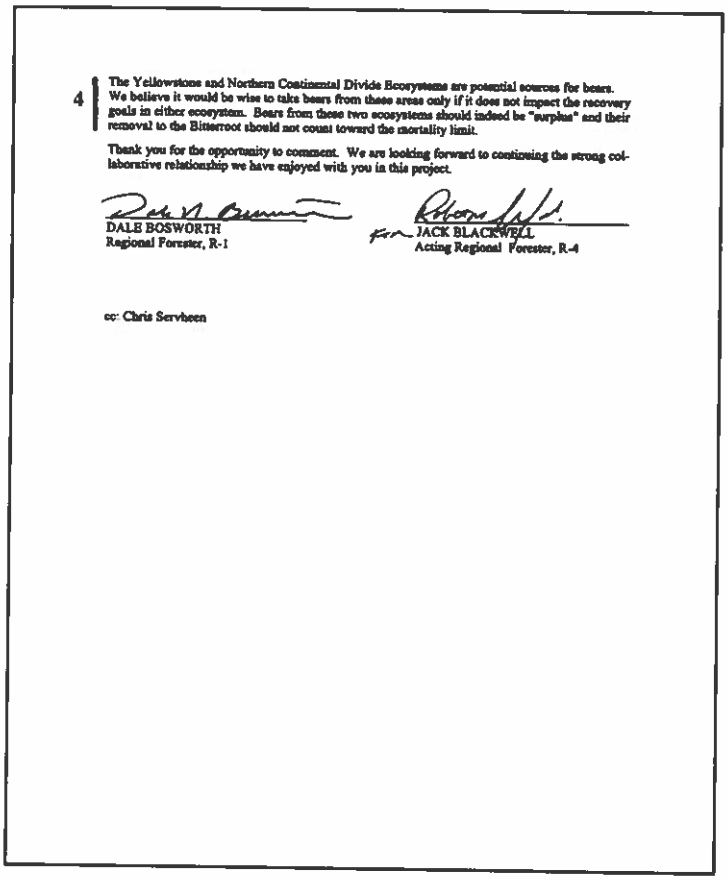
Caring for the Land and Serving People

Federal, USDA Forest Service, Regions 1 and 4: #763

1. We also agree that the success of this endeavor hinges upon broad public acceptance. The public outreach effort which we have embarked upon is critical to the success of this proposal and we will continue to keep public outreach our number one priority.

2. The preferred alternative in the DEIS did not garner strong public support. The EIS team has reviewed all of the written and oral comments and has revised FEIS Alternative 1 so that it is more responsive to public issues and concerns.

3. The FEIS addresses the adequacy of the habitat within the recovery area including the Frank Church - River of No Return Wilderness. Appendix 21 includes four reports from recent studies. These studies assess the habitat capability of the BE to support a viable populations of grizzly bears; the contribution a population of bears in the BE would make to grizzly bear conservation in the lower 48 States; and the distribution and abundance of bear foods in the BE. See FEIS Appendix 21.



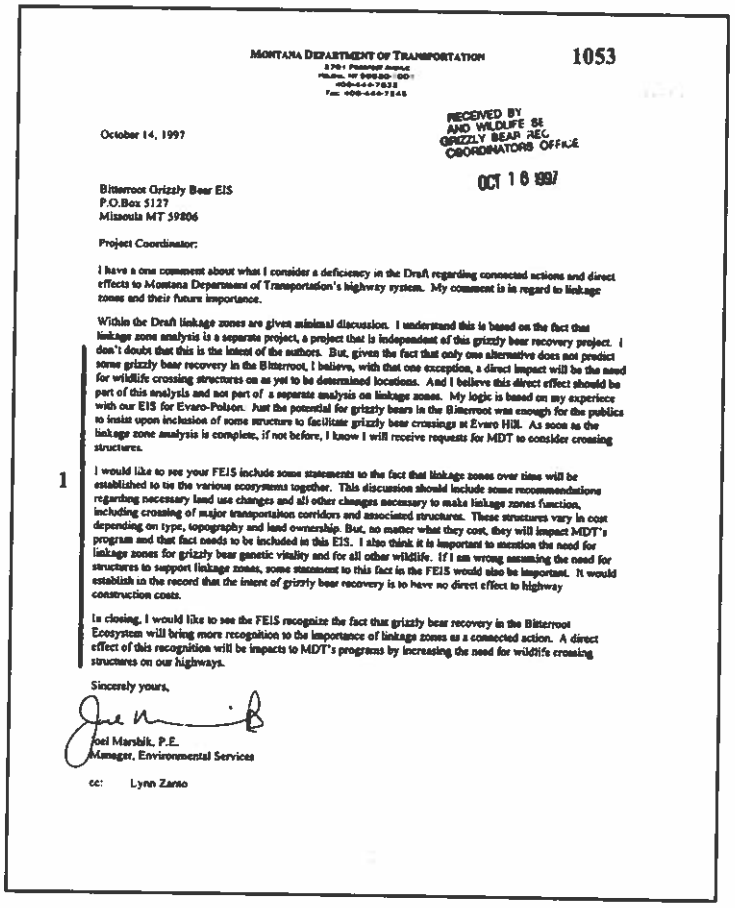
4 The Yellowstone and Northern Continental Divide Ecosystems are potential sources for bears. We believe it would be wise to take bears from these areas only if it does not impact the recovery goals in either ecosystem. Bears from these two ecosystems should indeed be "surplus" and their removal to the Bitterroot should not count toward the mortality limit.

Thank you for the opportunity to comment. We are looking forward to continuing the strong collaborative relationship we have enjoyed with you in this project.

DALE BOSWORTH
Regional Forester, R-1

for JACK BLACKWELL
Acting Regional Forester, R-4

cc: Chris Servheen



MONTANA DEPARTMENT OF TRANSPORTATION 1053

2701 Prospect Avenue
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Fax: 406-444-7245

RECEIVED BY
FISH AND WILDLIFE SE
GRIZZLY BEAR REC
COORDINATORS OFFICE
OCT 16 1997

October 14, 1997

Bitterroot Grizzly Bear EIS
P.O.Box 5127
Missoula MT 59806

Project Coordinator:

I have a one comment about what I consider a deficiency in the Draft regarding connected actions and direct effects to Montana Department of Transportation's highway system. My comment is in regard to linkage zones and their future importance.

Within the Draft linkage zones are given minimal discussion. I understand this is based on the fact that linkage zone analysis is a separate project, a project that is independent of this grizzly bear recovery project. I don't doubt that this is the intent of the authors. But, given the fact that only one alternative does not predict some grizzly bear recovery in the Bitterroot, I believe, with that one exception, a direct impact will be the need for wildlife crossing structures on as yet to be determined locations. And I believe this direct effect should be part of this analysis and not part of a separate analysis on linkage zones. My logic is based on my experience with our EIS for Evaro-Polson. Just the potential for grizzly bears in the Bitterroot was enough for the publics to insist upon inclusion of some structure to facilitate grizzly bear crossings at Evaro Hill. As soon as the linkage zone analysis is complete, if not before, I know I will receive requests for MDT to consider crossing structures.

1 I would like to see your FEIS include some statements to the fact that linkage zones over time will be established to tie the various ecosystems together. This discussion should include some recommendations regarding necessary land use changes and all other changes necessary to make linkage zones function, including crossing of major transportation corridors and associated structures. These structures vary in cost depending on type, topography and land ownership. But, no matter what they cost, they will impact MDT's program and that fact needs to be included in this EIS. I also think it is important to mention the need for linkage zones for grizzly bear genetic vitality and for all other wildlife. If I am wrong assuming the need for structures to support linkage zones, some statement to this fact in the FEIS would also be important. It would establish in the record that the intent of grizzly bear recovery is to have no direct effect to highway construction costs.

In closing, I would like to see the FEIS recognize the fact that grizzly bear recovery in the Bitterroot Ecosystem will bring more recognition to the importance of linkage zones as a connected action. A direct effect of this recognition will be impacts to MDT's programs by increasing the need for wildlife crossing structures on our highways.

Sincerely yours,

Joel Marshik, P.E.
Manager, Environmental Services

cc: Lynn Zanto

4. The Bitterroot recovery should not impede or detract from grizzly recovery in the Yellowstone or Northern Continental Divide Ecosystems. Funding for grizzly bear recovery in the Bitterroot Ecosystem will be solely independent from funding for grizzly bear recovery in the other ecosystems. Implementation of recovery activities would only occur if additional funds become available above and beyond recovery efforts in existing ecosystems (Appendix 24).

The YE and NCDE are potential sources for bears. Mortality data are updated annually and any removal of bears from either ecosystem will be predicated on achievement of the mortality limits. The female contribution will be designed to minimize impacts on the source population and no female grizzly bears will be removed from within the NCDE or YE recovery zone boundary or from within 10 miles outside the boundary. Since no bears will be removed from the YE or NCDE if the mortality limits will be exceeded, and no female bears will be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE will be nonexistent.

State, Montana Department of Transportation: #1053

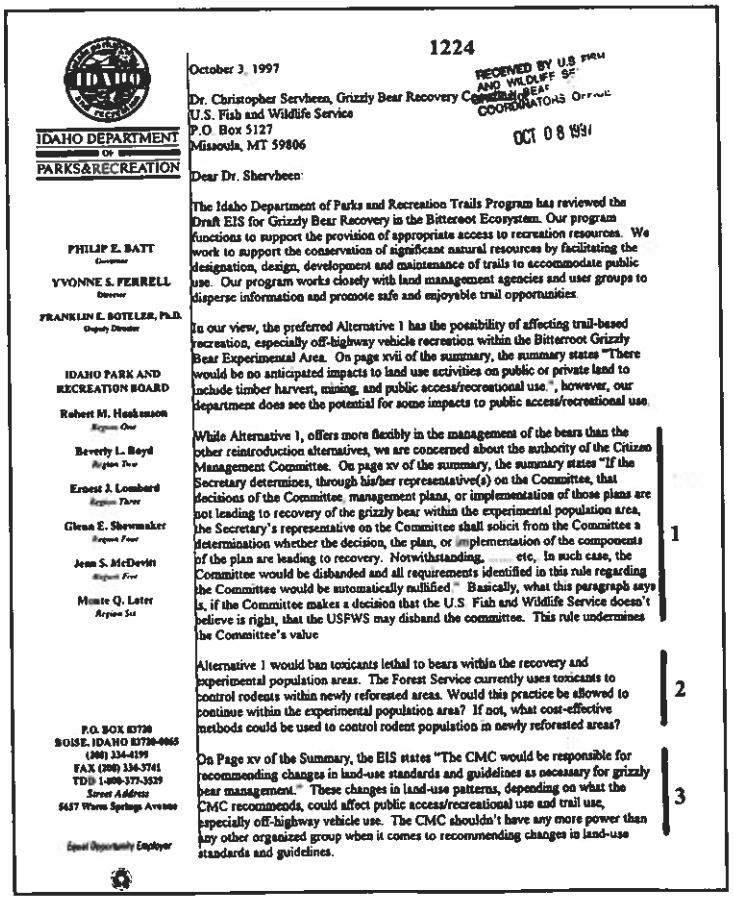
1. Wording has been added to the FEIS regarding the issue of linkage zones and the relationship of grizzly recovery in the Bitterroot to the linkage zone issue.

Providing safe highway crossing/passage for grizzly bears (and other rare wildlife) is vital for long-term recovery and conservation. Restoration of grizzly bears in the Bitterroot ecosystem will increase concern about the possible linkage between existing areas with bears and the Bitterroot. The USFWS intends to complete a linkage zone analysis that will detail the possible linkage areas between the existing ecosystems and between the Bitterroot and existing ecosystems. An important component of this analysis will be safe highway crossings for grizzly bears.

The linkage zone analysis is a GIS-computer modeling effort that looks at the levels of human impact and activity in the intervening areas between ecosystems and identifies the best linkage areas based on this human activity. This linkage zone analysis is a separate Recovery

Plan Task and will be completed regardless of which alternative is selected for the Bitterroot. Maintenance of linkage zones is maintenance of the opportunity for grizzly bears and other wildlife species to move between the existing large blocks of public lands in order to maintain demographic and genetic health. A key factor in the maintenance of such linkage zones is managing the high-speed highways within the linkage zones and between the ecosystems. It must be determined how accommodations can and will be made to allow large animals such as bears the opportunity to cross these highways.

In the long-term, the opportunity for bears to move between these ecosystems will improve the health of these populations. In the near term, recovery of a grizzly bear population in the Bitterroot will require placement of bears rather than waiting for eventual dispersal into this area, due to the limited number of movements of bears outside of existing range to date.



1224

IDAHO DEPARTMENT OF PARKS&RECREATION

October 3, 1997

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE COORDINATORS Office

OCT 08 1997

Dr. Christopher Servheen, Grizzly Bear Recovery Coordinator
U.S. Fish and Wildlife Service
P.O. Box 5127
Missoula, MT 59806

Dear Dr. Shervheen:

The Idaho Department of Parks and Recreation Trails Program has reviewed the Draft EIS for Grizzly Bear Recovery in the Bitteroot Ecosystem. Our program functions to support the provision of appropriate access to recreation resources. We work to support the conservation of significant natural resources by facilitating the designation, design, development and maintenance of trails to accommodate public use. Our program works closely with land management agencies and user groups to disperse information and promote safe and enjoyable trail opportunities.

In our view, the preferred Alternative 1 has the possibility of affecting trail-based recreation, especially off-highway vehicle recreation within the Bitterroot Grizzly Bear Experimental Area. On page xvii of the summary, the summary states "There would be no anticipated impacts to land use activities on public or private land to include timber harvest, mining, and public access/recreational use.", however, our department does see the potential for some impacts to public access/recreational use.

While Alternative 1, offers more flexibly in the management of the bears than the other reintroduction alternatives, we are concerned about the authority of the Citizen Management Committee. On page xv of the summary, the summary states "If the Secretary determines, through his/her representative(s) on the Committee, that decisions of the Committee, management plans, or implementation of those plans are not leading to recovery of the grizzly bear within the experimental population area, the Secretary's representative on the Committee shall solicit from the Committee a determination whether the decision, the plan, or implementation of the components of the plan are leading to recovery. Notwithstanding, ... etc, In such case, the Committee would be disbanded and all requirements identified in this rule regarding the Committee would be automatically nullified." Basically, what this paragraph says is, if the Committee makes a decision that the U.S. Fish and Wildlife Service doesn't believe is right, that the USFWS may disband the committee. This rule undermines the Committee's value. 1

Alternative 1 would ban toxicants lethal to bears within the recovery and experimental population areas. The Forest Service currently uses toxicants to control rodents within newly reforested areas. Would this practice be allowed to continue within the experimental population area? If not, what cost-effective methods could be used to control rodent population in newly reforested areas? 2

On Page xv of the Summary, the EIS states "The CMC would be responsible for recommending changes in land-use standards and guidelines as necessary for grizzly bear management." These changes in land-use patterns, depending on what the CMC recommends, could affect public access/recreational use and trail use, especially off-highway vehicle use. The CMC shouldn't have any more power than any other organized group when it comes to recommending changes in land-use standards and guidelines. 3

PHILIP E. BATT, Governor
YVONNE S. FERRELL, Director
FRANKLIN E. BOTELER, Ph.D., Deputy Director

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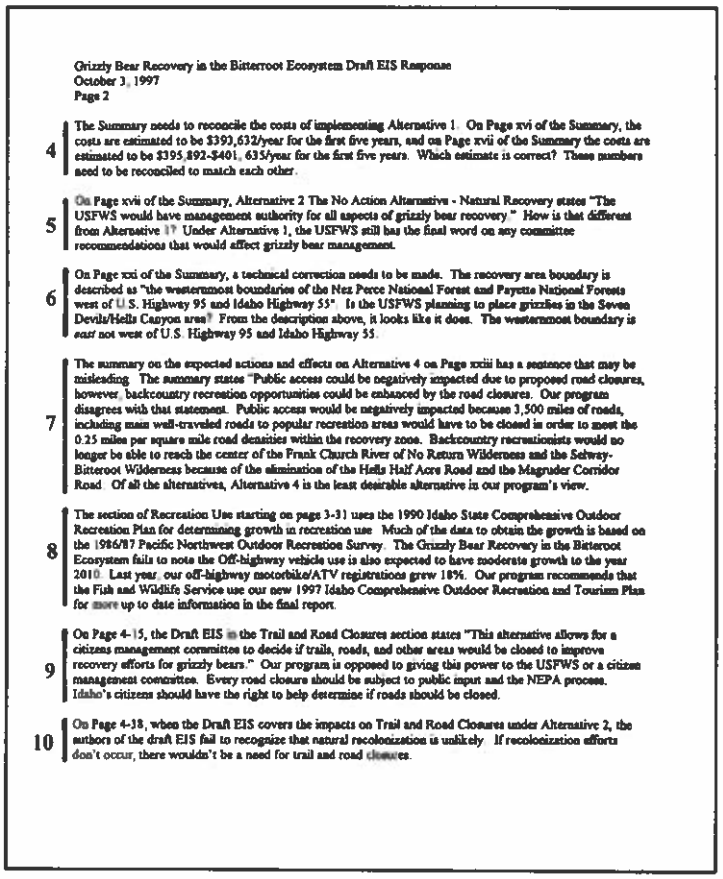
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State, Idaho Dept. of Parks and Recreation: # 1224

1. Changes were made in the FEIS to the procedure whereby the Secretary could resume lead management implementation responsibility from the CMC if the determination is made that their decisions are not leading to recovery. See response to Nez Perce Tribe letter #836, issue #6, page 5-71.

2. Toxicants, placed underground, are often used to control rodents in seedling plantations. This activity was reviewed via ESA Section 7 consultation in the early 1980's on the Targhee National Forest. The activity was found not to adversely affect the grizzly bear provided care was taken not to leave treated bait on the ground surface.

3. The CMC would make recommendations related to grizzly bear management to land management agencies. Such "recommendations" would not be agency "decisions". Any changes to agency land management plans would go through the normal legal agency process before



Grizzly Bear Recovery in the Bitterroot Ecosystem Draft EIS Response
October 3, 1997
Page 2

4 The Summary needs to reconcile the costs of implementing Alternative 1. On Page xvi of the Summary, the costs are estimated to be $393,632/year for the first five years, and on Page xvii of the Summary the costs are estimated to be $395,892-$401, 635/year for the first five years. Which estimate is correct? These numbers need to be reconciled to match each other.

5 On Page xvii of the Summary, Alternative 2 The No Action Alternative - Natural Recovery states "The USFWS would have management authority for all aspects of grizzly bear recovery." How is that different from Alternative 1? Under Alternative 1, the USFWS still has the final word on any committee recommendations that would affect grizzly bear management.

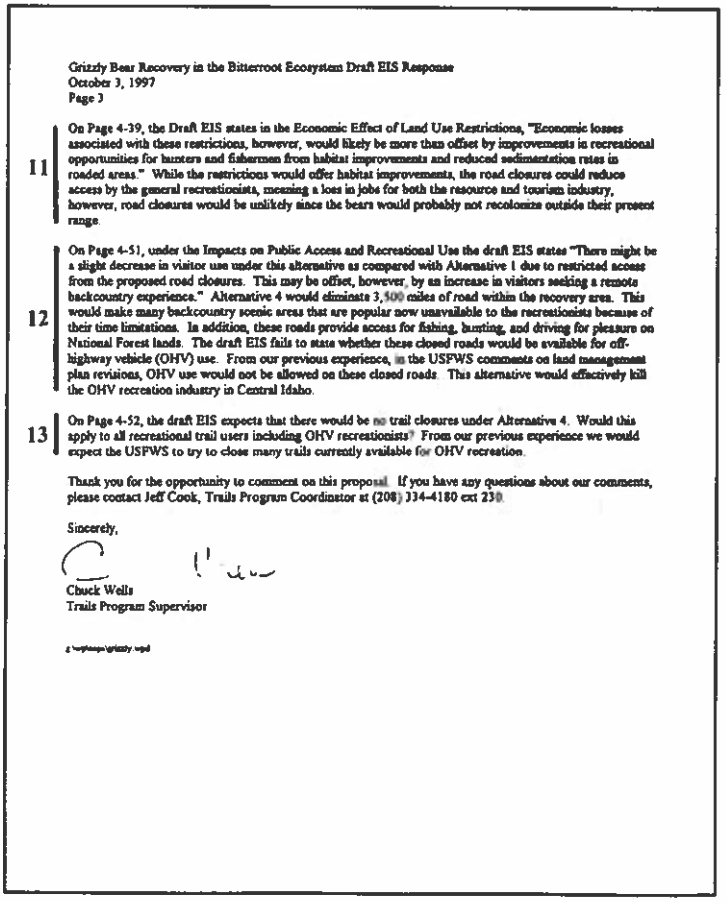
6 On Page xxi of the Summary, a technical correction needs to be made. The recovery area boundary is described as "the westernmost boundaries of the Nez Perce National Forest and Payette National Forests west of U.S. Highway 95 and Idaho Highway 55". Is the USFWS planning to place grizzlies in the Seven Devils/Hells Canyon area? From the description above, it looks like it does. The westernmost boundary is *east* not west of U.S. Highway 95 and Idaho Highway 55.

7 The summary on the expected actions and effects on Alternative 4 on Page xxiii has a sentence that may be misleading. The summary states "Public access could be negatively impacted due to proposed road closures, however, backcountry recreation opportunities could be enhanced by the road closures. Our program disagrees with that statement. Public access would be negatively impacted because 3,500 miles of roads, including many well-traveled roads to popular recreation areas would have to be closed in order to meet the 0.25 miles per square mile road densities within the recovery zone. Backcountry recreationists would no longer be able to reach the center of the Frank Church River of No Return Wilderness and the Selway-Bitterroot Wilderness because of the elimination of the Hells Half Acre Road and the Magruder Corridor Road. Of all the alternatives, Alternative 4 is the least desirable alternative in our program's view.

8 The section of Recreation Use starting on page 3-31 uses the 1990 Idaho State Comprehensive Outdoor Recreation Plan for determining growth in recreation use. Much of the data to obtain the growth is based on the 1986/87 Pacific Northwest Outdoor Recreation Survey. The Grizzly Bear Recovery in the Bitterroot Ecosystem fails to note the Off-highway vehicle use is also expected to have moderate growth to the year 2010. Last year, our off-highway motorbike/ATV registrations grew 18%. Our program recommends that the Fish and Wildlife Service use our new 1997 Idaho Comprehensive Outdoor Recreation and Tourism Plan for more up to date information in the final report.

9 On Page 4-15, the Draft EIS in the Trail and Road Closures section states "This alternative allows for a citizens management committee to decide if trails, roads, and other areas would be closed to improve recovery efforts for grizzly bears." Our program is opposed to giving this power to the USFWS or a citizen management committee. Every road closure should be subject to public input and the NEPA process. Idaho's citizens should have the right to help determine if roads should be closed.

10 On Page 4-38, when the Draft EIS covers the impacts on Trail and Road Closures under Alternative 2, the authors of the draft EIS fail to recognize that natural recolonization is unlikely. If recolonization efforts don't occur, there wouldn't be a need for trail and road closures.



Grizzly Bear Recovery in the Bitterroot Ecosystem Draft EIS Response
October 3, 1997
Page 3

11 On Page 4-39, the Draft EIS states in the Economic Effect of Land Use Restrictions, "Economic losses associated with these restrictions, however, would likely be more than offset by improvements in recreational opportunities for hunters and fishermen from habitat improvements and reduced sedimentation rates in roaded areas." While the restrictions would offer habitat improvements, the road closures could reduce access by the general recreationists, meaning a loss in jobs for both the resource and tourism industry, however, road closures would be unlikely since the bears would probably not recolonize outside their present range.

12 On Page 4-51, under the Impacts on Public Access and Recreational Use the draft EIS states "There might be a slight decrease in visitor use under this alternative as compared with Alternative 1 due to restricted access from the proposed road closures. This may be offset, however, by an increase in visitors seeking a remote backcountry experience." Alternative 4 would eliminate 3,500 miles of road within the recovery area. This would make many backcountry scenic areas that are popular now unavailable to the recreationists because of their time limitations. In addition, these roads provide access for fishing, hunting, and driving for pleasure on National Forest lands. The draft EIS fails to state whether these closed roads would be available for off-highway vehicle (OHV) use. From our previous experience, in the USFWS comments on land management plan revisions, OHV use would not be allowed on these closed roads. This alternative would effectively kill the OHV recreation industry in Central Idaho.

13 On Page 4-52, the draft EIS expects that there would be no trail closures under Alternative 4. Would this apply to all recreational trail users including OHV recreationists? From our previous experience we would expect the USFWS to try to close many trails currently available for OHV recreation.

Thank you for the opportunity to comment on this proposal. If you have any questions about our comments, please contact Jeff Cook, Trails Program Coordinator at (208) 334-4180 ext 230.

Sincerely,

Chuck Wells
Trails Program Supervisor

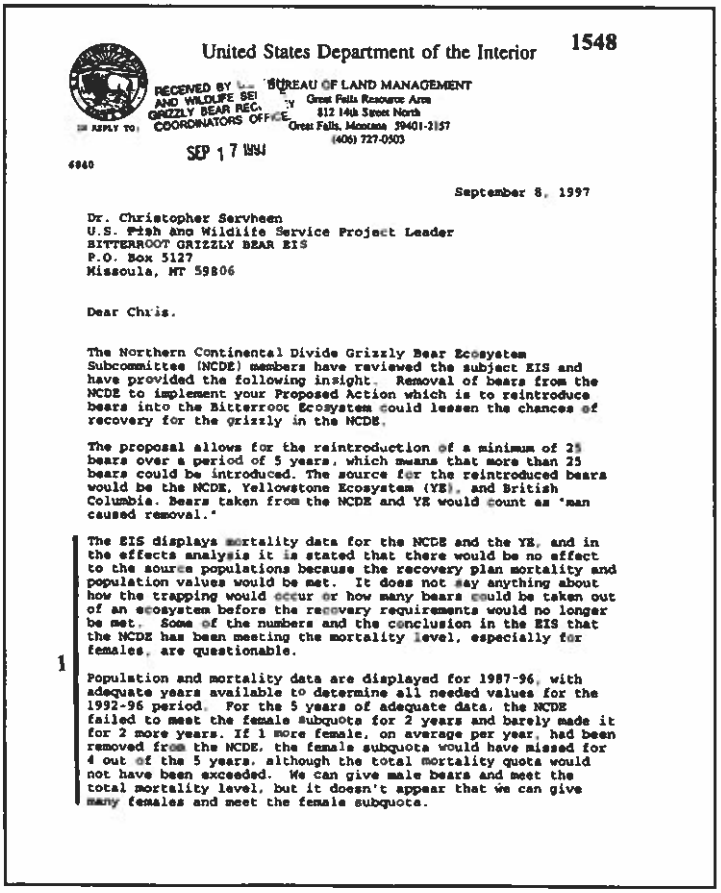
decisions are adopted. For example, if the recommendations made by the CMC were directed at the USDA-Forest Service, the Forest Service would review the recommendations, and if warranted, would undertake National Environmental Policy Act (NEPA) processes before making any official decisions.

4. The DEIS cost estimate of $393,632 per year for the first 5 years refers to the administration and implementation costs to implement Alternative 1 (see Appendix 7). The DEIS estimate of $395,892 - $401,635 consists of the administration and implementation cost plus the estimated value of livestock losses from grizzly bear depredation which range from $2,260 - $8003 (see Table 4-7). These cost estimates have been updated in the FEIS, see Appendix 7 and Table 4-7.

5. Under the Endangered Species Act, the Secretary of Interior must retain final authority and responsibility for implementation of the Act. The USFWS would have direct management authority for all aspects of grizzly bear recovery under Alternative 2. Alternative 1 proposes that the Citizen Management Committee would be authorized management implementation responsibility by the Secretary of Interior. This committee would have one member representing the USFWS. The CMC decisions, management plans and their implementation must lead to grizzly bear recovery. If there is concern over CMC actions leading to recovery, a Scientific Review Panel could be invoked to review CMC actions and decisions and make recommendations as to whether CMC actions, decisions, or processes are in compliance with the Special Rule and are leading to recovery. If the Secretary decides to resume management implementation responsibility, he/she must consult with the Governors of Idaho and Montana before taking action. The inclusion of the Scientific Review Panel process and Governor review process in the FEIS further insulates the CMC from the influence of the Secretary, and responds to public comments of concern about the autonomy of the CMC.

6. Expected population area would be those lands lying *east* of US 95 and Idaho Hwy 55.

7. Comment noted. Non-motorized use could occur on closed roads.



United States Department of the Interior 1548

BUREAU OF LAND MANAGEMENT
Great Falls Resource Area
812 14th Street North
Great Falls, Montana 59401-2157
(406) 727-0505

RECEIVED BY ... AND WILDLIFE SE... GRIZZLY BEAR REC... COORDINATORS OFFICE
SEP 17 1997

IN REPLY TO: 6840

September 8, 1997

Dr. Christopher Servheen
U.S. Fish and Wildlife Service Project Leader
BITTERROOT GRIZZLY BEAR EIS
P.O. Box 5127
Missoula, MT 59806

Dear Chris,

The Northern Continental Divide Grizzly Bear Ecosystem Subcommittee (NCDE) members have reviewed the subject EIS and have provided the following insight. Removal of bears from the NCDE to implement your Proposed Action which is to reintroduce bears into the Bitterroot Ecosystem could lessen the chances of recovery for the grizzly in the NCDE.

The proposal allows for the reintroduction of a minimum of 25 bears over a period of 5 years, which means that more than 25 bears could be introduced. The source for the reintroduced bears would be the NCDE, Yellowstone Ecosystem (YE), and British Columbia. Bears taken from the NCDE and YE would count as "man caused removal."

1 The EIS displays mortality data for the NCDE and the YE, and in the effects analysis it is stated that there would be no effect to the source populations because the recovery plan mortality and population values would be met. It does not say anything about how the trapping would occur or how many bears could be taken out of an ecosystem before the recovery requirements would no longer be met. Some of the numbers and the conclusion in the EIS that the NCDE has been meeting the mortality level, especially for females, are questionable.

Population and mortality data are displayed for 1987-96, with adequate years available to determine all needed values for the 1992-96 period. For the 5 years of adequate data, the NCDE failed to meet the female subquota for 2 years and barely made it for 2 more years. If 1 more female, on average per year, had been removed from the NCDE, the female subquota would have missed for 4 out of the 5 years, although the total mortality quota would not have been exceeded. We can give male bears and meet the total mortality level, but it doesn't appear that we can give many females and meet the female subquota.

8. Comment noted. Updates were made to the FEIS.

9. The CMC would develop recommendations on existing management plans and policies of land and game management agencies, as necessary, for the management of grizzly bears in the Experimental Area. The CMC could make recommendations to these management agencies regarding changes to plans/policies, but the final decision on implementation of those recommendations would be made by those agencies. If the CMC recommendations require significant changes to existing plans and policy, and the agencies tentatively agree to accept those recommendations, then the requirements of NEPA could apply.

10 and 11. Comment noted.

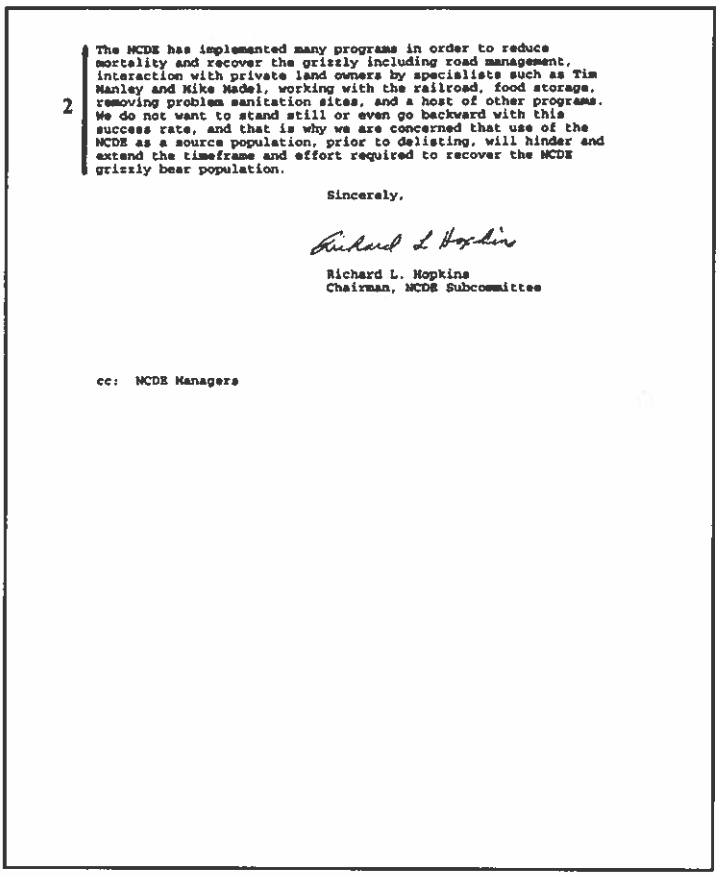
12. Roads closed under Alternative 4 would likely not be available for OHV use. CMC, after evaluation, could make recommendations on types of use for trails.

13. The FEIS expects there would be no trail closures related to grizzly bears. However, OHV use on some currently permitted trails may be restricted on an "as needed" basis.

Federal, USDI Bureau of Land Management, Montana: #1548

1. and 2. It is the intent of the preferred alternative to reintroduce a minimum of 25 grizzly bears over a period of 5 years. The source of the reintroduced bears would be from the North Continental Divide Ecosystem (NCDE), the Yellowstone Ecosystem (YE), and British Columbia. Bears taken from the NCDE and the YE would be lost from these populations and this loss would be a man-caused equivalent to a mortality. Some of these removals could be compensatory to other mortalities. Losses of bears from populations through human-caused actions are regulated and limited to assure the health of these populations. Mortality limits are in effect for both the NCDE and the YE.

Given the current high levels of female grizzly mortality in the NCDE, no females would be removed from this ecosystem for the Bitterroot reintroduction. No bears will be removed from any ecosystem in the U.S. if the mortality limits for that ecosystem have been reached or are even close to being reached. In addition, the USFWS will agree to make the decision to remove bears from any ecosystem in Montana or Wyoming only in consultation with the Fish and Game Department of that state. The USFWS has



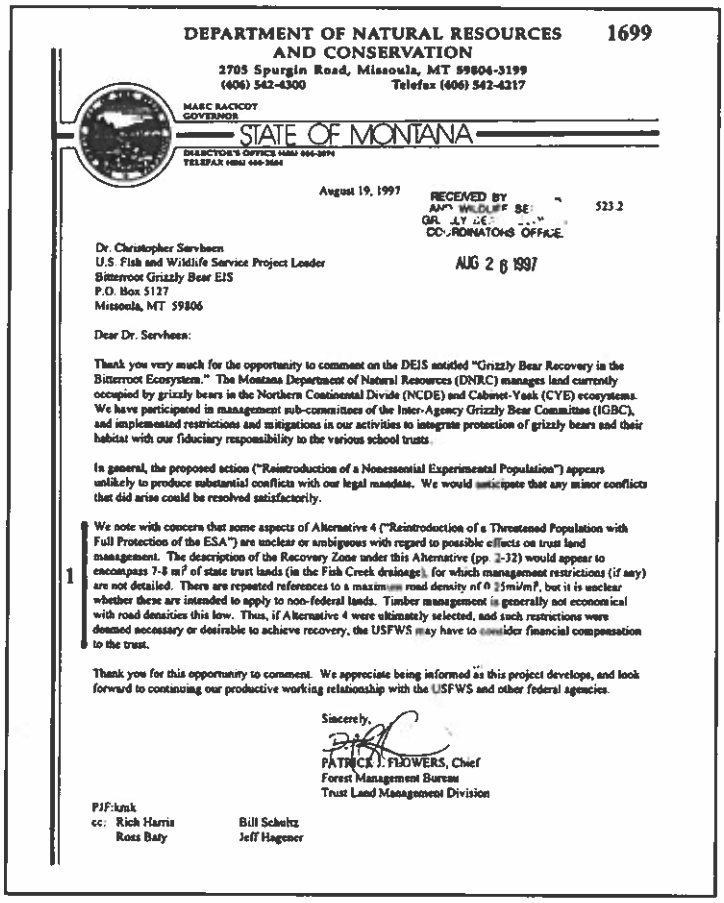
The NCDE has implemented many programs in order to reduce mortality and recover the grizzly including road management, interaction with private land owners by specialists such as Tim Manley and Mike Madel, working with the railroad, food storage, removing problem sanitation sites, and a host of other programs. We do not want to stand still or even go backward with this success rate, and that is why we are concerned that use of the NCDE as a source population, prior to delisting, will hinder and extend the timeframe and effort required to recover the NCDE grizzly bear population. 2

Sincerely,

Richard L. Hopkins

Richard L. Hopkins
Chairman, NCDE Subcommittee

cc: NCDE Managers



DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION 1699
2705 Spurgin Road, Missoula, MT 59804-3199
(406) 542-4300 Telefax (406) 542-4217

MARC RACICOT
GOVERNOR
STATE OF MONTANA

August 19, 1997

RECEIVED BY
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523.2
GREATER YELLOWSTONE
COORDINATORS OFFICE
AUG 2 6 1997

Dr. Christopher Servheen
U.S. Fish and Wildlife Service Project Leader
Bitterroot Grizzly Bear EIS
P.O. Box 5127
Missoula, MT 59806

Dear Dr. Servheen:

Thank you very much for the opportunity to comment on the DEIS entitled "Grizzly Bear Recovery in the Bitterroot Ecosystem." The Montana Department of Natural Resources (DNRC) manages land currently occupied by grizzly bears in the Northern Continental Divide (NCDE) and Cabinet-Yaak (CYE) ecosystems. We have participated in management sub-committees of the Inter-Agency Grizzly Bear Committee (IGBC), and implemented restrictions and mitigations in our activities to integrate protection of grizzly bears and their habitat with our fiduciary responsibility to the various school trusts.

In general, the proposed action ("Reintroduction of a Nonessential Experimental Population") appears unlikely to produce substantial conflicts with our legal mandate. We would anticipate that any minor conflicts that did arise could be resolved satisfactorily.

We note with concern that some aspects of Alternative 4 ("Reintroduction of a Threatened Population with Full Protection of the ESA") are unclear or ambiguous with regard to possible effects on trust land management. The description of the Recovery Zone under this Alternative (pp. 2-32) would appear to encompass 7-8 mi^2 of state trust lands (in the Fish Creek drainage), for which management restrictions (if any) are not detailed. There are repeated references to a maximum road density of 0.25mi/mi^2, but it is unclear whether these are intended to apply to non-federal lands. Timber management is generally not economical with road densities this low. Thus, if Alternative 4 were ultimately selected, and such restrictions were deemed necessary or desirable to achieve recovery, the USFWS may have to consider financial compensation to the trust. 1

Thank you for this opportunity to comment. We appreciate being informed as this project develops, and look forward to continuing our productive working relationship with the USFWS and other federal agencies.

Sincerely,

PATRICK J. FLOWERS, Chief
Forest Management Bureau
Trust Land Management Division

PJF:kmk
cc: Rich Harris Bill Schultz
Ross Baty Jeff Hagener

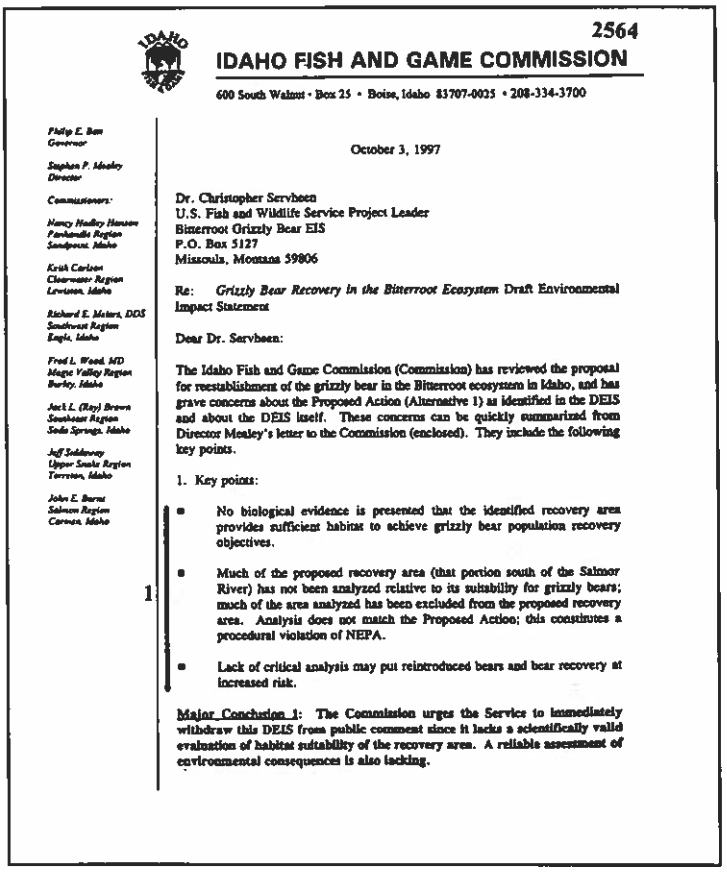
no intentions to allow the removal of any bears from any ecosystems in the U.S. to impede recovery of those source populations and will work in concert with the Fish and Game Departments of those states to judge these possible impacts to assure that this is the case.

Contribution of bears from either ecosystem will be based on the current mortality levels for that ecosystem. Mortality data are updated annually and any removal of bears from either ecosystem will be predicated on achievement of the mortality limits. Since these data are updated each year, it is necessary to recalculate mortality levels for both the NCDE and YE prior to making a decision on the origin of any relocated bears. The specific number of grizzly bears that can be obtained from the NCDE or YE is unknown at this time. The female contribution will be designed to minimize impacts on the source population and no female grizzly bears will be removed from within the NCDE or YE recovery zone boundary or from within 10 miles outside the boundary. The male contribution can be a higher number because population increase is affected little by removal of subadult males. Since no bears will be removed from the YE or NCDE if the mortality limits will be exceeded, and no female bears will be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE will be nonexistent.

State, Montana Department of Natural Resources and Conservation: #1699

1. There are approximately 1,200 acres of State of Montana administered lands within the recovery zone described in Alternative 4. Road management plans described by this alternative apply only to federal lands.

A clarification was also made in the FEIS that the road closures proposed in Alternative 4 are outside the scope of the FEIS, and are not implementable through a Record of Decision signed by the USFWS. Decision documents involving management of resources on National Forest and State lands are the legal responsibility of the USDA Forest Service, and the states of Idaho and Montana, through Forest and State planning processes.



2564

IDAHO FISH AND GAME COMMISSION

600 South Walnut • Box 25 • Boise, Idaho 83707-0025 • 208-334-3700

Philip E. Batt
Governor

Stephen P. Mealey
Director

Commissioners:

Nancy Hedley Hansen
Panhandle Region
Sandpoint, Idaho

Keith Carlson
Clearwater Region
Lewiston, Idaho

Richard E. Waters, DDS
Southwest Region
Eagle, Idaho

Fred L. Wood, MD
Magic Valley Region
Burley, Idaho

Jack L. (Ray) Brown
Southeast Region
Soda Springs, Idaho

Jeff Siddoway
Upper Snake Region
Terreton, Idaho

John E. Barrat
Salmon Region
Carmen, Idaho

October 3, 1997

Dr. Christopher Servheen
U.S. Fish and Wildlife Service Project Leader
Bitterroot Grizzly Bear EIS
P.O. Box 5127
Missoula, Montana 59806

Re: *Grizzly Bear Recovery in the Bitterroot Ecosystem* Draft Environmental Impact Statement

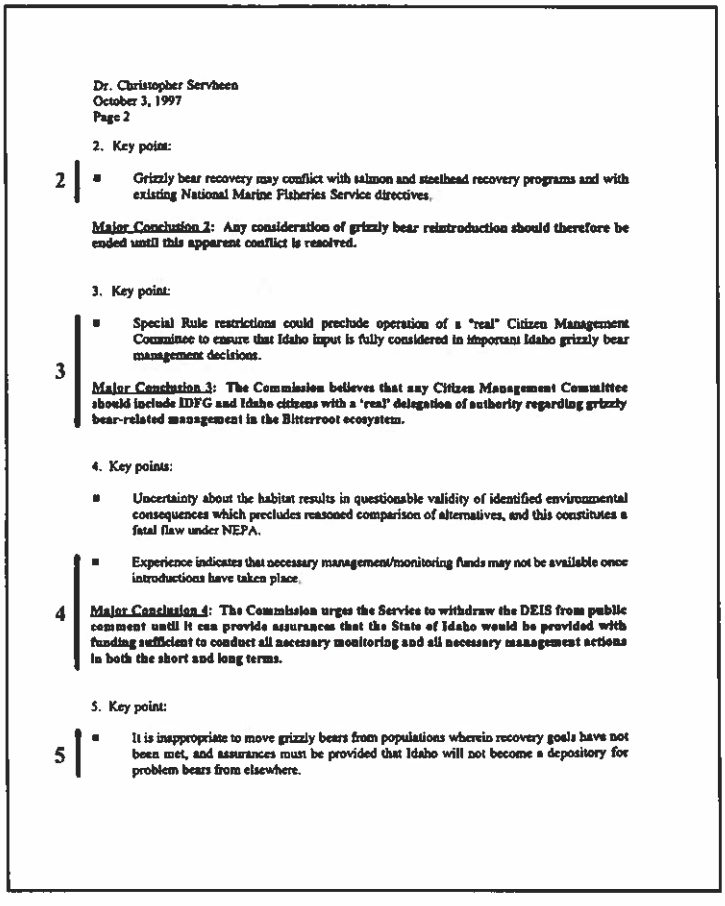
Dear Dr. Servheen:

The Idaho Fish and Game Commission (Commission) has reviewed the proposal for reestablishment of the grizzly bear in the Bitterroot ecosystem in Idaho, and has grave concerns about the Proposed Action (Alternative 1) as identified in the DEIS and about the DEIS itself. These concerns can be quickly summarized from Director Mealey's letter to the Commission (enclosed). They include the following key points.

1. Key points:

1
- No biological evidence is presented that the identified recovery area provides sufficient habitat to achieve grizzly bear population recovery objectives.
- Much of the proposed recovery area (that portion south of the Salmon River) has not been analyzed relative to its suitability for grizzly bears; much of the area analyzed has been excluded from the proposed recovery area. Analysis does not match the Proposed Action; this constitutes a procedural violation of NEPA.
- Lack of critical analysis may put reintroduced bears and bear recovery at increased risk.

Major Conclusion 1: The Commission urges the Service to immediately withdraw this DEIS from public comment since it lacks a scientifically valid evaluation of habitat suitability of the recovery area. A reliable assessment of environmental consequences is also lacking.



Dr. Christopher Servheen
October 3, 1997
Page 2

2. Key point:

2
- Grizzly bear recovery may conflict with salmon and steelhead recovery programs and with existing National Marine Fisheries Service directives.

Major Conclusion 2: Any consideration of grizzly bear reintroduction should therefore be ended until this apparent conflict is resolved.

3. Key point:

3
- Special Rule restrictions could preclude operation of a "real" Citizen Management Committee to ensure that Idaho input is fully considered in important Idaho grizzly bear management decisions.

Major Conclusion 3: The Commission believes that any Citizen Management Committee should include IDFG and Idaho citizens with a 'real' delegation of authority regarding grizzly bear-related management in the Bitterroot ecosystem.

4. Key points:

4
- Uncertainty about the habitat results in questionable validity of identified environmental consequences which precludes reasoned comparison of alternatives, and this constitutes a fatal flaw under NEPA.
- Experience indicates that necessary management/monitoring funds may not be available once introductions have taken place.

Major Conclusion 4: The Commission urges the Service to withdraw the DEIS from public comment until it can provide assurances that the State of Idaho would be provided with funding sufficient to conduct all necessary monitoring and all necessary management actions in both the short and long terms.

5. Key point:

5
- It is inappropriate to move grizzly bears from populations wherein recovery goals have not been met, and assurances must be provided that Idaho will not become a depository for problem bears from elsewhere.

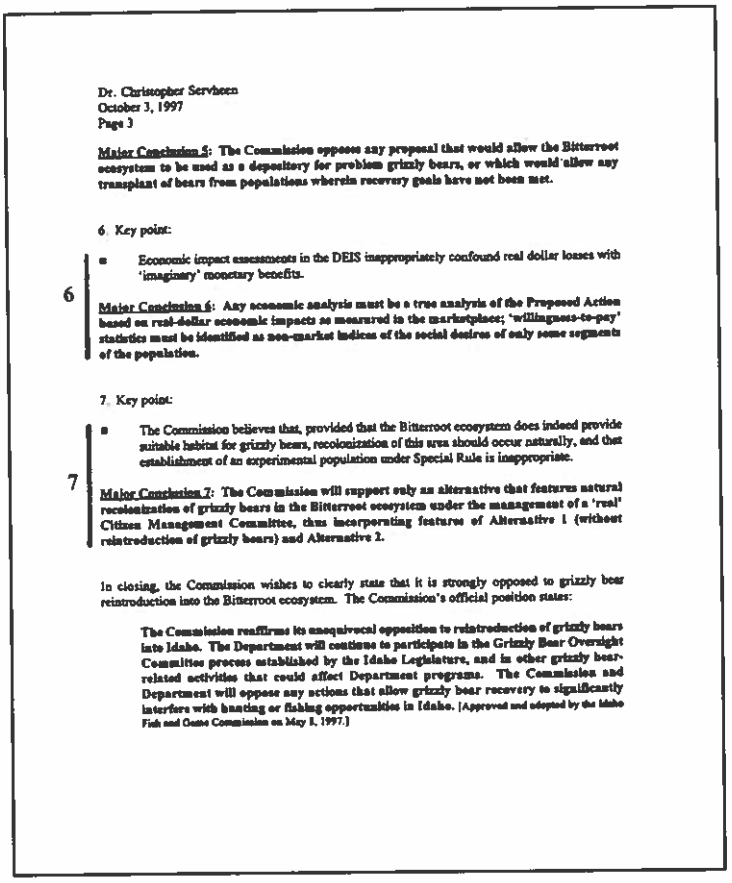
State, Idaho Fish and Game Commission and Idaho Department of Fish and Game: #2564

1. The Grizzly Bear Recovery Plan (USFWS 1993) identified the need to evaluate the Bitterroot Ecosystem (BE) to determine it's suitability as a grizzly bear recovery area. Four studies have been undertaken to evaluate portions of the BE for grizzly bears (Scaggs 1979, Butterfield and Almack 1985, Davis and Butterfield 1991, Merrill et al. 1999). All four of these studies have concluded that the BE contains suitable habitat essential to maintain a grizzly bear population.

The USFWS contracted an independent scientist to conduct a habitat-based population viability analysis for the FEIS. Dr. Mark Boyce was contracted by the USFWS to do a Population Viability Analysis (PVA) of the proposed BE Grizzly Bear Recovery Area. Results of Dr. Boyce's PVA results are presented in FEIS Appendix 21(A, B).

This assessment analyzes the habitat suitability for grizzly bears in the Selway-Bitterroot and Frank Church-River of No Return Wilderness Areas and non-wilderness public lands to the north on the Clearwater National Forest. The entire Frank Church Wilderness was analyzed, including areas south of the Salmon River. Study results indicate the habitat in the BE is capable of supporting a population of 308-321 grizzly bears. This number is 10-15% higher than the USFWS recovery goal estimate because further evaluation of the habitats in the southern portion of the analysis area indicate that even though the forb and berry production in these dry habitats is relatively low, the southern half of the analysis area contains substantial stands of whitebark pine as well as populations of elk and deer that can provide food for grizzly bears. Further, the remoteness of the area and the paucity of roads will help to ensure that a viable population of grizzly bears can persist in the Bitterroot Ecosystem of Idaho and Montana.

Appendix 21D presents data on presence of a variety of grizzly bear foods in the BE. The study by Craighead Wildlife-Wildlands Institute evaluates distribution and abundance of habitats and vegetation suitable for grizzly bears in the Bitterroot Ecosystem. In summary, Appendix 21 provides the best scientific information available to indicate the habitats in the BE are



Dr. Christopher Servheen
October 3, 1997
Page 3

Major Conclusion 5: The Commission opposes any proposal that would allow the Bitterroot ecosystem to be used as a depository for problem grizzly bears, or which would allow any transplant of bears from populations wherein recovery goals have not been met.

6. Key point:

- Economic impact assessments in the DEIS inappropriately confound real dollar losses with 'imaginary' monetary benefits.

6 Major Conclusion 6: Any economic analysis must be a true analysis of the Proposed Action based on real-dollar economic impacts as measured in the marketplace; 'willingness-to-pay' statistics must be identified as non-market indices of the social desires of only some segments of the population.

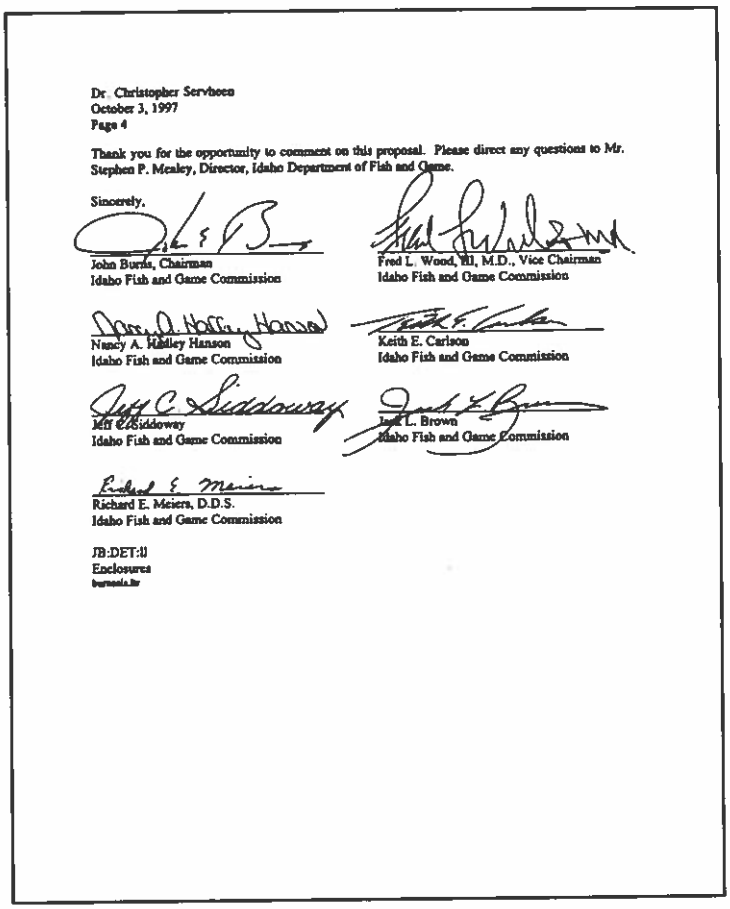
7. Key point:

- The Commission believes that, provided that the Bitterroot ecosystem does indeed provide suitable habitat for grizzly bears, recolonization of this area should occur naturally, and that establishment of an experimental population under Special Rule is inappropriate.

7 Major Conclusion 7: The Commission will support only an alternative that features natural recolonization of grizzly bears in the Bitterroot ecosystem under the management of a 'real' Citizen Management Committee, thus incorporating features of Alternative 1 (without reintroduction of grizzly bears) and Alternative 2.

In closing, the Commission wishes to clearly state that it is strongly opposed to grizzly bear reintroduction into the Bitterroot ecosystem. The Commission's official position states:

> The Commission reaffirms its unequivocal opposition to reintroduction of grizzly bears into Idaho. The Department will continue to participate in the Grizzly Bear Oversight Committee process established by the Idaho Legislature, and in other grizzly bear-related activities that could affect Department programs. The Commission and Department will oppose any actions that allow grizzly bear recovery to significantly interfere with hunting or fishing opportunities in Idaho. [Approved and adopted by the Idaho Fish and Game Commission on May 8, 1997.]



Dr. Christopher Servheen
October 3, 1997
Page 4

Thank you for the opportunity to comment on this proposal. Please direct any questions to Mr. Stephen P. Mealey, Director, Idaho Department of Fish and Game.

Sincerely,

John Burns, Chairman
Idaho Fish and Game Commission

Fred L. Wood, III, M.D., Vice Chairman
Idaho Fish and Game Commission

Nancy A. Hanley Hanson
Idaho Fish and Game Commission

Keith E. Carlson
Idaho Fish and Game Commission

Jeff C. Siddoway
Idaho Fish and Game Commission

Jack L. Brown
Idaho Fish and Game Commission

Richard E. Meiers, D.D.S.
Idaho Fish and Game Commission

JB:DET:ll
Enclosures
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capable of supporting a viable population of grizzly bears.

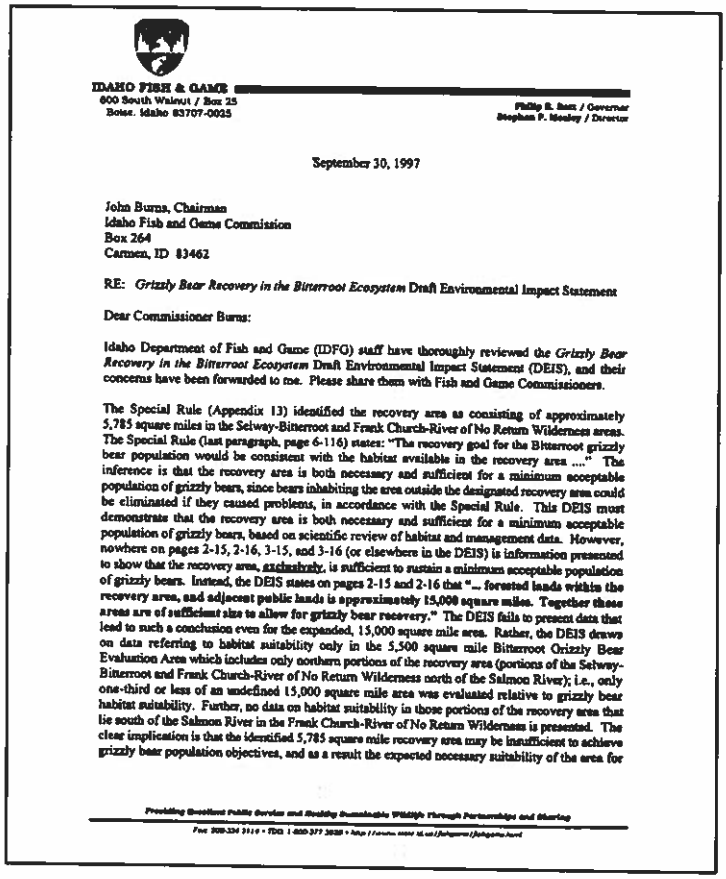
2. The USFWS completed a formal consultation with National Marine Fisheries Service regarding the proposal. The NMFS Biological Opinion as it relates to listed runs of salmon and steelhead is included as Appendix 9B in the FEIS.

3. Alternative 1 does not preclude operation of a "real" citizen management committee. Input from Idaho members on the committee would be fully considered in Idaho grizzly bear management decisions.

4. The Interior Appropriations Bill passed by Congress is on an annual basis. The USFWS can not guarantee sufficient funding to conduct all necessary monitoring and management actions beyond a one-year time period, as permitted by Congress.

5. Contribution of bears from either ecosystem will be based on the current mortality levels for that ecosystem. Mortality data are updated annually and any removal of bears from either ecosystem will be predicated on achievement of the mortality limits. Since these data are updated each year, it is necessary to recalculate mortality levels for both the NCDE and YE prior to making a decision on the origin of any relocated bears. The specific number of grizzly bears that can be obtained from the NCDE or YE is unknown at this time. The female contribution will be designed to minimize impacts on the source population and no female grizzly bears will be removed from within the NCDE or YE recovery zone boundary or from within 10 miles outside the boundary. The male contribution can be a higher number because population increase is affected little by removal of subadult males. Since no bears will be removed from the YE or NCDE if the mortality limits will be exceeded, and no female bears will be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE will be nonexistent.

Also grizzly bears from other ecosystems considered as nuisance bears under the IGBC Nuisance Bear Guidelines would not be reintroduced into the Bitterroot.



IDAHO FISH & GAME
600 South Walnut / Box 25
Boise, Idaho 83707-0025

Philip E. Batt / Governor
Stephen P. Mealey / Director

September 30, 1997

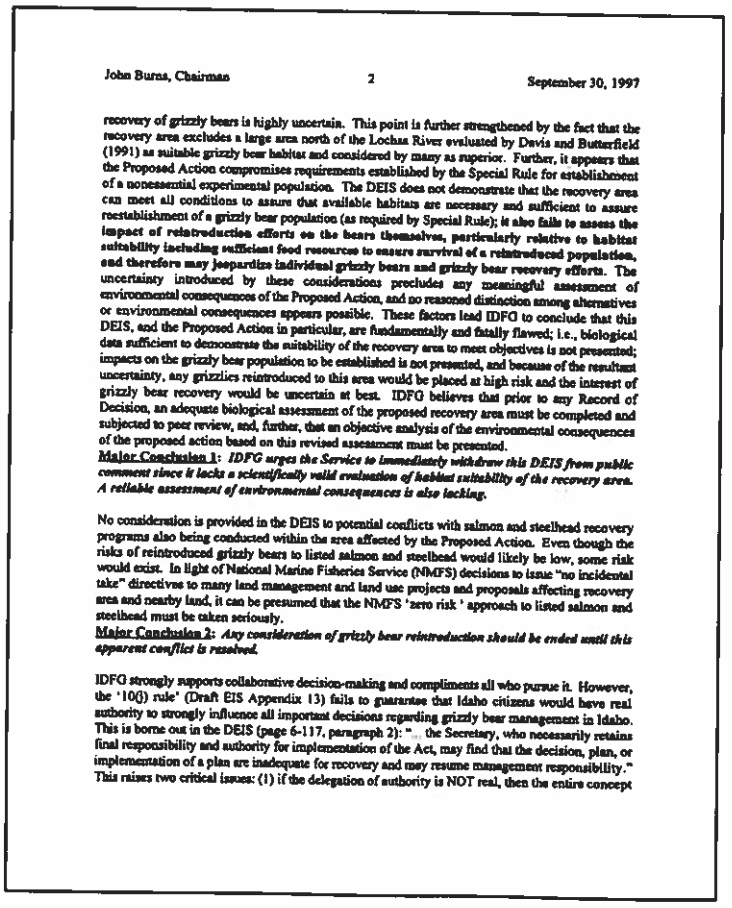
John Burns, Chairman
Idaho Fish and Game Commission
Box 264
Carmen, ID 83462

RE: *Grizzly Bear Recovery in the Bitterroot Ecosystem* Draft Environmental Impact Statement

Dear Commissioner Burns:

Idaho Department of Fish and Game (IDFG) staff have thoroughly reviewed the *Grizzly Bear Recovery in the Bitterroot Ecosystem* Draft Environmental Impact Statement (DEIS), and their concerns have been forwarded to me. Please share them with Fish and Game Commissioners.

The Special Rule (Appendix 13) identified the recovery area as consisting of approximately 5,785 square miles in the Selway-Bitterroot and Frank Church-River of No Return Wilderness areas. The Special Rule (last paragraph, page 6-116) states: "The recovery goal for the Bitterroot grizzly bear population would be consistent with the habitat available in the recovery area ...." The inference is that the recovery area is both necessary and sufficient for a minimum acceptable population of grizzly bears, since bears inhabiting the area outside the designated recovery area could be eliminated if they caused problems, in accordance with the Special Rule. This DEIS must demonstrate that the recovery area is both necessary and sufficient for a minimum acceptable population of grizzly bears, based on scientific review of habitat and management data. However, nowhere on pages 2-15, 2-16, 3-15, and 3-16 (or elsewhere in the DEIS) is information presented to show that the recovery area, exclusively, is sufficient to sustain a minimum acceptable population of grizzly bears. Instead, the DEIS states on pages 2-15 and 2-16 that "... forested lands within the recovery area, and adjacent public lands is approximately 15,000 square miles. Together these areas are of sufficient size to allow for grizzly bear recovery." The DEIS fails to present data that lead to such a conclusion even for the expanded, 15,000 square mile area. Rather, the DEIS draws on data referring to habitat suitability only in the 5,500 square mile Bitterroot Grizzly Bear Evaluation Area which includes only northern portions of the recovery area (portions of the Selway-Bitterroot and Frank Church-River of No Return Wilderness north of the Salmon River); i.e., only one-third or less of an undefined 15,000 square mile area was evaluated relative to grizzly bear habitat suitability. Further, no data on habitat suitability in those portions of the recovery area that lie south of the Salmon River in the Frank Church-River of No Return Wilderness is presented. The clear implication is that the identified 5,785 square mile recovery area may be insufficient to achieve grizzly bear population objectives, and as a result the expected necessary suitability of the area for



recovery of grizzly bears is highly uncertain. This point is further strengthened by the fact that the recovery area excludes a large area north of the Lochsa River evaluated by Davis and Butterfield (1991) as suitable grizzly bear habitat and considered by many as superior. Further, it appears that the Proposed Action compromises requirements established by the Special Rule for establishment of a nonessential experimental population. The DEIS does not demonstrate that the recovery area can meet all conditions to assure that available habitats are necessary and sufficient to assure reestablishment of a grizzly bear population (as required by Special Rule); it also fails to assess the impact of reintroduction efforts on the bears themselves, particularly relative to habitat suitability including sufficient food resources to ensure survival of a reintroduced population, and therefore may jeopardize individual grizzly bears and grizzly bear recovery efforts. The uncertainty introduced by these considerations precludes any meaningful assessment of environmental consequences of the Proposed Action, and no reasoned distinction among alternatives or environmental consequences appears possible. These factors lead IDFG to conclude that this DEIS, and the Proposed Action in particular, are fundamentally and fatally flawed; i.e., biological data sufficient to demonstrate the suitability of the recovery area to meet objectives is not presented; impacts on the grizzly bear population to be established is not presented, and because of the resultant uncertainty, any grizzlies reintroduced to this area would be placed at high risk and the interest of grizzly bear recovery would be uncertain at best. IDFG believes that prior to any Record of Decision, an adequate biological assessment of the proposed recovery area must be completed and subjected to peer review, and, further, that an objective analysis of the environmental consequences of the proposed action based on this revised assessment must be presented.

Major Conclusion 1: ***IDFG urges the Service to immediately withdraw this DEIS from public comment since it lacks a scientifically valid evaluation of habitat suitability of the recovery area. A reliable assessment of environmental consequences is also lacking.***

No consideration is provided in the DEIS to potential conflicts with salmon and steelhead recovery programs also being conducted within the area affected by the Proposed Action. Even though the risks of reintroduced grizzly bears to listed salmon and steelhead would likely be low, some risk would exist. In light of National Marine Fisheries Service (NMFS) decisions to issue "no incidental take" directives to many land management and land use projects and proposals affecting recovery area and nearby land, it can be presumed that the NMFS 'zero risk ' approach to listed salmon and steelhead must be taken seriously.

Major Conclusion 2: ***Any consideration of grizzly bear reintroduction should be ended until this apparent conflict is resolved.***

IDFG strongly supports collaborative decision-making and compliments all who pursue it. However, the '10(j) rule' (Draft EIS Appendix 13) fails to guarantee that Idaho citizens would have real authority to strongly influence all important decisions regarding grizzly bear management in Idaho. This is borne out in the DEIS (page 6-117, paragraph 2): "... the Secretary, who necessarily retains final responsibility and authority for implementation of the Act, may find that the decision, plan, or implementation of a plan are inadequate for recovery and may resume management responsibility." This raises two critical issues: (1) if the delegation of authority is NOT real, then the entire concept

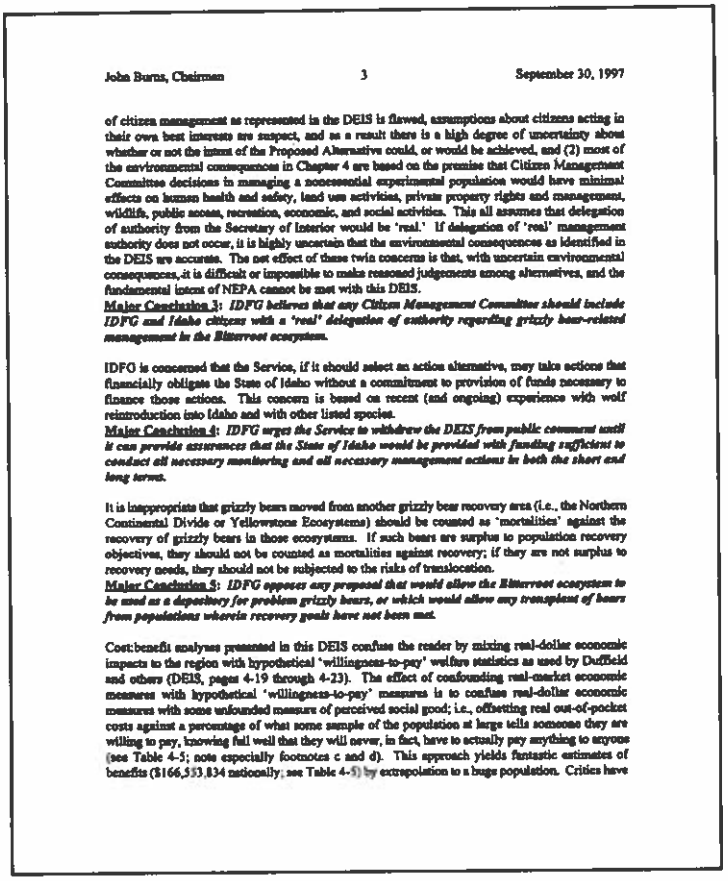
6. The discussion of the estimation of existence values has been expanded and reorganized in the Final EIS to address the concerns of the relationship between the estimated existence values and money spent in the local communities, and the questions of the validity and usefulness of the value estimates. Additionally, the survey instrument used in the analysis of existence values is attached as an appendix to the final document (Appendix 17A). In addition to these changes in the Final EIS the following comments are offered to address concerns raised about the existence value estimates.

Impacts associated with grizzly reintroduction in the BE can be measured using different accounting frameworks. The one which perhaps most people are familiar with relates to expenditures; how much more or less money is spent in an area as a result of a management change. Expenditure changes are rightfully of concern to local areas impacted by management actions. Changes in local expenditures impact local workers, businesses, and governments. From a national perspective, however, expenditure gains in one area tend to be offset by expenditure losses in another. Expenditure impacts (particularly from tourism) are largely distributional impacts, benefitting one area at the expense of another.

A second accounting framework, a benefit-cost framework, measures not expenditures, but societal benefits and costs. Benefits and costs can be closely, or loosely tied to actual market transactions. In the case of grizzly recovery, livestock losses are closely tied to market transactions while existence values are less obviously tied to the market.

It is important not to confuse these two accounting frameworks. The estimated annual existence value associated with grizzly reintroduction as reported in the FEIS would NOT be characterized by increased expenditures in the recovery area. Rather, these estimates represent aggregate increases in value to people in the U.S. accruing as a result of grizzly reintroduction. A portion (but only a very small portion) of this non-market value would accrue to residents of the local area surrounding the recovery area.

A second major concern raised in your comments questions the validity and usefulness of the existence value estimates. While the use of contingent valuation methods to estimate



John Burns, Chairman 3 September 30, 1997

of citizen management as represented in the DEIS is flawed, assumptions about citizens acting in their own best interests are suspect, and as a result there is a high degree of uncertainty about whether or not the intent of the Proposed Alternative could, or would be achieved, and (2) most of the environmental consequences in Chapter 4 are based on the premise that Citizen Management Committee decisions in managing a nonessential experimental population would have minimal effects on human health and safety, land use activities, private property rights and management, wildlife, public access, recreation, economic, and social activities. This all assumes that delegation of authority from the Secretary of Interior would be 'real.' If delegation of 'real' management authority does not occur, it is highly uncertain that the environmental consequences as identified in the DEIS are accurate. The net effect of these twin concerns is that, with uncertain environmental consequences, it is difficult or impossible to make reasoned judgements among alternatives, and the fundamental intent of NEPA cannot be met with this DEIS.

Major Conclusion 3: *IDFG believes that any Citizen Management Committee should include IDFG and Idaho citizens with a 'real' delegation of authority regarding grizzly bear-related management in the Bitterroot ecosystem.*

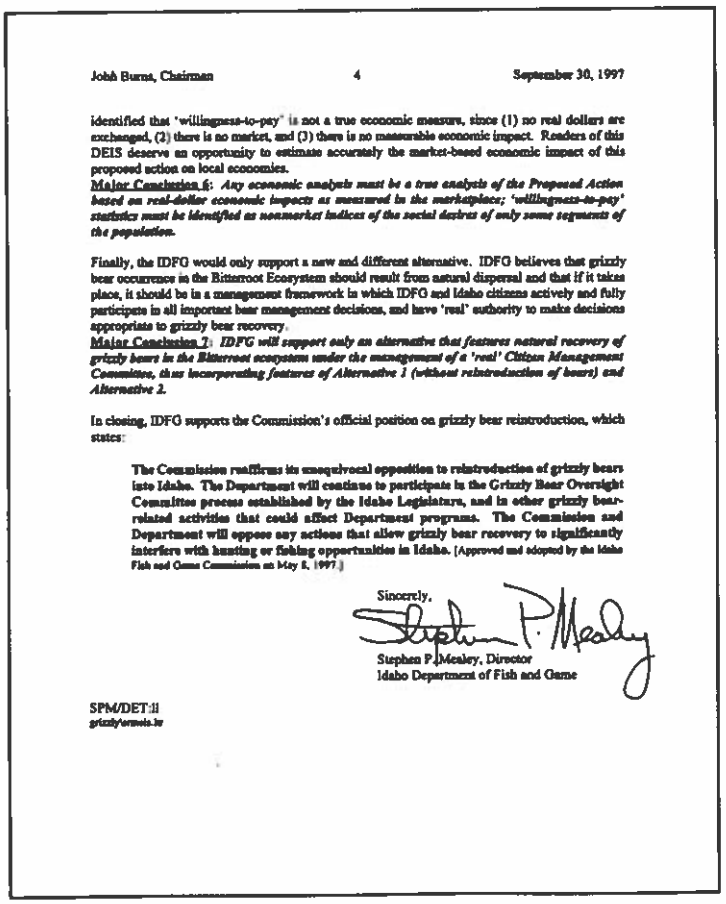
IDFG is concerned that the Service, if it should select an action alternative, may take actions that financially obligate the State of Idaho without a commitment to provision of funds necessary to finance those actions. This concern is based on recent (and ongoing) experience with wolf reintroduction into Idaho and with other listed species.

Major Conclusion 4: *IDFG urges the Service to withdraw the DEIS from public comment until it can provide assurances that the State of Idaho would be provided with funding sufficient to conduct all necessary monitoring and all necessary management actions in both the short and long terms.*

It is inappropriate that grizzly bears moved from another grizzly bear recovery area (i.e., the Northern Continental Divide or Yellowstone Ecosystems) should be counted as 'mortalities' against the recovery of grizzly bears in those ecosystems. If such bears are surplus to population recovery objectives, they should not be counted as mortalities against recovery; if they are not surplus to recovery needs, they should not be subjected to the risks of translocation.

Major Conclusion 5: *IDFG opposes any proposal that would allow the Bitterroot ecosystem to be used as a depository for problem grizzly bears, or which would allow any transplant of bears from populations wherein recovery goals have not been met.*

Cost:benefit analyses presented in this DEIS confuse the reader by mixing real-dollar economic impacts to the region with hypothetical 'willingness-to-pay' welfare statistics as used by Duffield and others (DEIS, pages 4-19 through 4-23). The effect of confounding real-market economic measures with hypothetical 'willingness-to-pay' measures is to confuse real-dollar economic measures with some unfounded measure of perceived social good; i.e., offsetting real out-of-pocket costs against a percentage of what some sample of the population at large tells someone they are willing to pay, knowing full well that they will never, in fact, have to actually pay anything to anyone (see Table 4-5; note especially footnotes c and d). This approach yields fantastic estimates of benefits ($166,553,834 nationally; see Table 4-5) by extrapolation to a huge population. Critics have



John Burns, Chairman 4 September 30, 1997

identified that 'willingness-to-pay' is not a true economic measure, since (1) no real dollars are exchanged, (2) there is no market, and (3) there is no measurable economic impact. Readers of this DEIS deserve an opportunity to estimate accurately the market-based economic impact of this proposed action on local economies.

Major Conclusion 6: *Any economic analysis must be a true analysis of the Proposed Action based on real-dollar economic impacts as measured in the marketplace; 'willingness-to-pay' statistics must be identified as nonmarket indices of the social desires of only some segments of the population.*

Finally, the IDFG would only support a new and different alternative. IDFG believes that grizzly bear occurrence in the Bitterroot Ecosystem should result from natural dispersal and that if it takes place, it should be in a management framework in which IDFG and Idaho citizens actively and fully participate in all important bear management decisions, and have 'real' authority to make decisions appropriate to grizzly bear recovery.

Major Conclusion 7: *IDFG will support only an alternative that features natural recovery of grizzly bears in the Bitterroot ecosystem under the management of a 'real' Citizen Management Committee, thus incorporating features of Alternative 1 (without reintroduction of bears) and Alternative 2.*

In closing, IDFG supports the Commission's official position on grizzly bear reintroduction, which states:

> **The Commission reaffirms its unequivocal opposition to reintroduction of grizzly bears into Idaho. The Department will continue to participate in the Grizzly Bear Oversight Committee process established by the Idaho Legislature, and in other grizzly bear-related activities that could affect Department programs. The Commission and Department will oppose any actions that allow grizzly bear recovery to significantly interfere with hunting or fishing opportunities in Idaho.** [Approved and adopted by the Idaho Fish and Game Commission on May 8, 1997.]

Sincerely,

Stephen P. Mealey, Director
Idaho Department of Fish and Game

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passive use values associated with proposed management changes is not a perfect tool, it is the only accepted tool currently available to economists to measure these types of non-use values. The general approach of using contingent valuation to measure passive-use values has been subject to a court test in a challenge to the 1986 DOI CERCLA regulations(Ohio v. DOI, 880 F.2d 432,474 (D.C. Circuit 1989)). Additionally, in 1992 the National Oceanic and Atmospheric Administration (NOAA) appointed a distinguished panel (including several Nobel laureates in economics) to evaluate the approach in the context of implementing the Oil Pollution Act of 1990. In both instances the method has been judged to be a useful tool for valuation in the context of litigation. For example, the NOAA panel concluded that: "CV studies can produce estimates reliable enough to be the starting point of a judicial process of damage assessment, including lost passive-use values" (Arrow et. al. 1993). It is clear from the above statement that passive-use value estimation using contingent valuation does not produce an irrefutably accurate estimate of value, nor is it claimed to. Rather, the method employed in the DEIS provides a rough approximation of the existence value associated with grizzly reintroduction.

7. There is only a remote likelihood that recovery of grizzly bears will occur in the BE through natural recolonization because grizzly bears do not rapidly disperse and colonize distant, disjunct areas (USFWS 1993, 1996). The closest population of grizzly bears to the BE is 80 miles north of the BE. This population is in the Cabinet-Yaak Ecosystem. Population levels in the Cabinet Mountain portion of the Cabinet-Yaak Ecosystem were estimated to be 15 or fewer grizzly bears (Kasworm and Manley 1988).

Further, given the fact that none of the more than 550 grizzly bears that have been radio-collared and tracked over the past 23 years have ever moved between any existing ecosystems, the likelihood of natural immigration and recovery is not a near-term possibility. Thus, placement of bears in the Bitterroot will allow this population to begin to grow into a healthy population now rather than waiting for the possible future dispersal of bears from distant geographically separated ecosystems.

Responses to Major Issues Raised About the Draft EIS During the Public Comment Period

This section responds to the significant issues addressed by the public in their comments on the Draft Environmental Impact Statement (DEIS), "Grizzly Bear Recovery in the Bitterroot Ecosystem." A detailed summary report and an executive summary report of 24,251 public comments were prepared and released to the public in April 1998 and this discussion follows the format in those documents (U.S. Fish and Wildlife Service, Summary of Public Comments on the Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem, April 1998).

The major issues raised during public review of the Draft EIS are identified below. Responses are provided for each issue. Issues that were interrelated were grouped and discussed together. A few were actually parts or subissues of major issues and although comments were identified in each "subissue," they were sometimes combined under one issue. Issues that received the most comments from respondents were: Recovery Area Boundaries; Bear Sources; Experimental Nonessential Population; ESA; Restrictions on Use of Public Lands; Local Control; Best Available Science; Grizzly Bear as a Missing Component of the Ecosystem; What is a Viable Grizzly Population; Population Corridor Linkages; Range Requirements of Grizzly; Effects to Grizzly (genetics, disease, bear safety, adequate food); Ecosystem Protection; Effects of Grizzlies on Human Health and Safety; Effects of Grizzlies on Livestock and Pets; Effects of Grizzlies on Big Game Species and Hunting Opportunities; Effects of Grizzlies on Recreational Opportunities and Public Access; Effects on Local Economy (jobs); Need for Education. The responses to issues in this section serve as a supplement to the discussions in Chapter 1 regarding issues. The USFWS found few instances where changes were required in its earlier discussions of the issues identified during public scoping.

THE DEIS (DRAFT ENVIRONMENTAL IMPACT STATEMENT)

1. Corrections to Facts and Data in the DEIS, and Questions Regarding the Data Used.— A number of people questioned the data used throughout the DEIS. They made the general comment that the data is the basis for meeting the objectives of the reintroduction program. Many people questioned if the habitat in the BE (Bitterroot Ecosystem) can support a recovered grizzly bear population. Some people felt grizzly bears exist in the BE currently at a level the habitat can support. Some people commented the experimental nonessential designation would not be legal under 10(j) of the ESA because they question if the Selway Bitterroot ecosystem is geographically separated from other ecosystems such as the Cabinet/Yaak. The data presented in the Economic Analysis was disputed by people both for and against bear recovery.

There were many questions asked and comments made about specific items in the document, as well as suggestions for corrections or changes on specific pages. Because there were too many of these to include in this summary and they are too varied to summarize, the reader is referred to the Summary of Public Comments on the Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem (USFWS 1998). The main categories under which the public questioned the data used in the DEIS include: legal aspects, language corrections, livestock and wildlife mortality, growth rate data, public opinion poll, timber management, road and trail management, human population density data, and economic analysis. A few popular comments to specific data are highlighted here.

"The DEIS incorrectly cites papers by Melquist (1985) and Groves (1987) as presenting conclusive evidence supportive of the USFWS position that there are no grizzly bears in the Bitterroot Recovery Area. Both papers contained sections on conclusions that at least a few grizzlies were likely to be inhabiting the area."

"The 'moving windows' technique is the current best available science and must be used in the FEIS to accurately report road/trail densities. Second, some of the 'trails' are apparently open to motorized use but we are not told what percent of mi./sq.mi. As far as bears are concerned, these are 'roads' and need to be reported separately from hiking only trails. Third, high use trails have been shown to cause grizzlies to under-use habitat, yet we are not told if any of these exist, and if so where."

"...adequacy and scientific basis of the cost-benefit analyses, Is there a more rigorous and defendable valuation methodology? ...use of the economic analysis endorsed by the Alliance for Wild Rockies is not defensible in this context."

Response.— There are many questions asked and comments made about specific items in the document, as well as suggestions for corrections or changes on specific pages. The EIS Team reviewed the content analysis report, and where possible reviewed the original letters. Based on public comment, corrections were made to the FEIS, and additional analyses performed as appropriate.

*2. **Comments on the NEPA Process and Public Involvement.***— Many people felt the DEIS violated NEPA, the National Environmental Policy Act, because it didn't offer a true range of alternatives including a "No Action" alternative. Conversely, some respondents stated the "No Action" alternative should not have been included in the DEIS because that action would be a direct violation of ESA. Respondents frequently called for a new DEIS and analysis. Some people believed more public hearings should have been held and others requested a state-wide referendum on the reintroduction. Some people commented that the public hearings were "rigged" because elected officials were allowed to speak first and were not subject to a random drawing. Several people were particularly critical of the Salmon hearing. Many people questioned whether their comments will count or make a difference, that the decision has already been made, and the FWS is not going to listen to local concerns. Several people claimed the public involvement process was not well publicized. They contend the effected people were not informed about the hearings nor were people coached on how to make official comments.

"We believe that the success of this endeavor hinges upon broad public acceptance of a method for bear recovery. The decision-making process should allow more time for an active public out-reach program that reaches down to county and local groups, elected officials, and concerned individuals...The proposed reintroduction schedule for the preferred alternative seems ambitious given the need to have the broader base of public support .... Adequate time should be added to the reintroduction schedule for this alternative."

"The Draft EIS violates the National Environmental Policy Act. It does not include a full range of alternatives. In particular it does not include an alternative that will eliminate the conflicts between opposing groups regarding Grizzly bears and provide for the future of the Grizzly bear...The missing alternative would, based on the expanding populations of Grizzly bears in other Montana areas, delist the Grizzly bear, and revest the management of the bear in the respective states. Allow Grizzly bears to reoccupy the Bitterroot ecosystem on their own volition, and as the habitat will support."

Response.— The DEIS was prepared by an interagency interdisciplinary team that followed NEPA procedures. Every attempt was made to conduct a fair and unbiased analysis. Two additional alternatives have been added

to the FEIS in response to public comment. Public involvement throughout the NEPA process has been extensive, as documented on page 5-9. Hearings on the DEIS were conducted in a manner and at selected locations to encourage public comment and give as many people as possible opportunity to comment. Hearings were well publicized in local media.

*3. **Purpose and Need.***— People who questioned the *need* to reintroduce grizzly bears into the BE felt the grizzly is not endangered. The fact that there are many bears in Alaska and Canada confuses people as to why the bear is listed in the lower 48 states. People commented that there are bears in Yellowstone and in the Northern Continental Divide Ecosystem, so why should we reintroduce them into the BE? Many comments questioned why the preferred alternative proposes an 'experimental non-essential' population, if reintroduction of grizzlies into the BE is critical to their survival? Some people felt there is a population of grizzly bears currently in the BE and the USFWS should not play an active role in this population's expansion.

> "There is nothing in the EIS that establishes that reintroduction of Grizzly bears into the Bitterroot ecosystem is essential for the maintenance of a healthy, viable Grizzly bear population, either in the lower 48 United States, in North America, or in the world. In fact the preferred alternative recommends that reintroduced grizzlies be established as, 'experimental, non-essential', meaning that the survival of this population of Grizzlies is not required to maintain the Grizzly as a species.
>
> "The 'Need for Action' section on pages 1-4 and 1-5 should explicitly state that USFWS is not legally required to reintroduce grizzly bears in the BE. There is considerable confusion among constituent groups regarding whether introduction of an experimental non-essential species is a mandatory act. By creating the impression that USFWS is legally required to reintroduce grizzly bears into the BE, the DEIS offers the public a false choice."

Response.— The experimental designation is supported by the USFWS because the restoration of grizzly bears into the Bitterroot would increase the probability of maintaining healthy grizzly populations south of Canada, but it is not essential to maintaining such healthy populations. A metapopulation analysis by Dr. Mark Boyce indicates there would be a significant reduction in the probability of extinction for grizzly bears in the United States with a restored Bitterroot population.

*4. **Publication of the Proposed Rule in the Federal Register.***— Most of the comments regarding the publication of the Proposed Rule were critical. Most respondents felt it did not meet the design or intent of the Endangered Species Act and it circumvented the present protection given to grizzly bears. Some questioned whether it was legal to publish the preferred alternative and not the other alternatives because it appeared the decision had already been made. They also claimed this violated the intent of NEPA to present all alternatives in an equal fashion. They suggested numerous changes to the wording in the proposed rule.

> "This leads one to conclude that the decision on which plan to implement has already been made, instead of the required NEPA process to determine the best alternative to choose. Only AFTER the record of decision has been signed, should comment be solicited on the proposed rule change."
>
> "Section 17.84(k)(12)(ii)(L) of the proposed rule specifies that" private lands outside the national forest boundary in the Bitterroot Valley are an area where any human/grizzly conflicts would be considered significant. Grizzly bear occupancy will be discouraged in these areas and grizzly bears will be captured and returned to the Recovery Area." This seems like a reasonable proposal for reducing the likelihood of

> human/grizzly conflicts, but it also seems arbitrary and discriminatory not to authorize similar guidelines for private lands in Idaho. Why should private landowners in and adjacent to the Experimental Area in Idaho be treated any differently than private landowners in Montana?"

Response.— The NEPA process is being followed, and the proposed rule was written on the preferred alternative as identified in the DEIS. The FEIS has been modified to be responsive to public comments received on the DEIS and proposed rule. The Record of Decision will document the selection of an alternative and the rationale for its selection by the USFWS. If Alternative 1 is selected, the special rule will be finalized and will reflect the changes to FEIS Alternative 1. If the selected alternative is Alternative 1, then the implementation process will have been streamlined, saving taxpayer dollars. The FEIS has been modified to include a provision that any grizzly bear that occupies inhabited human settlement areas on private land within the Experimental Area that in the judgement of the management agencies/CMC presents a clear threat to human safety or where there is indication that it may become habituated to humans, may be relocated by management agencies. This is to prevent conflicts and possible bear-human injury or the death of bears, and to promote and enhance public safety.

*5. **Experimental, Non-essential Population Designation.***— A few individuals supported the experimental, non-essential designation as provided in Alternative 1 and published in the proposed special rule. They supported this designation primarily because it would allow more flexibility in dealing with human/bear conflict than would exist if the grizzly bears were listed as fully threatened under Endangered Species Act, and could better address unique local concerns. On the other hand, critics of this designation claimed it would provide no protection of habitat, while altering the status of the grizzly bears which would undermine the ESA. They also denounced this designation because there would be no linkages between this population and other populations in the Northern Rockies. Several respondents claimed there is evidence grizzly bears are already in the area and designation as experimental, non-essential must be denied. Some suggested the agencies are trying to justify the experimental, non-essential designation by artificially isolating the Bitterroot Ecosystem.

> "A designation of nonessential and experimental will help appease people opposing the proposal and might also help limit human/bear conflicts...The grizzly bears in the Bob Marshall and the Cabinet Mountains seem to avoid people and are rarely a problem, as far as I'm aware. Historically, they have also been less protected and this seems to have fostered a healthy respect of humans."

> "...downgrading protected Yellowstone and Northern Continental Divide Grizzlies to an `experimental, non-essential' population is dangerous. Not only will it threaten the populations the bears are taken from, but it also does nothing to protect the habitat in the area the bears are going to."

Response.— Numerous public comments and positions of elected local, state, and federal government officials during the early scoping processes for the Bitterroot DEIS indicated they would repeatedly and fervently resist attempts to reintroduce grizzly bears without assurances that current uses of public and private lands would not be disrupted by recovery activities and that grizzly bears that attack livestock would be controlled. Such assurances can be made under nonessential experimental population designation.

The use of listed members of a species to create an experimental population of that species in a currently unoccupied area is what was intended by Congress in the amendments adding the 10(j) experimental population opportunity. Thus, experimental populations of California condors, blackfooted ferrets, and Mexican wolves have all used animals from listed populations as founders. Experimental status does not

preclude linkage with other ecosystems, it requires that there be no population of the animal in question present, and that the area be geographically separated. The Bitterroot qualifies for experimental status for grizzly bears on both counts. If the Bitterroot is eventually linked to other existing populations, which is desirable and so stated in the Grizzly Bear Recovery Plan, such linkage may be in fact initiated by the members of the Bitterroot population expanding their range toward the closest population, the Cabinet-Yaak population, not the other way around.

*6. **Consultation with the Fish & Wildlife Service.***— Most of the comments were critical of the Alternative 1 proposal to allow for resource extraction activities to continue without formal Section 7 consultation under Section 7(a)(2) of the Endangered Species Act. Many saw this as sacrificing habitat necessary to ensure the grizzly bears would survive (especially roadless areas). A few people responding to this issue said they supported the proposal to do away with the Section 7 consultation under the Endangered Species Act in order to continue resource extraction activities. They said it would give management agencies more flexibility and that formal consultation creates a negative impact on recreational use of the forests.

> "The recovery program might, in the long term, be jeopardized by the cumulative habitat degradation which will occur due to the omission of Section 7 consultation by the U.S. Forest Service and other agencies."
>
> "..we underestimate what the negative impact Section 7 consultation can be on our use, recreational use of the forest."

Response.— Under Alternative 1, formal Section 7 (a)(2) consultation will not be required, however, because nonessential experimental grizzly bears will be treated as a species proposed for listing, the conferencing requirements under section 7(a)(4) will apply. The nonessential experimental status without the requirements of ESA Section 7(a)(2) will lessen economic impacts on local communities, and increase the probability of a successful reintroduction of grizzly bears in the BE.

Also, numerous protections for insuring the success of the Bitterooot recovery effort have been included in FEIS Alternative 1. Under Alternative 1, existing Forest Plan standards and guidelines, as amended, will be deemed adequate pending review by the CMC. A primary task of the CMC is to assess the adequacy of existing management techniques, standards and guidelines, primarily through their reviews of grizzly bear mortalities. If the CMC deems such standards and guidelines inadequate for recovery of grizzly bears, the CMC may recommend changes to the U.S. Forest Service and other agencies and landowners. The CMC must make decisions and take actions that lead to grizzly bear recovery. If the Secretary determines their actions are not leading to recovery, he/she may resume lead management responsibility for the Bitterroot experimental population.

*7. **Endangered Species Act.***— A few individuals applauded the Fish & Wildlife Service for their positive and significant breakthrough interpretation of the Endangered Species Act. Most of the comments, however, were extremely critical of what they saw as a misinterpretation of the ESA. Many questioned the legality of altering the protective status of the grizzly bears under the proposed action, and thought it would undermine the integrity and intent of the ESA. Several also observed that Section 10(j) contains no provisions to authorize the delegation of ESA responsibilities to a citizen committee. Supporters of Alternative 3 frequently called for de-listing the grizzly bears as they believe there are already plenty of grizzlies. Critics of Alternative 3 claimed it does not meet the legal mandates of the ESA and should not have been included in the DEIS. A great number of individuals who supported Alternative 4 said it was because it maintained full protection under the ESA for

all grizzly bears.

> " ...the Endangered Species Act directs us to recover grizzly bear populations. However, it provides broad discretion in how management responsibilities are met, especially where experimental populations are designated. We sincerely believe that the Citizen Management Alternative best accommodates the recovery of a grizzly bear population while sustaining vibrant economies and allowing effective citizen participation."
>
> "The reduced level of protection under the Endangered Species Act will lead to a greater number of mortalities and more severe destruction of habitat, thereby jeopardizing the chances of successful reintroduction."

Response.— The experimental designation is supported by the USFWS because the restoration of grizzly bears into the Bitterroot would increase the probability of maintaining health grizzly populations south of Canada, but it is not essential to maintaining such healthy populations. Bears in the experimental population in the Bitterroot would be fully protected against illegal killing under federal law under the ESA. Grizzly bears could only be killed in the Bitterroot in self defense or defense of others (as in all fully listed populations), or, in the special circumstance on private land where a depredating bear was unable to be captured by state or federal management officials, a permit could be issued to that landowner to kill that bear. Otherwise killing of bears in the experimental Bitterroot population is illegal and would be prosecuted under federal law. Also, an additional alternative to reintroduce grizzly bears as fully threatened to the BE has been added to the FEIS (Alternative 4A).

8. ***Need to Revise Current Analysis, and Need for Research.***— Comments toward revising current analysis and suggested research topics were wide ranging and diverse. Several themes appeared: the economic analysis did not represent real dollars, the cost of the proposal was underestimated, and the losses to wildlife and livestock were underestimated. Other issues mentioned in lesser degrees were: what is the maximum number of bears that would be in the BE, genetic isolation from other bear populations, habitat suitability of the BE, the effect of a growing human population within the recovery zone, and logging in the Cove Mallard roadless area.

> "The Grizzly Bear Recovery in the Bitterroot Ecosystem fails to note the off-highway vehicle use is also expected to have moderate growth to the year 2010. Last year, our off-highway motorbike/ATV registrations grew 18%. Our program recommends that the Fish and Wildlife Service use our new 1997 Idaho Comprehensive Outdoor Recreation and Tourism Plan for more up to date information in the final report."
>
> "In estimating predation on livestock and ungulates, it is indicated that a recovered population would kill up to 504 ungulates per year...Though not stated , in reading your rational, one would have to assume these levels would not actually be attained until recovery was fully achieved, or approximately 100 years. It may help to clarify this aspect of the proposal."
>
> "...it's important for the service to take advantage of opportunities in 1998 to gather additional information on habitat quality, especially south of the Salmon River. We also urge the Service to incorporate the data on habitat quality in this area that have been developed by Dr. David Mattson."

Response.— The EIS Team revised the analyses in the DEIS and conducted further research for inclusion in the FEIS. The economic analysis was revised and clarified (Chapter 4 and Appendix 17). A research project

was contracted to an independent scientist to evaluate the habitat capability of the BE for grizzly bears, and to evaluate the contribution of a Bitterroot population to grizzly bear conservation in the lower 48 States (Appendix 21).

9. Additional Analysis Needed.— Many individuals suggested additional analysis was needed. Those comments fall into the major categories; economic analysis, habitat analysis, human safety, delisting, relationship with other wildlife species, source bears. Other concerns raised less frequently included the effects of recovery activity on wilderness and wilderness values from motorized intrusions. Several people questioned the validity of the survey and economic analysis done by the USFWS stating they do not know of anyone contacted for such studies. People wanted a better explanation of how expected human injury/mortality and livestock losses were developed. People requested more information on how the Citizens Management Committee would operate, whether their actions would be subject to NEPA, and how internal conflicts would be resolved. Several people called for more analysis on the effects of recovery on recreation and hunting opportunities within the recovery area. One person felt the DEIS did not account for inflation and the real cost of goods and services over time with regards to the projected budgets. Another individual claimed the Grizzly bear DEIS needed to be integrated with the Upper Columbia River Basin DEIS.

> "The DEIS is quite deficient on quantification of food supplies, indicating only that the appropriate vegetation types and known Grizzly Bear food plants are present in the BE. Vegetation types...should not be so used to predict wildlife habitat quality-only the possibility that a species might be present...the fact that Grizzly Bear foods are present says nothing about abundance and nutritional value, two topics for which the DEIS offers no information..."

> "...The final EIS must include a comprehensive analysis of what effect grizzly bear recovery in the GSBE will have on other threatened and endangered species such as salmon and steelhead. In other words, a multiple species ecosystem approach should be taken that does not benefit one species while at the same time it increases the imperilment of other species."

Response.— Dr. Mark Boyce completed a habitat-based population assessment of the BE, and it is included as Appendix 21(A, B) in the FEIS. This assessment indicates the habitat in the BE is capable of supporting a population of 308-321 grizzly bears. This number is 10-15% higher than the USFWS recovery goal estimate because further evaluation of the habitats in the southern portion of the Ecosystem indicate that even though the forb and berry production in these dry habitats is relatively low, the southern half of the Bitterroot Ecosystem contains substantial stands of whitebark pine as well as populations of elk and deer that can provide food for grizzly bears. Further, the remoteness of the area and the paucity of roads will help to ensure that a viable population of grizzly bears can persist in the Bitterroot Ecosystem of Idaho and Montana. Appendix 21D presents data on presence of a variety of grizzly bear foods in the BE. In summary, Appendix 21 provides the best scientific information available to indicate the habitats in the BE are capable of supporting a viable population of grizzly bears. Appendix 9B is the National Marine Fisheries Service Biological Opinion on the impacts to listed salmon and steelhead from the proposed recovery of grizzly bears in the BE. Finally, all the analyses in the FEIS, including the data used have been updated from the DEIS.

MANAGEMENT STRATEGIES

1. Strategies to Control Nuisance Grizzlies (Moving/Killing/Behavioral Conditioning).— Comments on this issue were divided between those who want to see grizzly bears shot for harassing livestock and those who

do not want to remove such bears. No one suggested any new techniques for handling bear conflicts. Several people were concerned about the additional burdens that nuisance bears would put on their livelihood. It was not clear to the public that the IGBC Nuisance Bear Guidelines exist and how these would effect bear management in the BE. Some people felt nuisance bears wouldn't be an issue if they were not transplanted in the first place. Others commented on the appropriate time for a member of the public to shoot a bear. Some felt it should be allowed to protect one's property while others believed the only time to shoot a bear should be in defense of human life.

> "If bears should get on anybody's property and damage it in any way, they should be shot and killed."

> "I think shooting a bear is only justified when your life is in danger."

Response.— The IGBC Nuisance Bear Guidelines and their role in grizzly bear management have been clarified in the FEIS (Appendix 15). Alternative 1 also provides some additional management strategies for nuisance bears.

2. Illegal Killing of Grizzly Bears; Humane Treatment of Grizzlies; Effects to Grizzlies (Genetics, Disease, Colonization, Bear Safety, Adequate Food).— These issues were analyzed together because the comments overlapped greatly. Few people commented on illegal killing directly. Some felt if grizzly bears were placed in the BE that the local people would shoot these bears advocating a "shoot, shovel and shut up" policy. Others emphasized the need for full protection under the ESA to reduce human mortality. Some people believed a grizzly bear should be able to be shot in defense of personal property. A few comments related to the treatment of the bears themselves. People felt the capture, handling and relocating of bears is cruel and inhumane.

A number of people thought the habitat base is not present in the Bitterroot Ecosystem to support a healthy grizzly bear population. Comments indicated concerns there are few berries, and reduced whitebark pine stands and salmon runs, and thus the bears would have no food. These people thought the bears would move to the valley floors in search of food and would run into conflicts with the local residents. Many people were concerned about the genetic isolation of a recovered bear population in the BE. They emphasized the importance of corridors to promote interchange between populations of bears.

> "I am concerned the efforts to destroy bears by some of the public may negatively affect the recovery..."

> "If whitebark pine is on the decline because of blister rust, and there are not as many fish as there once were, and huckleberries are an unreliable source of food for grizzlies, depending on the year, what is to keep the bears in their 'Recovery Zone' instead of in people's apple orchards."

Response.— Bears in the experimental population in the Bitterroot would be fully protected against illegal killing under federal law under the ESA. Grizzly bears could only be killed in the Bitterroot in self defense or defense of others (as in all fully listed populations), or, in the special circumstance on private land where a depredating bear was unable to be captured by state or federal management officials, a permit could be issued to that landowner to kill that bear. Otherwise killing of bears in the experimental Bitterroot population is illegal and would be prosecuted under federal law. Capture and relocation of grizzly bears would be performed in a controlled fashion to reduce stress and impact to the bears. Habitat capability and presence of bear foods has been proven adequate to support a viable population of grizzly bears in the BE (Appendix 21).

*3. **Regulated Public Take of Grizzly Bears.***— Comments on this issue ranged from both ends of the spectrum. Some people felt it is imperative they have the ability to control a depredating bear immediately. People felt they would not be able to protect their life, a family member, friend, or livestock without criminal prosecution. Others felt that with too much freedom, locals that are fearful of the bear would kill them indiscriminately. Several people commented that excessive human-induced mortality is part of the reason the grizzly is gone from the Bitterroots. Several people advocated a hunting season on grizzly bears to make them afraid of humans. Some of the questions raised on this issue are already addressed in the IGBC Nuisance Bear Guidelines.

> "I now (9 years) live near Gibbonsville ID on Hwy. 93 within the BE as it is drawn. I will protect my property (in your words-livestock in my words) even though you tell me I should call USFWS while a GB kills them."

> "I don't think the bears should be killed because of livestock being attacked. However, a compensation fund, from USFWS or a private organization like defenders of wildlife would help ease the minds of farmers and ranchers."

Response.— Grizzly bears could only be killed in the Bitterroot in self defense or defense of others (as in all fully listed populations), or in the special circumstance on private land where a depredating bear was unable to be captured by state or federal management officials, a permit could be issued to that landowner to kill that bear. Otherwise killing of bears in the experimental Bitterroot population is illegal and would be prosecuted under federal law. It is possible that private organizations would develop a compensation fund similar to the fund established by the Defenders of Wildlife to compensate ranchers for livestock lost to gray wolf depredation.

*4. **Compensation for Livestock Killed by Grizzlies.***— Most of the few comments on this issue supported the idea of compensating private stock owners for their losses caused by bears. One person felt that "someone grazing cattle on public land should not be paid for cows taken by a bear." Several people suggested a compensation program similar to the one for the wolf reintroduction, and that the USFWS needs to be fiscally accountable for the program. They raised the question of who would pay if the funds were not donated to the groups who support compensation now, such as the Defenders of Wildlife.

> "I do feel that, if such a fund is established, it should be included in the overall budget for reintroduction rather than depending on private donations as was done for wolf reintroduction."

Response.— The USFWS does not have the authority to compensate ranchers for livestock lost to grizzly bear depredation. Any such compensation would have to come from other sources.

5. ***Recovery Areas (Grizzlies traveling into Experimental Area); Recovery Areas (What are the actual boundaries of recovery areas); Recovery Areas (Where people want grizzlies); Recovery Time.***— The above issues have been combined into this summary because of their similar nature. Few people commented on bears traveling into an experimental area. Some people felt the recovery area needs to be increased to protect more habitat and increase the probability of grizzly bear recovery. Several people had questions about bears leaving the experimental area and how these bears would be managed if they conflict with humans.

A significant number of comments pertained to the size of the Recovery Zone. The majority of the

people felt that the area needs to be increased and that the "boundaries of the recovery area are socially defined rather than biologically defined." Many people felt that the size of the current proposed area would limit the probability of grizzly bear recovery. People did not like the recovery area for Alternative 1 and supported the area suggestions in Alternative 4. Only three comments stated that the recovery area is too large and should be reduced.

People were divided about having bears in the Bitterroot Ecosystem. Some were adamantly opposed while others were just as strongly supportive of the reintroduction effort. Some people were concerned that there would be bears in their back yard. Others felt it would return the ecosystem to its natural order.

With respect to the time frame outlined for grizzly bear recovery, a small number of people commented. Most felt the ten year evaluation period for the project is too short. People noted that grizzlies have a low reproductive rate and it may take some time for the population to grow. Some people felt that the projected recovery time of 100 years is too long and would be a waste of tax dollars.

> "We must maintain bear recovery ecosystems whose boundaries are defined based on habitat necessary to sustain a viable bear population, rather than by a political boardroom act."
>
> "The best grizzly habitat is found in the north end of the ecosystem, outside the wilderness is unprotected roadless areas in the upper Clearwater and St. Joe drainages and in the isolated back country of the River of No Return Wilderness."

Response.— A large experimental area was established for Alternative 1 and 1A to promote management flexibility for grizzly bears that may travel outside the recovery area. The USFWS attempted to explain that local communities within the experimental area would benefit by increased management flexibility for bears under nonessential experimental status. Bears outside the experimental area boundaries would be treated as fully threatened and management options would be more restrictive towards protection of the bear. This idea was not clear to local people, who continually requested a smaller experimental area. Under Alternative 1, grizzly bears outside the recovery area (in the experimental area) would be accommodated by the CMC, and would not be disturbed unless they demonstrated a real and imminent threat to human safety or livestock. Further, results of recent habitat studies in the BE indicate the habitat is capable of supporting a viable population of grizzly bears (under Alternatives 1, 1A, 4, 4A). These reports are included in Appendix 21.

*6. **Bear Sources.***— A voluminous number of people commented on where reintroduced grizzly bears will come from. By far the most commonly voiced concern was the relocation of grizzly bears from the Northern Continental Divide Ecosystem (NCDE) and Yellowstone Ecosystem (YE) populations where they are listed as Threatened to the Bitterroot Ecosystem, where they may be listed as a nonessential experimental population. People thought relocated bears would no longer be protected as a threatened species. A second concern commenters had was that the removal of these bears from their respective ecosystems would delay meeting the ecosystem's recovery objectives. Based on these assertions, several people felt that the proposed transplanting would be illegal. Many people suggested a "scientific committee" should determine where there would be non-threatened populations which could provide a source of bears. Two people suggested "crossfostering" grizzly bear cubs with female black bears in an effort to get bears into the Bitterroot Ecosystem. A small number supported taking one or two bears from the YE and the NCDE each year. A Scout Leader was concerned about placing "park" bears in Idaho, he felt that these bears are unafraid of humans, and therefore would pose additional risk to him and his troops. Idaho Fish and Game was concerned that the Bitterroot ecosystem would become "a depository for problem bears".

> "We have not even obtained agreement from the Canadians indicating they are willing to provide us with bears. Given the current mortality limits in the YE and the NCDE, we are not sure we can safely provide these bears locally, without adversely impacting recovery efforts in these areas, and inflicting future set backs in grizzly bear recovery and delisting efforts."

> "...no bears should be taken from any threatened populations including Yellowstone, and Glacier/Northern Continental Divide ecosystems for introduction into Idaho."

Response.— The use of listed members of a species to create an experimental population of that species in a currently unoccupied area is what was intended by Congress in the amendments adding the 10(j) experimental population opportunity. There will be no significant detrimental effects to the health of source populations because mortality limits in the Grizzly Bear Recovery Plan and the British Columbia grizzly bear management criteria will be met during implementation of any reintroduction. No bears will be removed from any ecosystem in the U.S. if the mortality limits for that ecosystem have been reached or are even close to being reached. In addition, the USFWS will agree to make the decision to remove bears from any ecosystem in Montana or Wyoming only in consultation with the Fish and Game Department of that state. The USFWS has no intentions to allow the removal of grizzly bears from any ecosystems in the U.S. to impede recovery of those source populations. The USFWS will work in concert with the Fish and Game Departments of those states to judge these possible impacts to assure that this is the case.

Contribution of bears from either the YE or NCDE will be based on the current mortality levels for that ecosystem. Mortality data are updated annually and any removal of bears from either ecosystem will be predicated on achievement of the mortality limits. Since these data are updated each year, it is necessary to recalculate mortality levels for both the NCDE and YE prior to making a decision on the origin of any relocated bears. The specific number of grizzly bears that can be obtained from the NCDE or YE is unknown at this time. The female contribution will be designed to minimize impacts on the source population and no female grizzly bears will be removed from within the NCDE or YE recovery zone boundary or from within 10 miles outside the boundary. The male contribution can be a higher number because population increase is affected little by removal of subadult males. Since no bears will be removed from the YE or NCDE if the mortality limits will be exceeded, and no female bears will be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE will be nonexistent. See Chapter 4, Alternative 1 for the analysis of impacts to source populations.

Any bears removed from Canadian populations would be removed under the management constraints on Canadian grizzly bear management which limit human-caused mortalities. We fully support those constraints. Further, no "nuisance" or "problem" grizzly bears will be reintroduced into the BE.

*7. **Grizzly Recovery in other Areas of the Country.***— A variety of comments related to how management of grizzly bears in other areas would affect management in the Bitterroot Ecosystem (BE). One theme among these comments was how delisting in other areas would relate to bear management in the BE. People did not want the BE reintroduction effort to divert USFWS time and money from the delisting process in the Yellowstone Ecosystem and the Northern Continental Divide Ecosystem.

> "Recovery successes such as delisting of the bear in the Yellowstone ecosystem are needed to foster public acceptance of endangered species recovery, including the Bitterroot grizzly."

Response.— The USFWS agrees that adequate financial support is necessary to allow management and monitoring of bears. Funding for grizzly bear recovery in the BE will be solely independent from funding for grizzly bear recovery in other ecosystems. Implementation of recovery activities would only occur if additional funds become available above and beyond recovery efforts in existing ecosystems. Wording has been added to stress that the USFWS should evaluate costs of recovery on an ongoing basis. The CMC will also be responsible for evaluating management costs and requesting additional funding to meet monitoring and management needs as required.

8. Monitoring / Evaluation.— Comments on this issue pertained to people's concerns about how monitoring would occur throughout the reintroduction effort, and then how monitoring would help in project evaluation. Several people objected to placing radio collars on bears because, "bears are a symbol of wilderness". Several also did not believe the DEIS clearly stated the criteria to use in determining the "success or failure" of the reintroduction. Technical letter 836 from the Nez Perce Tribe suggested specific criteria to evaluate the project.

> "We feel that specific indicators of recovery progress, developed by the scientific advising committee provided to the Citizen management Committee would be useful in making subsequent management decisions."

Response.— Additional monitoring items have been added to Alternative 1 to aid in evaluation of recovery success or failure. Most suggestions of the Nez Perce Tribe were added to the FEIS.

9. Capture and Release Methods.— The main concern people had about handling bears was how the bears would be affected. People questioned whether the trapping and relocation operation would somehow change the bear and it's outlook on humans. Others wanted a more detailed description of which bears would be relocated and where they would be released.

> "The draft EIS is not specific in providing the plan for placing grizzly bears in the Bitterroot Ecosystem. Where, specifically will the bears be collected? Where will the bears be released? How will the bears be transported?"

> "...there is an Idaho State law that reads that no person shall import into this state or release in the wild any species of wildlife except by a permit issued by the director of the Idaho Department of Fish and Game. To the best of my knowledge this has never been done and will probably not be done."

Response.— Appendix 6 provides information on techniques for transplanting grizzly bears. Since it is unknown at this time which source populations will be able to provide grizzly bears for a Bitterroot reintroduction, it is difficult to prepare a detailed plan for trapping and transplanting. If the decision is made to reintroduce grizzly bears, they would likely be placed in a remote area of the Selway-Bitterroot Wilderness.

10. Protect Grizzlies; Habitat Protection/Security/Restoration; Effects on Grizzlies from Human Incursions.— These issues were analyzed together because the comments overlapped greatly. The vast majority of people who made comments regarding the habitat and security of grizzly bears favored Alternative 4 because they felt it would provide the best chance of successful reintroduction. A large percentage of these people also commented in opposition to Alternative 1, saying it would not provide the habitat and security grizzlies need. Respondents who felt habitat security was a priority felt road removal and protection of

roadless areas within the recovery zone should be a priority. People were concerned that a road density standard was not established for the Bitterroot Ecosystem in the DEIS, some suggested that road densities be maintained at less than .25 miles/sq. mi. Many felt management standards in place for other fish and wildlife would not be adequate for grizzly bear recovery. A large number of people commented specifically on the effects that roads, logging, and mineral extraction have on grizzly bears. Very few commenters expressed that logging and other extractive activities would not affect the grizzly.

> "I think all grizzly bears deserve the full legal protection as a threatened species under the Endangered Species Act."
>
> " How can unprotected habitat be factored into recovery plans, especially when no formal Section 7 consultation will be required with the preferred alternative? The mission of the US Fish & Wildlife Service is to conserve, protect, and enhance fish and wildlife and their habitats...The preferred alternative does nothing to validate this mission statement."

Response.— Research conducted by Dr. Mark Boyce and John Waller to evaluate habitat capability of the BE used road density as calculated using a moving windows technique as one data layer in their model. Modeling results indicate the Selway-Bitterroot and Frank Church Wilderness Areas could support 234-257 grizzly bears and the non-wilderness portion of the Bitterroot Evaluation Area (described by Davis and Butterfield 1991) in the North Fork of the Clearwater River drainage could support an additional 74 bears. There are areas with road densities greater than 1 mile per square mile where bears would have a greater risk of mortality. But the Recovery Area and Recovery Zones in the various alternatives all provide ample roadless habitat to protect a core grizzly bear population.

11. Citizen Management Committee.— While many applauded this Committee as a positive step forward in front-end coalition building, more respondents were concerned that the committee would be made up of individuals who would put political and economic interests ahead of the bear's well being. Several comments reflected a concern on the balance of membership for Idaho and Montana. Also, respondents feared the committee would lack the scientific expertise needed to make good decisions. Many respondents believed the CMC would be biased toward local interests versus national.

Supportive of CMC:

Numerous respondents who supported Alternative One primarily cited the CMC as the basis of their support. Many said they supported the CMC because they believed people living in the area should be involved in the decisions that affect their lives. They also liked that it would broaden public involvement and serve as a model for reducing conflict and bringing diverse interests together. Many said the CMC is the strength of the proposed action. Several cited a survey of residents that reported 62% support grizzly recovery if the CMC is established.

Numerous respondents said they supported Alternative 1 because of the various interest groups involved in its development. Several respondents supported the CMC with full authority to act for the Secretary of Interior. They also supported changes recommended by Governor Marc Racicot (Montana) that would strengthen protection of the CMC concept.

> "This alternative allows local people and scientific experts to cooperatively decide on how grizzly bears will be restored and managed. Without this alternative, it is doubtful that grizzly reintroduction could proceed. Adoption of this alterative would also provide an exciting opportunity to determine whether such shared

management can be successful."

"This plan would provide for a committee of local citizens to manage the reintroduction and strike a balance between protecting the grizzly bear and maintaining the needs of communities surrounding the recovery area."

Opposed to CMC:

There were numerous critics of the Alternative 1 Citizen Management Committee. Several respondents stated the CMC proposal is illegal because the Secretary of Interior is not legally able to delegate decision-making authority to this group. Conversely, many opposed the concept because they didn't feel the CMC would be given enough decision-making authority. There was considerable mistrust by many that as soon as bears were reintroduced the Secretary of Interior would reassume the authority granted to the CMC in the special rule. Numerous individuals called for more clarity in the delegation of authority to the CMC as well as what actions the CMC is likely to take. A few respondents were concerned this project would promote single-species management that would overlap into land management decisions within the whole recovery area and adjacent lands. Supporters of Alternative Four believed grizzlies in the Bitterroot Ecosystem should be managed by a Scientific Committee and existing management agencies, and not by the CMC as proposed under Alternative 1. They were concerned about political influence in selection of the CMC, management of such an important species by nonprofessionals, and by the unfair delegation of management of a national resource to local citizens and their interests.

"...the CMC is a bad idea...No requirements for experience managing or even having any knowledge of grizzlies. Selection of members only from communities from within and adjacent to the recovery and experimental population areas (precludes the selection of most of the citizens of the U.S. and most qualified grizzly bear biologists). Likelihood that most CMC members would place the interests of logging, mining, and ranching above promoting recovery of a health population of grizzly bears in the BE."

"The CMC is a political expedient. The political makeup of the CMC is assured by allowing the govs. of Idaho and Montana to appoint members to this committee, with NO requisites for training, expertise, or knowledge of the grizzly and its biological needs. Also by stating that only people from areas adjacent to the recovery area can sit on the CMC, the majority of the experts in the field of grizzly biology, population genetics, habitat, etc., will be excluded."

Response.— The concept of management flexibility is related both to the decisions made and to who is making those decisions. An analogy is travel from one city to another. Several routes, speeds, and dates of departure are possible, but the destination is the same. We believe that when a person is making his or her own decisions, they generally feel more comfortable than when such decisions are made by others. This is the concept that is the foundation of the CMC. If local people are making the decisions that will lead to recovery, they will feel more involved and more in control and therefor more comfortable than if those decisions were being made by others. The CMC will be making the decisions that will lead to grizzly bear recovery in the Bitterroot ecosystem. As an example of management differences, the CMC may choose to implement a hunter education program in response to illegal killing of bears with eventual recommendations to limit hunting in certain areas if the education program is unsuccessful in stopping illegal killing. The USFWS, if it were managing the situation, might choose to suggest immediate limits on hunting. Different possible approaches to the same problem are evidence of management flexibility. The objective of both actions is the same. How they achieve the same result may be different. The creation of a CMC to manage a listed species is possible because of the experimental approach of reintroduction under section 10(j) of the Endangered Species Act, with its increased

flexibility. Such local management by citizens is not possible under fully listed status.

Several clarifications/changes were made to the CMC structure and function. These changes were in response to the following DEIS public comment issues: how the Committee will be selected; need for scientific expertise on the Committee; need for clarification regarding mission, operations, and authority of the Committee; need for further insulation of the Committee from political influence; and need for a process to resolve conflicts between the Secretary and Committee. (See Chapter 2, Alternative 1).

12. Bear Mortality Quotas.— Most respondents were concerned about the effects to the allowable human-induced bear mortality quotas for the YE and NCDE from removal of bears for relocation to the Bitterroot Ecosystem. The state of Montana felt that transplanted bears should not be counted against mortality quotas or impede the delisting procedure for the YE and NCDE. Private interests on the other hand felt that bears removed from either the NCDE or YE should count against mortality quotas, and therefore the USFWS should not remove bears from either of these two ecosystems because of potential harm to these recovering populations.

> "The EIS is deficient in that it does not address in any way the implications of this (removal of bears) on delisting. The State of Montana will vigorously oppose an EIS that does not comprehensively and scientifically address the full range of delisting issues presented by the yearly or cumulative impacts... and will oppose any alternative that would slow delisting in the NCDE and the Yellowstone ecosystem."

Response.— The FEIS includes further analysis of the impacts to source populations from removal of grizzly bears (Chapter 4, "Impacts on Source Populations"). Losses of bears from populations through human-caused actions are regulated and limited to assure the health of these populations. Mortality limits are in effect in both the NCDE and YE. Only grizzly bear mortalities that occur within designated recovery zones or within a 10-mile buffer area around the recovery zone boundary are used in the calculation to determine if a population has exceeded mortality limits established by the Recovery Plan. Thus, bears removed from areas more than 10 miles outside recovery zone boundaries in the NCDE and YE would not be counted as mortalities.

Contribution of bears from either the YE or NCDE will be based on the current mortality levels for that ecosystem. Mortality data are updated annually and any removal of bears from either ecosystem will be predicated on achievement of the mortality limits. The specific number of grizzly bears that can be obtained from the NCDE or YE is unknown at this time. The female contribution will be designed to minimize impacts on the source population and no female grizzly bears will be removed from within the NCDE or YE recovery zone boundary or from within 10 miles outside the boundary. The male contribution can be a higher number because population increase is affected little by removal of subadult males. Since no bears will be removed from the YE or NCDE if the mortality limits will be exceeded, and no female bears will be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE will be nonexistent. The USFWS has no intentions to allow the removal of grizzly bears from any ecosystems in the U.S. to impede recovery of those source populations.

LAWS, RESTRICTIONS, RIGHTS, AUTHORITY

1. Federal, State, Local and Tribal Authority.— Most of the comments on this particular issue stemmed from people who live in the area and are fearful of the government coming in and taking away the rights they have from the states of Idaho and Montana. People felt that the grizzly bear will bring more regulations on their lives. They felt the USFWS has no legal right to reintroduce bears into the Bitterroot Ecosystem since

the state government is opposed to the plan. Several claimed Idaho has a right to "self determination under the constitution of the United States." Some people questioned the legality of the Secretary of Interior designating authority to a Citizens Management Committee. Many believed the USFWS should retain management responsibilities for reintroducing grizzly bears. Some people felt the federal government is arrogant because it is not listening to local concerns. These people cited local and state laws being violated by the reintroduction process. Numerous people asked if the USFWS would be the responsible party for any deaths caused by reintroduced grizzly bears. Still others were concerned this is an unfunded mandate and that the states would be stuck with the tab for bear reintroduction costs.

A few comments were supportive of the federal government being in charge of reintroduction. They were voiced by individuals who believe this is a national issue and should be handled by the Secretary of Interior. Some did not believe the management should be left up to the states and especially to the Citizen Management Committee with local people on it.

> "I don't think the federal government should have the right to overstep the jurisdiction of the citizens of the State of Idaho. Our governor, Phil Batt, the Idaho State Fish and Game, and the majority of the citizens of Idaho are opposed to the introduction of the grizzly bear to our state."

> "The Secretary of Interior must remain ultimately responsible for all final actions of this experimental program...should not diminish the overall responsibility of the applicable agencies to adequately oversee this process."

Response.— Throughout the planning and NEPA processes for this proposal, the public has been invited to participate and comment. Citizens of Idaho and Montana have had increased opportunity to be involved through participation in 14 public hearings. Members of the EIS team have given numerous presentations to governors, county commissioners, local governments and civic groups, federal agencies, and state agencies in Idaho and Montana. As a result of this extensive dialogue, the USFWS has modified the EIS substantially to accommodate the significant issues and ideas brought to us from the public. The USFWS is by no means imposing its will on a state. The USFWS is the primary agency responsible for recovery and conservation of threatened species, including grizzly bears, in the lower 48 states under the Endangered Species Act in 1975. The USFWS is mandated by Congress to conserve listed species and the ecosystems upon which they depend. The Grizzly Bear Recovery Plan called for evaluation of the Bitterroot Ecosystem as a potential recovery area, and that resulted in the preparation of this EIS.

2. Restrictions on the Use of Public Lands; Effects of Grizzlies on Public Access.— These two issues are discussed together because they are so closely related. Numerous individuals commented on how grizzly bears would effect their access and use of public lands. Most of these comments were divisive.

Opposed to Land Use Restrictions:

Many respondents, particularly residents of Idaho and Montana, indicated they do not want any restrictions placed on the use of public lands. A primary point of contention for many was the threat of road closures that would restrict their access to public lands. Many believed this is an attempt to "lock up" public lands. They questioned the statements made in Alternative 1 that no trail or road closures are expected solely for grizzly bears. They were concerned about the effects to the local economy, restrictions on multiple-use activities, and the effects on recreation uses on public lands. Some commented their right of personal freedom would be restricted.

> "The CMC would be responsible for recommending changes in land-use standards and guidelines as necessary for grizzly bear management. Will the public have any input into these recommendations or changes in management plans? If these plans need to be incorporated into the various Forest Plans for implementation that would provide an avenue for public review. The process should be verified in the final EIS."

Positive or Neutral Responses on Land Use Restrictions:
Some respondents were positive or neutral about grizzly bear recovery efforts and believe people and bears can coexist. They viewed some of those opposed to the recovery effort as self-serving, and reacting to perceived threats to their self-interests.

> "Ranchers would be forced to share at least a portion of the PUBLIC LANDS which they now consider their own land to do with as they wish. Other resource users would also be required to share. That is a difficult prospect for many people. Selfish habits, such as the ones they've spent decades cultivating, die hard."

Response.— The FEIS has been modified to state that trail use restrictions for public safety are expected to be rare, and that such restrictions, if they did occur, would be short-term in response to a rare instance such as a grizzly bear feeding next to a trail on a carrion source. We have added the additional statement that the CMC should develop a trail restriction policy to enhance public safety. Further, the CMC is required to make decisions and take actions that minimize social and economic effects; and as such, the CMC would work to minimize any restrictions on public access and use of public lands. Grizzly bears and humans can co-exist as is evidenced in areas like the Flathead Valley of Montana, the Bob Marshall Wilderness, and Yellowstone and Glacier Parks and surrounding ecosystems.

*3. **Private Property Rights.***— Many people felt the grizzly bear is a tool the federal government is using to "steal private property rights" and to "establish more government control." Comments on this issue indicated the public views the proposed reintroduction as a threat to their private property. Some suggested that the federal government should compensate landowners for the land value losses once grizzly bears are present. Commenters felt there would be land use restrictions imposed by grizzly bear management even though the DEIS says there would not be. Some people accused the government of lying when it says no land use is expected to be altered; they state that the Final EIS should be more truthful about this issue. Several respondents emphasized the USFWS must cooperate with private landowners to recover listed species such as the grizzly bear since private lands do provide habitat for wildlife species. A few respondents voice their concern with how this effort will affect their access to irrigation dams in the reintroduction area.

> "The grizzly bear is your vehicle to steal private property rights under the disguise of the Endangered Species Act, and to establish more government control."

Response.— The preferred alternative proposes to allow local citizens to manage the reintroduced grizzly bear population, so that impacts of grizzly bear recovery would be more in their control.

*4. **Law Enforcement.***— Only four comments were received on this issue, one is included below:

> "Be advised, that this office (Custer County Prosecutor) will prosecute anyone and every one who introduces or conspires to introduce any wildlife into Custer County without a permit as provided by law."

Response.— The ESA is federal law, and this supercedes state law.

*5. **Interagency Grizzly Bear Committee Guidelines.***— Only three comments were made on this topic.

> "...support the role of agency personnel in dealing with bears whose interactions with humans are problematic...such actions emphasize bear protection within the experimental, non-essential designation...Recommendation: Agencies should be allowed to follow current guidelines, as allowed in other ecosystems under full threatened status, until new guidelines are proposed and accepted by the management committee."

Response.— The IGBC Nuisance Bear Guidelines will be followed under Alternatives 1, 1A, 4 and 4A.

*6. **Compliance with Forest Plans.***— People addressing this issue felt the DEIS failed to consider possible conflicts with forest plans. Concerns from both sides of the issue were expressed, some questioned the need to manage lands for "a population of grizzly bears that does not exist." Others felt the existing forest plans do not provide sufficient standards and guidelines for grizzly bear recovery.

> "Existing Forest Plans are not sufficient for grizzly standards and guidelines. New standards and guidelines, specific to grizzly bears, must be established using specific data for bears."

Response.— Under Alternative 1, the CMC would develop recommendations on existing management plans and policies of land and game management agencies, as necessary, for the management of grizzly bears in the Experimental Area. An example could be a recommendation on improved sanitation to minimize attractions to bears at recreation sites. The CMC may make recommendations to land and game management agencies regarding changes to plans and policies, but the final decision on implementation of those recommendations would be made by those agencies. If the CMC recommendations require significant changes to existing plans and policy, and the agencies tentatively agree to accept those recommendations, then the requirements of NEPA may apply. Land management agencies would have to follow the appropriate public processes such as NEPA, if necessary, or public comment such as with possible Forest Plan amendments should the management agencies choose to implement any CMC recommendations. Such management plans and policies will be in accordance with applicable State and Federal laws. Under Alternatives 4 and 4A, the USFWS would consult under Section 7 on Forest Plans and projects.

*7. **Wilderness Act.***— Two of four comments received on the Wilderness Act are included below:

> "Not only is reintroduction good for the species, but it is consistent with the intent of the Wilderness Act."

> "(Wilderness Act states) "these lands 'shall be administered for the use and enjoyment of the American people is such a manner as will leave them unimpaired for future use and enjoyment'. I feel that this proposed reintroduction has a potential to impair the enjoyment of many of the users."

Response.— Restoration of a native species is consistent with the intent of the Wilderness Act. Some users may avoid the wilderness areas, while others may increase their use if grizzly bears are restored.

*8. **Local Control.***— Within this issue, many felt grizzly bear management in the BE should rest upon the local citizens not people from other states or people who will not be directly impacted by grizzly recovery. Since

the people of western Montana and central Idaho would be most affected by reintroduction, they felt they should have direct say in the bear's management; many supported the idea of a "Citizens Management Committee." Still others felt the grizzly bear should not be reintroduced to their "back door" unless there is a majority of local support. Many commenters felt the Federal Government is not listening to them. Conversely, some respondents contended that since grizzly bear recovery is a national issue then management should be at a national level; and the bear should be managed by a broad based "scientific committee."

> "I do think it is a national issue. In my line of work, I meet a lot of hunters that come from all over, not just Idaho and Montana. They come from, believe it or not, New York and California, from Connecticut. So it is of the national concern and I encourage you to adopt Alternative four."

> "No matter how much people in other states may want to see grizzly bears in Idaho, Idahoans should have the right to make that decision...Turn this question around for a minute. This isn't just an Idaho issue...I don't think that I have the right as an Idahoan to insist that California accept introduction of the grizzly to the Central Valley just because I think there is food and habitat to support it there."

Response.— While the CMC concept does not "guarantee" balanced decision-making which will consider the impact of the CMC's decisions on the local communities, we can think of no better way to balance the recovery of the grizzly with the needs and interests of local people than to have local people on the decision-making committee itself. Management by a national committee would prove inefficient and costly.

9. Best Available Science.— Numerous people were concerned the Citizen Management Committee (CMC) would not use the best available science because members would not have a biological background and would have a bias against grizzly bear recovery. Many felt that the CMC should be replaced with a different type of committee with more ecology and genetics training. This committee, appointed by the National Academy of Sciences, would determine where bears could come from as well as make management decisions related to recovery in the Bitterroot Ecosystem (BE). Many of the commenters expressed support for alternative four saying it is based on the needs of the grizzly bear and not on politics. A few people contended the idea of reintroduction into the BE is based on poor science, and therefore should not be attempted.

> "(management) should be implemented by oversight management by a Scientific Committee having scientists from the private sector plus some input from U.S. Fish and Wildlife Service, the Nez Perce Tribe and state wildlife management agencies in Idaho and Montana all with some ecological comprehension."

> "I favor a joint scientific and citizen management committee. This would guarantee all aspects of grizzly bear recovery and management be considered and provide an educational opportunity for strengthening this type of partnership."

Response.— FEIS Alternative 1 directs the CMC to use the best available scientific and commercial data in making grizzly bear management decisions. Also, in response to public comment on the Draft EIS, two scientific advisors have been added to the CMC (see Chapter2, Alternative 1). Two scientific advisors would be appointed by the Secretary to the CMC as non-voting members to attend all meetings of the CMC and to provide scientific expertise in support of CMC management recommendations. These scientific advisors would not be employed by Federal agencies involved in grizzly bear recovery. The Secretary of Interior is to contact the Wildlife Society Chapters in Idaho and Montana and the Universities of Idaho and Montana for nominations and he/she would select one wildlife scientist representing each state, and appoint them as advisors.

10. Grizzly Bear Recovery Plan.— A few respondents addressed the Recovery Plan specifically and how it relates to the DEIS. A discussion of linkage zones is in the Recovery plan but they are not addressed in the DEIS. Several people mentioned this fact. The other general theme is how the CMC will implement the Recovery Plan that has already been developed for the Bitterroot Ecosystem.

> "The actual recovery plan should be further outlined in the FEIS and refined by the Fish and Wildlife Service for later publication and peer review, before it is turned over to a management committee for implementation. The management committee should be responsible for achieving the goals of the recovery plan, not for development of a recovery plan."

Response.— The CMC is responsible for implementation of the Recovery Plan. The DEIS and FEIS are based on information in the Bitterroot Chapter of the Grizzly Bear Recovery Plan.

ECOSYSTEM MANAGEMENT

1. Grizzly Bear As a Missing Component of the Ecosystem.— The vast majority of comments on this issue claimed the grizzly bear is a missing component of the Bitterroot Ecosystem (BE). People felt the grizzly bear would enhance their wilderness experience by restoring the top predator of the food chain. People claimed the grizzly is an indicator species that would improve the health of the ecosystem once the bear is reintroduced. Some felt it is mankind's responsibility to return the grizzly to the BE because man caused its eradication. However, several people stated the grizzly is not native to the BE. Others felt that the BE doesn't need the grizzly bear to function properly, and to make the land like it was "circa 1847 is utter nonsense."

> "...the griz belongs in central Idaho, as it does in several other ecosystems across the West. It is an integral part of the ecosystem, and is part of our wildlife heritage."

> "I hate to disillusion people, we don't have black bears in our back yard. These bears and the lions and the tigers and everything else, have people in their front yards."

> "Returning grizzlies to the country they once occupied will restore the ecological balance to the largest piece of roadless land in the lower forty-eight states."

Response.— The grizzly bear is native to the Bitterroot Ecosystem. Appendix 4 discusses the historical evidence and current status of grizzly bears in the BE. The USFWS, with support of the Interagency Grizzly Bear Committee, proposes to recover the grizzly bear and restore this component of the BE by reestablishing the species within this portion of its historical range. The recovery of grizzly bears in the BE will allow the return of this prominent native omnivore now missing from this large block of Rocky Mountain wilderness.

2. Is Grizzly Bear Native to the Bitterroot Ecosystem?.— On one hand the public was adamant that a population of grizzlies exists in the Bitterroot Ecosystem. Yet, people from the same general area questioned whether grizzlies are even native to the BE. The spectrum of comments received reflects this discrepancy within the public. Respondents frequently used these arguments to disagree with the idea of reintroduction. People said if there are already grizzlies there, they should be allowed to grow at their own rate. Bears, therefore, cannot be reintroduced as experimental nonessential. On the other hand, if grizzlies are not indigenous to the BE, the habitat to support a population must not be there for a self-sustaining grizzly bear population. Reintroduction would be a waste of resources.

> "There exists reliable evidence that a small population of grizzlies exist in the Salmon-Selway. This invalidates any attempt to institute the non-essential, experimental population status...Kunkel and Servheen 'cautioned that their efforts did not confirm the absence of bears in the BE because of the small area surveyed and low camera density(1/110 sq. mi.) used (3-15). The Melquist analysis (1985) of 88 reports of grizzlies in the Salmon-Selway found that 14 (16%) were 'Probable' and 37 (42%) 'highly possible'. The USF&WS cannot continue to ignore these results and maintain its credibility."

> "I do not want the Grizzly Bear introduced in Idaho. This was not a historic Grizzly area, as California was. When Lewis and Clark came through central Idaho they did not find very much game, and no mention of Grizzly Bears was made in their journals in this area."

Response.— Appendix 4 provides documentation that proves grizzly bears are native to the BE. No grizzly bear researchers have provided any documentation whatsoever of any grizzly bears in the Bitterroot experimental area. See letter from Wayne Melquist of Idaho Fish and Game (Appendix 23).

*3. **What is a Viable Grizzly Bear Population?***— Most comments questioned whether the recovery goal of 280 bears would produce a self-sustaining grizzly bear population. Some felt that more bears will be needed in the Bitterroot Ecosystem to establish a healthy bear population and to increase the long term survival probability. Several respondents felt that grizzly bear recovery in the BE is not needed for the long term survival of the bear in the lower 48 States.

> "...(the) recovery population goal should be refined and solidified from the current statement that establishes 'a tentative recovery goal of approximately 280 grizzly bears...' While we understand this effort is an 'experiment' there is no basis to believe that an isolated population of 280 is legitimate size to be considered 'recovered'..."

Response.— A viable population is one that has an acceptable probability of survival. Given real world issues, the probability of survival for a population has nothing to do with theoretical genetic issues (no wild population of any animal has ever been documented to go extinct because of genetic problems) and everything to do with the quality and effort of management to address the needs of that population in a responsive and dynamic manner. We believe that the estimates of viability will have to continuously be upgraded based on the best available science and data and that the population will have to be carefully monitored in the future as recovery proceeds to assure that management meets the needs of the bears. The management of a grizzly bear population in the Bitterroot would be an adaptive process over time, an all reintroduction alternatives rely on the continued application of the best available science in management of the recovering population. Also, see response to Issue #5, "Range Requirements of Grizzly Bears" below.

*4. **Population Corridor Linkages.***— Numerous comments were received on this issue particularly relating to travel corridors and linkages. Many people called for linkage zones to be incorporated into the FEIS because linking the Bitterroot Ecosystem to other ecosystems such as the Cabinet/Yaak and the Northern Continental Divide Ecosystem would improve genetic diversity and improve the overall health of grizzly bear populations in the lower 48 states. People were critical of Alternative 1 because it would prohibit linkage zones between the experimental-nonessential population and other bears; on the other hand, alternative four supporters favor corridor management. Only a handful of comments were against establishing linkage zones.

> "...for grizzly bears to survive in the lower 48 states, each additional population with potential linkage to other

> populations increase the probability for survival (1-5). Alternative 1 provides for NO linkage corridors, and in fact precludes them by designating the Bitterroot population as experimental, non-essential, a population which by definition must be geographically isolated from all other populations."
>
> "I support a grizzly bear plan that develops migration corridors between Idaho's grizzly habitat and other populations to ensure genetic health and diversity of all Northern Rockies populations."

Response.— The USFWS intends to complete a linkage zone analysis that will detail the possible linkage areas between the existing ecosystems and between the Bitterroot and existing ecosystems. The linkage zone analysis is a GIS-computer modeling effort that looks at the levels of human impact and activity in the intervening areas between ecosystems and identifies the best linkage areas based on this human activity. This linkage zone analysis is a separate Recovery Plan Task and will be completed regardless of which alternative is selected for the Bitterroot. Maintenance of linkage zones is maintenance of the opportunity for grizzly bears and other wildlife species to move between the existing large blocks of public lands in order to maintain demographic and genetic health. The identification of linkage zones does not mean grizzly bears will use such zones. In contrast to wolves, grizzly bears do not disperse much.

Given that the nearest grizzly population to the Bitterroot experimental area is approximately 40 miles away in the Cabinet Mountains, and that data from more than 550 different radio-collared grizzly bears since 1975 shows no movement between any ecosystems, it is highly unlikely that such movement would occur into the Bitterroot from an area currently occupied by grizzly bears in the foreseeable future. In the long-term, the opportunity for bears to move between these ecosystems will improve the health of these populations. In the near term, restoration of a grizzly bear population in the Bitterroot will require placement of bears rather than waiting for eventual dispersal into this area, due to the limited distances of movements of bears outside of existing range to date. The preferred alternative does not preclude movement between systems. It is promoted because the likelihood of natural movement into the Bitterroot in the near term is highly improbable.

*5. **Range Requirements of Grizzly Bears.***— The comments on this issue focused on the habitat base within the Bitterroot Ecosystem. People felt the preferred alternative doesn't provide enough habitat to support a grizzly bear population. To address this issue, some felt the recovery area should be enlarged to encompass the entire "Greater Salmon Selway Bitterroot Ecosystem." Others felt if the habitat is insufficient, then reintroduction should not proceed. People were concerned that inadequate spring range in the recovery area, would cause bears to move into the valley bottoms where they could conflict with human activities.

> "Bears need fall and spring range that would include foothills and private land. With only two months of summer in the wilderness, there is not forage for them to survive."
>
> "...recovery area should be expanded to include essential grizzly bear habitat...one quarter of the Selway-Bitterroot ecosystem...alone will not supply enough food and space for grizzlies to survive."

Response.— The habitat-based population viability assessment that was completed between draft and final EIS indicates there is sufficient habitat, food resources, and seasonal habitats in the Alternative 1 recovery area and adjacent public lands to the north, to support a viable population of grizzly bears. It is included as FEIS Appendix 21(A, B). This assessment analyzes the habitat suitability for grizzly bears in the Selway-Bitterroot and Frank Church-River of No Return Wilderness Areas and non-wilderness public lands to the north on the Clearwater National Forest. The entire Frank Church Wilderness was analyzed, including areas south of the Salmon River. Study results indicate the habitat in the BE is capable of supporting a population of 308-321

grizzly bears. This number is 10-15% higher than the USFWS recovery goal estimate because further evaluation of the habitats in the southern portion of the analysis area indicate that even though the forb and berry production in these dry habitats is relatively low, the southern half of the analysis area contains substantial stands of whitebark pine as well as populations of elk and deer that can provide food for grizzly bears. Further, Appendix 21D presents data on presence of a variety of grizzly bear foods in the BE. The study by Craighead Wildlife-Wildlands Institute evaluates distribution and abundance of habitats and vegetation suitable for grizzly bears in the Bitterroot Ecosystem. In summary, Appendix 21 provides the best scientific information available to indicate the habitats in the BE are capable of supporting a viable population of grizzly bears.

*6. **Effects to Grizzlies (Genetics, Disease, Colonization, Bear Safety, Adequate Food).***— People were concerned the grizzly bear in the lower 48 states would suffer a genetic bottleneck. Many supported the reintroduction of the grizzly bear into the BE and managing corridors between ecosystems to help alleviate the threat of inbreeding. They felt an additional population of bears would increase the genetic diversity and increase the long term probability of survival of the grizzly bear. For these reasons respondents opposed alternative one which "isolate" the BE while they supported alternative four because it encourages the development of linkage corridors.

Related to this issue, some felt grizzly bears should not be reintroduced into the BE because there is not enough habitat to support a population. Many stated that natural food sources for the bear (salmon, whitebark pine masts, and huckleberries) do not exist in the BE, and bears would come into conflict with humans in their search for food.

> "...there is an argument that salmon are necessary or were necessary for the bear...there is plenty of bears from the Yellowstone clear through the Bob Marshall into Glacier and on up through the Northwest Territories that exist very nicely in the absence of the anadromous fish. The evidence on this is that in the absence of animal protein, you simply have a smaller bear."

> "Reintroducing grizzlies to this wilderness will provide good opportunities for genetic interchange between different groups of the bears, thus improving recovery efforts."

Response.— Recent DNA analysis of the Yellowstone population of grizzly bears has not shown much loss of genetic diversity. Reintroduction of grizzly bears into the Bitterroots would involve individuals from 2 or 3 source populations. This genetic mixing would assure a high degree of genetic variability which should promote population vigor. The health of donor populations is important as well as the genetic diversity of the donor animals. Under the preferred alternative, we will work with scientists to further evaluate these issues in coordination with the CMC. See the response to Issue #4, "Population Linkage Corridors" for information regarding linkages between grizzly bear populations and their affects on genetic diversity.

Appendix 9B provides some background information on salmon as a food source for grizzly bears. Grizzly bear are omnivores, with a diet composed of 90% vegetation and insect matter. "Interior" populations exist without salmon as a food source, and the BE is capable of supporting a viable population without salmon as a food item.

*7. **Habitat Security, and Effects on Grizzlies from Human Incursions Outside the Wilderness.***— Many people felt the preferred alternative does little to protect habitat needed by grizzly bears. People felt resource extraction activities will continue as in the past and this will have a negative impact on a recovering population

of grizzly bears. People felt road building has to be stopped and road densities standards need to be established in the recovery area to protect habitat for the bear. Alternative 1 does nothing to address these issues in their mind and therefore this alternative should be rejected. On the other hand, people supported Alternative 4 because it protects habitat from extraction industries. People who felt habitat security is important also thought road removal and protection of roadless areas within the recovery zone were paramount. People were concerned the DEIS does not establish a road density standard for the BE, and some suggested road densities be maintained at less than .25 miles/sq. mi. Many felt current management standards for other fish and wildlife would not be adequate for grizzly bear recovery.

> "Alternative 1 fails to consider critical habitat and simply introduces grizzlies to a habitat that will not sustain them. It also allows for the continued degradation of the ecosystem by continued logging and road building in roadless areas."

> "Alternative 4 adequately addresses habitat needs by restoring grizzly habitat (by ripping out logging roads and limiting road densities), protecting the land from further commercial extraction, and encompassing the entire Salmon-Selway-Bitterroot Ecosystem to provide the maximum amount of habitat possible."

Response.— The habitat in the recovery area and experimental area of Alternative 1 is adequate to restore a viable population of grizzly bears. A habitat-based population viability analysis conducted by Dr. Mark Boyce for the FEIS indicates the habitat in the BE is capable of supporting a population of 308-321 grizzly bears. This multi-variate analysis considered the impacts of current road densities in the analysis area on habitat security for grizzly bears, and concluded the area is capable of supporting 308-321 grizzly bears (Appendix 21A, B).

Further, under Alternative 1, the CMC must make decisions and take actions that lead to recovery of grizzly bears in the BE. They would be tasked with assessing the adequacy of land management standards and guidelines for grizzly bear recovery, and making recommendations to land management agencies for revisions necessary to recover the Bitterroot population. Numerous checks and balances have been added to the CMC process, to include public participation in their decision-making process, two scientific advisors to provide scientific expertise in support of CMC decisions, and a Scientific Review Panel to review CMC progress and make recommendations as to whether their decisions and actions are leading to recovery. If the Secretary of Interior determines CMC actions are not leading to recovery, he/she can resume management responsibility for the Bitterroot population.

The habitat restoration program (including closure of roads on lands managed by the USDA Forest Service) as proposed in Alternative 4 is not within the authority of USFWS to implement, nor is it within the scope of this document.

8. Ecosystem Protection.— Many comments stated habitat protection in roadless areas is important for a healthy ecosystem. People felt road building and extractive industries should be restricted to help recovery of the grizzly bear. Many expressed their belief if the ecosystem is managed for the grizzly bear it would improve habitat of the ecosystem for other wildlife species as well. Here again numerous people voiced their support for Alternative 4 and their disapproval for Alternative 1. See Issue 7 above for additional comments related to this issue.

> "Such closures would also benefit big game and fisheries. Protecting an entire ecosystem, not just a certain species, will help the wild species thrive. It is the only alternative that address sustainability in the region."

> "Protecting grizzly bears also means protecting an entire ecosystem...The destruction of central Idaho by

logging will destroy valuable social resources and disrupt the ecological balance of the entire region."

Response.— Restoration of grizzly bears in the Bitterroot Ecosystem would replace a missing component, and in this way would improve the health of the ecosystem.

EFFECTS OF GRIZZLIES

1. Effects of Grizzlies on Human Health and Safety.— Comments on the issue of human safety were of two distinct and opposing schools of thought. One line of thinking was grizzlies would be certain to attack humans. The opposing view was grizzlies would pose less of a threat than some people believe, and in comparison to other dangers people live with on a daily basis, grizzly dangers would be less risky. Comments on this issue were also directed at the various alternatives.

Supporters of Alternative 1 minimized the actual threat to humans from reintroduced grizzly bears because they thought bear numbers would be few and they would be in remote areas with plenty of forage. They also thought Alternative 1 offers adequate protective measures for humans. Those opposed to Alternative 1 felt the alternative does not permit enough protection for humans that recreate or work in the recovery area. Supporters of Alternative 2 wanted a more gradual recovery of grizzly bears in the BE, because they thought reintroduction would cause an accelerated population increase and result in more human conflicts. Numerous comments supported Alternative 3 because of concerns for human health and safety, and were not tolerant of any human injuries from grizzly. Most were from local residents who live or work near the BE, and were concerned about encountering a bear on public or private land. Alternative 4 supporters felt the chance of grizzly/human encounters would be minimal due to the vastness of the recovery area. They felt the grizzly bear is a missing component of the wilderness, and were willing to accept an increased risk to their safety when in the wilderness. Most thought they could easily minimize any risks by planning and practicing safe camping techniques.

Not a Risk: The first group of comments favor reintroduction and indicate grizzly reintroduction would not pose a significant risk to human health or safety.

> "It's true that the presence of grizzlies in the Bitterroots would add an element of risk to outdoor adventures--but it's important to realize just how minute a risk that would be."

> "Those of us who worked with grizzlies as I did in the Bob Marshall know that we can get along with them. As has been pointed out repeatedly, 99 percent of the time they seek to get away from us."

Bears Pose a Threat to Human Safety: Most comments received on this issue, were from people who were concerned with the human safety issue. The comments below reflect the fear people have regarding grizzly bears.

> "We enjoy the outdoors and this will seriously affect our daily life. Enjoying our fruit orchard, stopping outside to gather firewood, getting the mail, any normal activity, we will have to check for bears."

> "I'm a member of the Sierra Club and I'm against any introduction of grizzly bears into the Selway-Bitterroot Wilderness or in any part of the State of Idaho...The reason settlers eliminated the grizzly bear from this part of the world is because this bear doesn't have any aversion to humans and would kill for no apparent reason and this is true today. They are unstable and unpredictable."

Response.— Grizzly bears could be killed in the Bitterroot in self defense or defense of others (as in all fully

listed populations). Risk of injury related to grizzly bears would increase with reintroduction, but rates of injury would be extremely low possibly in the range of 1:100 million visitor days. See Appendix 11 for more information on Risks to Human Safety. The DEIS and FEIS do not "minimize potential threats to public safety that may be caused by grizzly bears". Threats to public safety potentially posed by grizzly bears are discussed in detail in the DEIS and FEIS using data from similar areas in Montana, Idaho, and Wyoming.

Further, the following clarifications/ additions were made to the preferred alternative in response to the issue concerning human health and safety. If a grizzly bear enters the Bitterroot Valley exclusion area, (those private lands lying within the Bitterroot Experimental Population Area outside the Bitterroot National Forest boundary south of U.S. Highway 12 to Lost Trail Pass) state and federal wildlife management agencies would attempt to capture it and notify the public immediately of its presence, and the public would be updated until the bear is caught. Further, any grizzly bear that occupies inhabited human settlement areas on private land within the Experimental Area that in the judgement of the management agencies or CMC presents a clear threat to human safety or where there is indication that it may become habituated to humans, could be relocated by management agencies in cooperation with the landowner if a suitable relocation site is available. This is to prevent conflicts and possible bear-human injury or the death of bears, and to promote and enhance public safety.

2. ***Effects of Grizzlies on Livestock and Pets.***— Comments that related to Alternative 1 indicated the supporters of the alternative think there would be a low probability of conflict with the livestock industry because there are no grazing allotments in the wilderness portion of the recovery area north of the Salmon River. Those opposed to Alternative 1 felt that either; Alternative 1 would place the welfare of the subsidized livestock industry over that of the threatened grizzly bear, or that there would be too much economic risk to ranchers and the USFWS would not be able to respond to depredation incidents in a timely manner. Comments that related to Alternative 3 were largely supportive because the respondents were concerned about grizzly bear depredation and impacts to the livestock industry. They viewed this alternative as an answer to their concerns. A few opposed Alternative 4 because it does not provide enough protection to livestock owners.

There was concern expressed by local ranchers that their livelihood and lifestyle would be seriously impacted, and they would not be willing to tolerate this impact. They thought the DEIS underestimated the impacts to the livestock industry. There were also many commenters who thought the loss of a few livestock would be well worth it, compared to the importance of recovering grizzly bears in their native habitat. People felt the bear should be given priority over non-native domestic animals. Other commenters thought the grizzly bears and the livestock industry could coexist, and offered examples where this has been successful. A common concern of people who feared grizzly reintroduction would negatively impact their livelihood and safety, was the recovery area would not provide adequate food for bears, and they would follow game populations into the valley bottoms where there would be conflicts with human habitation.

> "Low probability of conflict with industry. The vast majority of the BE is designated wilderness - there are no public grazing allotments north of the Salmon River."

> "Most of my neighbors are cattle ranchers. Introduction of the bears will seriously threaten their livelihood. They may lose calves to the bears and their grazing rights will be curtailed because of the bears."

Response.— FEIS Alternative 1 includes provisions for livestock owners to harass grizzly bears pursuing livestock and to kill depredating bears after obtaining a permit from authorized agencies (See Chapter 2, Alternative 1). Livestock grazing, although presently either not occurring or at very low densities within the

Alternative 1 Recovery Area, is not expected to be impacted. However, within the Experimental Population Area boundaries, grazing occurs predominantly in the southern portion of the Bitterroot Ecosystem. Consequently, at recovered grizzly population levels and current livestock stocking rates, impacts to livestock would be expected to be similar to levels occurring in portions of the Northern Continental Divide Ecosystem and the Yellowstone Ecosystem. In 50-110+ years (the estimated time to recovery assuming a 2- 4% growth rate) grizzly bears would likely be present within the southern portion of the Bitterroot Ecosystem. Projections indicate that at a grizzly bear population level of 280 bears in the recovery area, yearly livestock losses to depredation by bears could range from 4-8 cattle and 5-44 sheep. Management activities would try to preempt livestock problems. The Citizen Management Committee would try to make all uses compatible with recovery. If there are significant conflicts between grizzly bears and livestock within the Experimental Area, these could be resolved in favor of the livestock by capture or elimination of the bear depending on the circumstances.

*3. **Effects of Grizzlies on Big Game Species.***— Respondents supported Alternatives 2 and 3 because they felt the reintroduction of grizzly bears would decimate the game populations in the recovery area. Some comments referred to the recent decline of elk herds in central Idaho, and stated grizzly bears would only exacerbate the problem. Some respondents made the point that grizzlies are omnivores and a large percentage of their diet (in excess of 90%) is vegetation and insect matter, and they are not carnivorous like wolves. These people disputed the concerns of hunters that the grizzlies would kill all of their game. They also felt game populations would adjust to the minimal amount of increased predation from grizzly bears. Others felt there are enough predators already in the ecosystem, and it cannot support another predator. They contended hunters are managing the game populations and there isn't much surplus. Most commenters thought current game populations can't withstand a loss of the DEIS estimate of 504 to 720 ungulates per year to grizzly predation. They asserted hunter opportunity is more important to them, and that they would rather have healthy game populations to hunt than have grizzly bears. Some commented they depend on game meat to feed their families. There were a few commenters that thought the grizzly bear would seriously impact the recruitment of young ungulates (especially elk calves), and that would cause further declines in the game populations.

> "It's nonsense for fish and game to work at building up the wildlife herds in Idaho and then turn around and bring in grizzly bears. ...Also we've all suffered in trying to build up salmon, which I believe is one thing grizzly bears feed on."

> "Hunters worries that grizzly bears are going to kill off big game are totally false. Grizzlies do not rely exclusively on big game and would kill very few larger animals."

Response.— Grizzly bears are omnivores, but feed primarily on vegetation. Studies indicate that a grizzly bear diet consists of about 90% vegetable and insect matter. Studies also indicate that because of their eating habits and short periods of predation (usually only during ungulate calving season), 280 grizzly bears may eat as many elk as would 20 adult cougars over a one year period. A population of 280 bears would be expected to prey upon 504 ungulates per year across the Bitterroot Ecosystem. The loss of 504 ungulates to a recovered grizzly bear population would represent approximately 0.38% of estimated pre-harvest populations of ungulates in the Bitterroot area. It should not be necessary to adjust hunting seasons to compensate for grizzly bear predation on ungulates. In central Idaho, baiting of black bears and pursuing black bears with hounds in wilderness areas could be evaluated by the CMC to assure that these activities do not hinder grizzly bear recovery.

4. Effects of Grizzlies on Hunting Opportunities.— Supporters of Alternative 1 viewed the potential to hunt grizzly bears in the future as one benefit of a successful reintroduction of grizzly bears. They also suggested the prohibition of bait and hound hunting of black bears in Idaho as a modification to the alternative. Those in favor of Alternative 3 thought grizzly reintroduction would cause serious declines in big game populations, and reduce or eliminate hunting opportunities. Those in favor of Alternative 4 strongly supported this alternative because it proposes to eliminate baiting and hound hunting of black bears, in order to protect grizzly bears from illegal killing. They also felt protection of roadless areas would benefit game populations and increase hunter opportunity.

Respondents had differing views regarding the potential effects of grizzly bear reintroduction on outfitters and guides. Many comments suggested a goal of the recovery effort in the BE should be to ultimately manage for a huntable population of grizzly bears. They discussed the importance of hunting (especially grizzly bear) in the Montana culture. Some commenters were supportive of the elimination of bait and hound hunting for black bears in Idaho, and others were concerned that the Special Rule doesn't assure the maintenance of these hunting methods for black bear. Some commented on the potential negative economic effects to local economies from reduced game populations due to grizzly bear depredation. Some respondents discussed the considerable effort in professional management of game populations to provide hunter opportunity, and felt grizzly reintroduction would negate or complicate these efforts by reducing game and fish populations. Other concerns included; potential access restrictions which would impact hunting and recreation opportunities, and safety of hunters in "grizzly country."

> "Black bear hunting should not be allowed in any part of the recovery area...too many instances of misidentification by hunters."
>
> "We don't need grizzly bears in the woods. They eat our already low amounts of deer, elks, and other game."
>
> "The Montana Wildlife Federation would like grizzly bear populations to reach a level where they could be treated like other big game species and excess numbers controlled through hunting."

Response.— The loss of 504 ungulates to a recovered grizzly bear population would represent approximately one-eleventh of one percent (0.38%) of estimated pre-harvest populations of ungulates in the PAA. Grizzly bear predation is not expected to result in measurable or observable changes in ungulate populations. Potential long-term impacts to black bear population dynamics is unclear, but felt to be minimal. Overall impacts of a recovered population of grizzly bears on other wildlife populations are expected to be minimal. It should not be necessary to adjust hunting seasons to compensate for grizzly bear predation on other wildlife. Hunter access to public lands is not expected to be impacted under the preferred alternative.

5. Effects of Grizzlies on Other Predators.— Some commenters specifically referred to the effects of black bears from grizzly reintroduction. They questioned the effects of the proposed ban on baiting and hound hunting of black bears to black bear populations and their fear of humans. The majority of comments questioned the general effects that grizzly bears would have on other predators already present in the ecosystem. They felt the DEIS did not adequately address the relationships between grizzly bears and other predators, and questioned the suitability of the habitat in the BE to support an additional predator. A few comments regarded the recent gray wolf transplant into central Idaho. People thought monitoring and research of the impacts of the gray wolves should be conducted before grizzly bears are added to the ecosystem.

> "What will happen to the Bitterroot's many black bears once bear baiting, hound hunting, and eventually all bear hunting are banned in the proposed Bitterroot Grizzly Bear Recovery Area."

> "It fails to properly address the complex relationships that exist between bears and other predatory animals like wolves, mountain lions, and black bears. The EIS states: "How predators impact each other and their prey is not very well understood...," so how can the simple assumption that grizzly bears, wolves, mountain lions, and other predators have and do coexist in other ecosystems be applied in this instance...the question that must be addressed in this instance is whether or not this ecosystem contains all the required habitat attributes, systems, and qualities as other ecosystems that support this mix of predators...We would also like to point out that the Idaho wolf recovery effort has only been in place in this area for two years, might it not be more advisable to establish the success of that effort before we put grizzly bears into the mix."

Response.— Any restrictions on black bear hunters or other hunting opportunities to reduce the likelihood of mistaken identity kills or to address other potential conflicts could be recommended by the CMC, but would have to be acceptable and implemented by the IDFG and MDFWP. For information on impacts of grizzly bear reintroduction on other BE predators, see FEIS Chapter 4, pages 4-14 to 4-17, and 4-35 to 4-36.

*6. **Effects of Grizzlies on Outfitters and Guides.***— Some people thought there would be no effect because so few grizzlies wouldn't interfere with outfitter expeditions, and others thought outfitters would see a positive benefit from clients paying to see a grizzly in the wild. They noted in other areas occupied by grizzly bears, people hire outfitters to take them camping and to see a grizzly bear in the wild. They thought this would happen in the BE, and would benefit the outfitter/guide industry. Others thought there would be a negative impact from access restrictions, and reduced business due to depleted game populations and fearful clients. A few outfitters were concerned about safety for them and their clients in bear occupied backcountry areas when game meat is present. Two respondents thought the DEIS did not adequately address the potential conflict and impacts to outfitters and guides. One person argued such a small population of bears would have no impact to outfitters, and suggested industry is making an issue of nothing. A few others saw a benefit from reintroduction in that outfitters would be forced to keep clean camps. One commentor thought grizzly bear recovery is more important than protecting outfitters' jobs, and felt if a conflict occurred, the bears should take precedence.

Most respondents were concerned about the economic impacts to outfitters and guides and local economies from various potential impacts associated with grizzly reintroduction in the BE. They felt the DEIS did not adequately address these impacts. Questions were raised about sanitation requirements...if bear proof containers would be mandated, who would pay for and install them, and maintain them in the numerous backcountry campsites. Outfitters commented they would have to purchase a lot of new equipment to meet safety requirements, and this would be an economic hardship that was not been addressed in the DEIS. Commenters listed numerous impacts such as trail closures, depletion of game herds from grizzly bear and wolf depredation, and area closures for bears that could have negative impacts to outfitters and guides. One comment specifically addressed impacts to boating outfitters and how they would be impacted by sanitation requirements.

> "IOGA (Idaho Outfitters and Guides Association) wonders what new restrictions would be placed on boating outfitters who move from river campsite to campsite during their guided excursions that feature dutch oven cuisine...will present aluminum and wood boxes used by boating outfitters be sufficient for storing and maintaining food on guided trips? Or does the USFWS plan to deposit government approved bear proof containers in the over 200 campsites associated with theses river systems."

"No doubt there will be additional costs associated with operating a hunting or pack trip business within the recovery area due to the necessity to obtain bear proof containers and other associated changes in operations. Where in the DEIS is this economic impact measured?"

Response.— Users of these public lands must apply common sense in hunting and recreation, and appropriate standards of storage of garbage and other attractants to minimize bear-human encounters. Such sanitation standards by users of public lands will benefit many other wildlife species and maintain the values of pubic lands, as well as benefitting grizzly bears. Management of water based recreation would be guided by the CMC. Recreationists in areas occupied by grizzly bears do use bear resistant containers for storing bear attractants such as food. River recreation outfitting successfully takes place in other grizzly occupied habitat such as on the Flathead River in the Glacier National Park vicinity. Although a rare event, sometimes a trail or use area is closed to human use when occupied by a sow grizzly with her cubs. Economic impacts to outfitters and guides are discussed in the economics analysis in Chapter 4.

*7. **Effects of Grizzlies on Recereational Opportunities.***— A few people specifically addressed alternatives with respect to impacts on recreation. Comments regarding Alternative 1 mentioned the impacts to recreation activities from issues related to human safety. Most were opposed to Alternative 1 because they thought it would negatively impact access and recreation opportunities. People favored Alternative 2 because they don't want any negative impacts to recreation. Many comments favored Alternative 3 because people were concerned for public safety during backcountry recreation, and they don't want to change their current recreation activities for grizzly bears. Commenters supported Alternative 4 because people want to recover grizzly bears in the BE and want to see them in the wild, or just know they are there. They said they would be willing to deal with any inconveniences from grizzly bear presence.

Many respondents thought impacts to recreation activities in the Bitterroot Ecosystem would be minimal to nonexistent if bears are reintroduced. They thought such a small number of bears placed deep in the Selway-Bitterroot Wilderness would not disperse eastward into the Bitterroot Valley, and if one wanders that way, it would not cause trail closures. Most people commented they would be willing to adjust their habits in the backcountry, and to learn proper camping techniques in order to coexist with grizzly bears. One person commented grizzly bear reintroduction would greatly increase tourism and benefit local economies.

Some respondents thought grizzly bear reintroduction would significantly impact the nature of existing recreation uses in the BE, and thought the DEIS did not address the qualitative impacts to recreation experiences in the BE from things like sanitation orders, restrictions on trails, limited access, etc. They also felt the DEIS did not address the economic impacts to individuals from having to comply with sanitation orders. Many comments reflected a general concern for public safety during recreation activities in the BE if grizzly bears are reintroduced. Some people indicated they recreate in the BE because they don't want to have to worry about grizzly bears and their safety, and they want a wilderness area to recreate in that does not have grizzly bears. A number of comments made by river rafters relayed their concern that sanitation requirements in the recovery area would seriously impact their enjoyment of the river.

"With just a few simple steps, people can take precautions necessary to avoid conflicts with bears in the backcountry."

"Here in California we receive $80 billion per year based on international and national visitation to our state and national parks and forests. ...Tourism is sustainable and grizzly viewing (ex. Yellowstone) is an asset!! All wildlife, whether bison, wolves, or grizzlies bring in tourist money."

> "Tourism is the third largest industry in Idaho and plays an important role in Idaho County. This industry would be seriously, adversely impacted when hunters, campers, hikers, mountain bike riders, and berry pickers realize they could very likely encounter a grizzly bear. Most would find other places for outdoor recreation."

Response.— There could be rare instances in which a grizzly bear is frequenting an area used by recreationists or other forest users where the safety of the people or the bear is at risk. In such cases, temporary closures of the area may be instituted until the safety risk is past. In the Northern Continental Divide Ecosystem, where a minimum population of about 325 grizzly bears currently exists, only one trail was closed on national forest lands because of grizzly bears in the last 10 years. This closure was a result of concerns for human safety when a bear was seen feeding on an elk carcass along a trail. During the peak of the visitor use season in Glacier National Park, fewer than 5% of trails are closed at any time as a result of safety concerns. Because of the difference between national park and national forest management, closures in the Bitterroot Ecosystem (which is mainly National Forest land) would be extremely rare and probably be similar to the Northern Continental Divide Ecosystem. Also, under the preferred alternative (Alternative 1), trail and road closures are not expected solely for grizzly bears at this time. And any trail, road, or area closure would based on recommendations of the CMC, and their charge would be to minimize social and economic impacts from the management of the reintroduced population.

*8. **Effects of Grizzlies on Other Endangered Species.***— One commentor asserted the DEIS did not consider the impacts to ESA listed anadromous fish from the reintroduction of grizzly bears. They were opposed to Alternative 1 and thought bears should not be reintroduced given the current National Marine Fisheries Service directives to protect these listed fish. A few people supported Alternative 3 because they were concerned about impacts of grizzly bears on other listed species. Supporters of Alternative 4 thought this alternative would protect other listed species by protecting and restoring large habitat areas in the BE.

Most comments related concern for the potential negative impacts grizzly bears would have on listed salmon and steelhead in central Idaho. They felt the federal government is spending much effort and money to recover depleted anadromous stocks, and the grizzly bear is known to forage on these fish. There also was concern for the potential negative impact to gray wolves in central Idaho from grizzly reintroduction. Others questioned the NEPA process and thought the biological assessment of impacts from grizzly reintroduction to other listed species should be done after the final EIS is written and an alternative selected. One person suggested the USFWS should take a multiple-species approach to managing listed species in the BE, and not just focus on one species at a time.

> "No reasonable consideration is provided in the DEIS to potential conflicts with salmon and steelhead recovery programs also being conducted within the area affected by the Proposed Action. In light of National Marine Fisheries Service (NMFS) decisions to issue "no incidental take" directives to many land management and land use projects and proposals affecting the recovery area and nearby land, it can be presumed that the NMFS `zero risk' approach to listed salmon and steelhead must be taken seriously...Any consideration of grizzly bear reintroduction should be ended until this apparent conflict is resolved."

> "Restoration efforts provided for by Alternative 4 would have multiple species benefits, rolling up roads in northern Idaho would have many watershed benefits, which would in turn benefit native salmonids."

Response.— Appendix 9A contains the USFWS Internal Section 7 Consultation on impacts to other threatened and endangered species from reintroduction of grizzly bears. Appendix 9B contains the National Marine

Fisheries Service Biological Opinion of impacts to listed salmon and steelhead from the proposal. Both documents conclude there would be no significant adverse impacts to other listed species from reintroduction of grizzly bears into the BE.

9. Effects of Grizzlies on Other Animals.— There was some concern the reintroduction of grizzlies would cause population declines for a number of other wildlife species in the BE. Respondents felt the grizzly bear is a fierce predator, and would especially cause declines in game populations. Many commenters mentioned the grizzly bear is an indicator or umbrella species for other flora and fauna in the ecosystem. They felt if the ecosystem is healthy enough to support grizzlies (either through protection or habitat restoration) it would support all other species. Many supported Alternative 4 because of the habitat protection it proposes.

Other respondents were concerned about the impact to black bear populations in the BE from the reintroduction of the grizzly bear. One person thought there would be only minimal displacement of black bears by grizzlies, while others thought grizzlies would outcompete black bears for food and habitat, and would displace them to fringe habitats. One person was concerned specifically about grizzly bear depredation on spawning cutthroat trout.

> "We do not need more predators to kill our elk, deer, livestock, salmon, steelhead, etc."

> "An important benefit of maintaining and restoring grizzly bear populations in the GSSE is that if protection of grizzly bear habitat is fully accomplished, the myriad of those other animal species finding important habitat in these federal lands will be served also. "

Response.— We believe our analysis of impacts of grizzly bears on other wildlife is accurate. Impacts of grizzly bears on other wildlife species will in some cases be compensatory, and some additive. See Chapter 4, pages 4-14 to 4-17.

ECONOMIC / SOCIAL

1. Spiritual / Cultural / Social.— Comments stated the grizzly bear is part of our national heritage and therefore should be conserved for future generations. The presence of grizzly bears in the Bitterroot Ecosystem would improve the experience of some recreationists who visit the wilderness. Many people believed the grizzly bear would make the wilderness more complete. Some claimed the grizzly bear would degrade their experience in the Selway/Bitterroot area by increasing the risks to their personal safety, the safety of livestock and animals. Some people felt the government should not play 'god' and leave the bears to recover on their own accord. A representative of the Shoshone-Bannock people stated the grizzly bear 'is part of the circle of life'. One individual spoke to the social significance of hunting and how it pertains to reintroducing the grizzly bear. Several individuals spoke of the importance grizzly bear reintroduction for future generations of humans. Some stated they felt it was important to replace the grizzly as a missing and natural component of the ecosystem; still others wanted to preserve the ecosystem as it is without the grizzly bear.

> "The grizzly is a potent symbol of the American West..."

> "More emphasis needs to be given to humans than animal species or habitat concerns."

> "Without bear, the landscape is poorer, as Camas and Bitterroot have declined, in the absence of the grizzly so too does wilderness. It's troubling to think that my grandchildren may not have the opportunity to encounter wild grizzlies."

Response.— Many people commented on their values and how their spiritual, cultural, or social lives might be affected by the presence of grizzly bears. Native Americans, in particular, emphasized the importance of the grizzly bear to their traditional beliefs and culture. The USFWS recognizes many people have very strong values and emotions, both positive and negative, associated with grizzly bears. The actual presence of grizzly bears in the BE will affect the strength and intensity of these values but only with time, individual experience, and association with wild grizzly bears are there values likely to be significantly changed or affected by grizzly bear recovery.

2. Enjoyment of Grizzly - Watching/Knowing It's There.— Some commenters felt there is an intrinsic value in having grizzlies in the Bitterroots. People do not necessarily need to see a grizzly bear; simply knowing the bear is in the area is good enough for some. Several said the idea of recreating in an area with grizzlies improves their quality of life as well as the lives of future generations. Some people disliked the DEIS putting a price tag on the bear and making it a "commodity"; they felt this detracts from the wildness of the grizzly bear. One person felt bears have no intrinsic value. Comments similar to this issue are contained in the write-up for the issue, "Grizzly bear as a missing component of the ecosystem".

> "Furthermore, I know that many visitors to the Rocky mountain outdoors regard the presence of grizzlies and wolves as a special attraction, and are willing to seek out these experiences, and pay extra for them."

> "I have never seen a grizzly bear in the wild...at 83, I probably never will, but I still want to know they are out there."

Response.— The USFWS understands and respects the right of people to form and hold their own personal opinion about how they might enjoy or not enjoy the presence of wild grizzly bears.

3. Cost of the Program to Taxpayers.— The majority of people who commented on the program were concerned with the high cost. They felt grizzly bear recovery is not a priority to them, and therefore any monies spent on bears is too much. They said it is a waste of tax dollars and a "fleecing of America." Some people did not like the idea of spending tax dollars on grizzly bear recovery and made suggestions regarding their priority for tax dollar expenditures: deer and elk management, trail maintenance in National Forests, helping homeless people, education, unemployment, and balancing the Federal budget. Numerous comments were received about the economic analysis in the DEIS. Since there are no "real dollars" seen in the impacted local communities, people felt the DEIS was misleading to say that grizzly bears have a 40 to 60 million dollar value.

Some people made the general comment that they approved of their tax dollars being spent on grizzly recovery in the BE. Many people who were in favor of grizzly bear recovery supported Alternative 2 because it promoted the grizzly bear while not costing the taxpayer as much as the other alternatives. Many were concerned with the cost of alternative three; it would still "spend the money but remove any bears that might happen to be there". Proponents of Alternative 4 felt tax dollars would be saved by eliminating below cost timber sales and associated road construction in the recovery area.

Some people were concerned about the long range funding outlined in the DEIS. They felt the estimated cost of reintroduction was underestimated and no long-term funding source was identified. Some feared the federal government would "drop" the recovery responsibility on the states of Idaho and Montana without adequate funding.

> "The cost of introducing species into areas where they are not existing could better be spent in other areas of

> wildlife management, habitat improvement for existing species and feeding the starving human population in our country and the world. A million plus dollars per animal is excessive when you open your eyes to the world around you."
>
> "The cost implementation for all alternatives is completely erroneous. The cost of the wolf reintroduction program was well over four million dollars. The estimate of less than two million dollars for alternative 1 is unrealistic. The Draft EIS should include a complete and detailed budget of all costs involved in this program."

Response.— We agree that adequate financial support is necessary to allow management and monitoring of bears. Wording has been added to stress that the USFWS should evaluate costs of recovery on an ongoing basis. The CMC would also be responsible for evaluating management costs and requesting additional funding to meet monitoring and management needs as required. The economic analysis in Chapter 4 has been revised and rewritten so as to be more understandable to the reader.

MISCELLANEOUS

*1. **Need for Education.***— Respondents from all sides of the reintroduction issue saw a need for a comprehensive public information and education program. A frequent suggestion was to increase education on how to install sanitation equipment. Several felt a public education effort needs to be instituted prior to start-up in the local areas to increase public awareness. Interestingly, they believed the "other side" is the one that needs educating in order to swing them around to the "right" viewpoint. Those who favored reintroduction of the grizzly bear claimed education would help reduce the fear factor, help people understand the risks versus unfounded fears, and help alleviate misinformation regarding grizzly bears and their place in the ecosystem. Those against reintroduction of the grizzly bear claimed education would help others realize the idea is poor because they claimed the grizzly is not threatened and endangered. They called for more public education on bear safety and defending self, family, livestock, and property.

> "The public information and education outreach program should extend beyond the one year 'phase in.' Provisions should be made to continue education programs and to adjust special sanitation equipment needs. An ongoing education program should be incorporated into state hunter safety programs, schools wildlife clubs and other community groups."
>
> "I think public education will be your best avenue, people always fear change and the unknown."
>
> "Sanitation equipment should be installed & education provided before bears have an opportunity to become dependent on human food."

Response.— A proactive information and education outreach program has been added to FEIS Alternatives 1, 1A, and 4A.

*2. **Political Influence.***— The respondents who discussed this issue as it relates to grizzly bear recovery expressed widely divergent views. Many respondents at both ends of the spectrum conveyed their exasperation with the political system and the role it has played in determining the outcome of reintroduction. Several people in favor of grizzly bear reintroduction thought state politicians and local groups have hindered the reintroduction effort. Others also disparaged having politics instead of science be the guiding force in reintroduction efforts.

Many respondents reiterated their view that the political process has not worked to their advantage. Several individuals were concerned with the role the Secretary of Interior would play in the "political decisions" played out with the Citizen Management Committee. Most did not trust the Secretary to delegate responsibility to a group of citizens. A few people expressed their fears of "hidden agendas" by pro-grizzly advocates to "lock up the land". Many respondents resented people or groups outside the local area having undue influence on bringing grizzly bears into an area in which they live. Several respondents mentioned they believe the Endangered Species Act is being misinterpreted. Numerous residents of Idaho stated they are amazed reintroduction of the grizzly bears is being "pushed ahead" when there is so much opposition politically from the elected officials within the state.

> "Much of the science about grizzlies is being ignored in favor of politics. Instead of knowledgeable wildlife biologists managing for grizzlies, a citizens committee will be in charge of management. Nominees of the Governors of Montana and Idaho will dominate this committee. How can one expect a citizen's committee of that political flavor to provide any reasonable recovery option?"

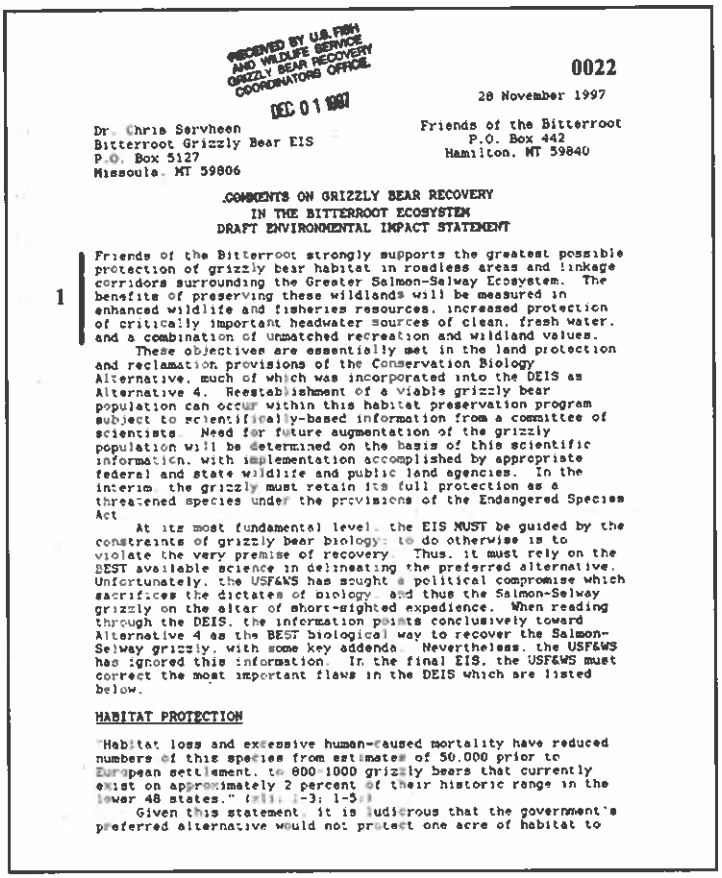
> "I do not support a citizens committee on grizzly bears introduction, because as soon as the committee comes up with a decision on the grizzly bears it probably would be changed by the Secretary of Interior, Mr.. Babbitt, or the people he works for."

Response.— FEIS Alternative 1 has been modified to include a panel to reduce political impacts to the work of the Citizen Management Committee. A Scientific Review Panel of 3 would be appointed by the Governors of Idaho and Montana and the Secretary to review decisions and/or actions of the CMC and make recommendations as to whether they are leading to recovery. The CMC would have the opportunity to correct problems based on the Review Panel recommendations before the Secretary is notified. The Secretary of Interior must also confer with the Governors of Idaho and Montana before resuming management responsibility. This will serve to insulate the CMC from direct political pressure and influence. To assure scientific input in CMC decisions, two scientific advisors will be appointed to serve the CMC and to attend all meetings.

Additional Comments and Responses That Provide a Sample of Public Comment

Following are 18 letters from the most prominent or most vocal large private organizations representing the diverse points of view and concerns about the proposal and the Draft Environmental Impact Statement. The letters are responded to in detail as representative examples across the whole spectrum of the commentary and issues raised by the public at large on both sides of the issue.





RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE
DEC 01 1997

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28 November 1997

Dr. Chris Servheen
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Hamilton, MT 59840

COMMENTS ON GRIZZLY BEAR RECOVERY
IN THE BITTERROOT ECOSYSTEM
DRAFT ENVIRONMENTAL IMPACT STATEMENT

1 Friends of the Bitterroot strongly supports the greatest possible protection of grizzly bear habitat in roadless areas and linkage corridors surrounding the Greater Salmon-Selway Ecosystem. The benefits of preserving these wildlands will be measured in enhanced wildlife and fisheries resources, increased protection of critically important headwater sources of clean, fresh water, and a combination of unmatched recreation and wildland values.

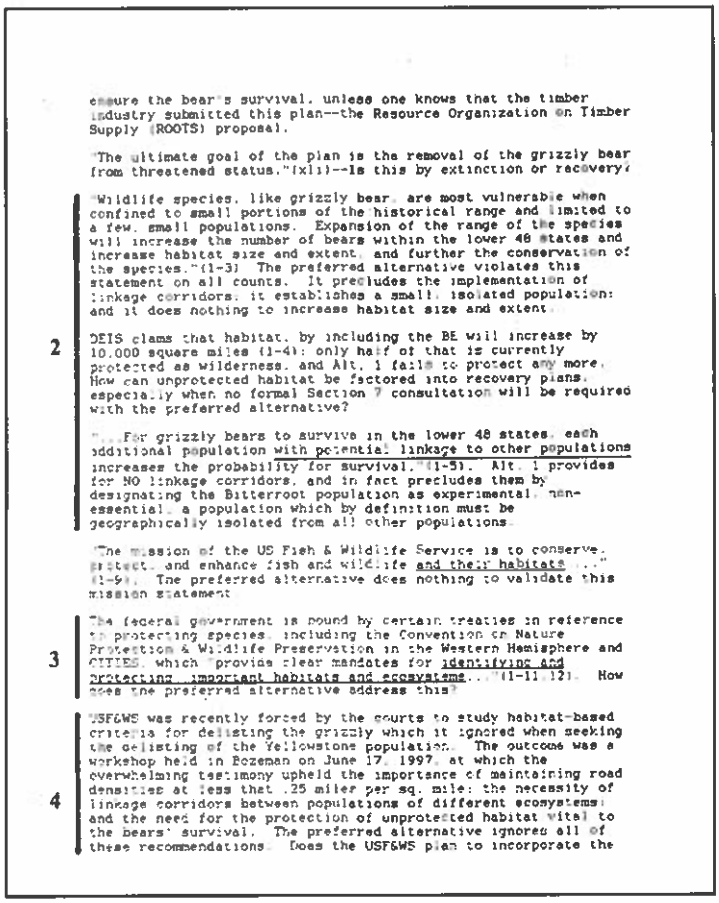
These objectives are essentially met in the land protection and reclamation provisions of the Conservation Biology Alternative, much of which was incorporated into the DEIS as Alternative 4. Reestablishment of a viable grizzly bear population can occur within this habitat preservation program subject to scientifically-based information from a committee of scientists. Need for future augmentation of the grizzly population will be determined on the basis of this scientific information, with implementation accomplished by appropriate federal and state wildlife and public land agencies. In the interim, the grizzly must retain its full protection as a threatened species under the provisions of the Endangered Species Act.

At its most fundamental level, the EIS MUST be guided by the constraints of grizzly bear biology; to do otherwise is to violate the very premise of recovery. Thus, it must rely on the BEST available science in delineating the preferred alternative. Unfortunately, the USF&WS has sought a political compromise which sacrifices the dictates of biology, and thus the Salmon-Selway grizzly on the altar of short-sighted expedience. When reading through the DEIS, the information points conclusively toward Alternative 4 as the BEST biological way to recover the Salmon-Selway grizzly, with some key addenda. Nevertheless, the USF&WS has ignored this information. In the final EIS, the USF&WS must correct the most important flaws in the DEIS which are listed below.

HABITAT PROTECTION

"Habitat loss and excessive human-caused mortality have reduced numbers of this species from estimates of 50,000 prior to European settlement, to 800-1000 grizzly bears that currently exist on approximately 2 percent of their historic range in the lower 48 states." (x11; 1-3; 1-5)

Given this statement, it is ludicrous that the government's preferred alternative would not protect one acre of habitat to



ensure the bear's survival, unless one knows that the timber industry submitted this plan--the Resource Organization on Timber Supply (ROOTS) proposal.

"The ultimate goal of the plan is the removal of the grizzly bear from threatened status."(x11)--Is this by extinction or recovery?

"Wildlife species, like grizzly bear, are most vulnerable when confined to small portions of the historical range and limited to a few, small populations. Expansion of the range of the species will increase the number of bears within the lower 48 states and increase habitat size and extent, and further the conservation of the species."(1-3) The preferred alternative violates this statement on all counts. It precludes the implementation of linkage corridors; it establishes a small, isolated population; and it does nothing to increase habitat size and extent.

2 DEIS claims that habitat, by including the BE will increase by 10,000 square miles (1-4); only half of that is currently protected as wilderness, and Alt. 1 fails to protect any more. How can unprotected habitat be factored into recovery plans, especially when no formal Section 7 consultation will be required with the preferred alternative?

"...For grizzly bears to survive in the lower 48 states, each additional population with potential linkage to other populations increases the probability for survival."(1-5). Alt. 1 provides for NO linkage corridors, and in fact precludes them by designating the Bitterroot population as experimental, non-essential, a population which by definition must be geographically isolated from all other populations.

"The mission of the US Fish & Wildlife Service is to conserve, protect, and enhance fish and wildlife and their habitats ..." (1-9). The preferred alternative does nothing to validate this mission statement.

3 The federal government is bound by certain treaties in reference to protecting species, including the Convention on Nature Protection & Wildlife Preservation in the Western Hemisphere and CITIES, which "provide clear mandates for identifying and protecting important habitats and ecosystems..."(1-11,12). How does the preferred alternative address this?

4 USF&WS was recently forced by the courts to study habitat-based criteria for delisting the grizzly which it ignored when seeking the delisting of the Yellowstone population. The outcome was a workshop held in Bozeman on June 17, 1997, at which the overwhelming testimony upheld the importance of maintaining road densities at less that .25 miles per sq. mile; the necessity of linkage corridors between populations of different ecosystems; and the need for the protection of unprotected habitat vital to the bears' survival. The preferred alternative ignored all of these recommendations. Does the USF&WS plan to incorporate the

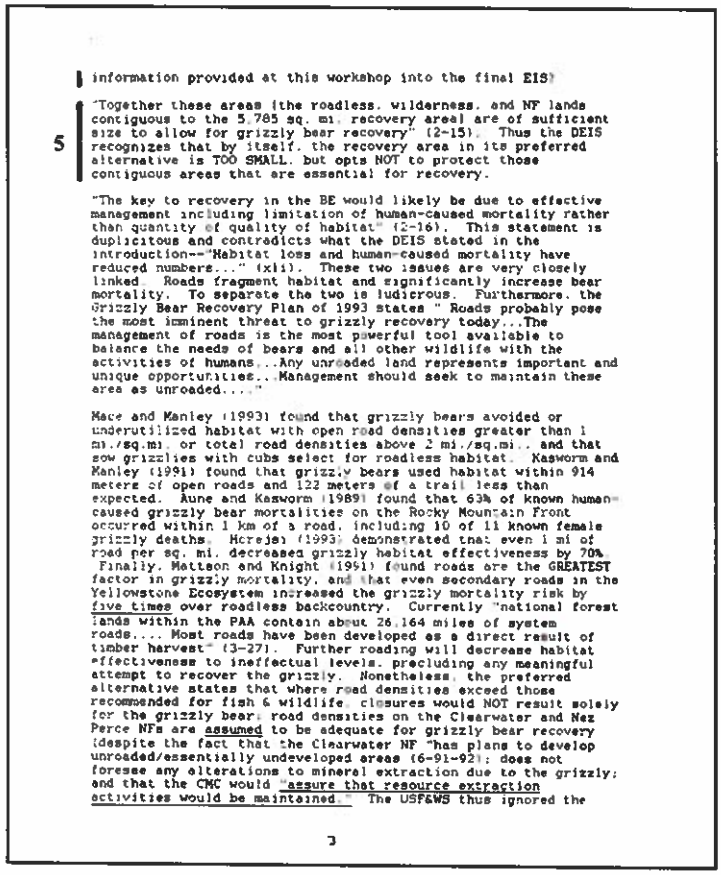
Private Organization, Friends of the Bitterroot: #22

1. Comment noted.

2. The preferred alternative does not preclude linkage areas. In fact, the linkage zone analysis between all ecosystems is a separate task under the grizzly bear recovery plan that will be completed with or without Bitterroot grizzly restoration. The linkage zone analysis will identify the areas where it is possible for bears to move between ecosystems and will outline strategies to maintain such opportunities.

By any measure, the restoration of a grizzly bear population in an area of 5,785 square miles of wilderness and additional thousands of square miles of adjacent public lands increases habitat size and extent for grizzly bears. The majority of grizzly bear habitat in the lower 48 states is not in wilderness areas but on other public lands. Extensive limits currently exist on public lands on activities such as road building and timber harvest due to issues on anadromous fish and elk management. These constraints serve to enhance the value of these lands to grizzly bears as well.

Experimental status does not preclude linkage with other ecosystems, it requires that there be no population of the animal in question present and that the area be geographically separated. The Bitterroot qualifies for experimental status for grizzly bears on both counts. If the Bitterroot is eventually linked to other existing populations, which is desirable and so stated in the Grizzly Bear Recovery Plan, such linkage may be in fact initiated by the members of the Bitterroot population expanding their range toward the closest population, the Cabinet-Yaak population, not the other way around. If that happened, then experimental status would be reevaluated. However, given the fact that none of the more than 550 grizzly bears that have been radio-collared and tracked over the past 23 years have ever moved between any existing ecosystems, the likelihood of such linkage is not a near-term possibility. Thus, placement of bears in the Bitterroot now will allow this population to begin to grow into a healthy population now, rather than waiting for the possible future dispersal of bears from distant geographically separated ecosystems.



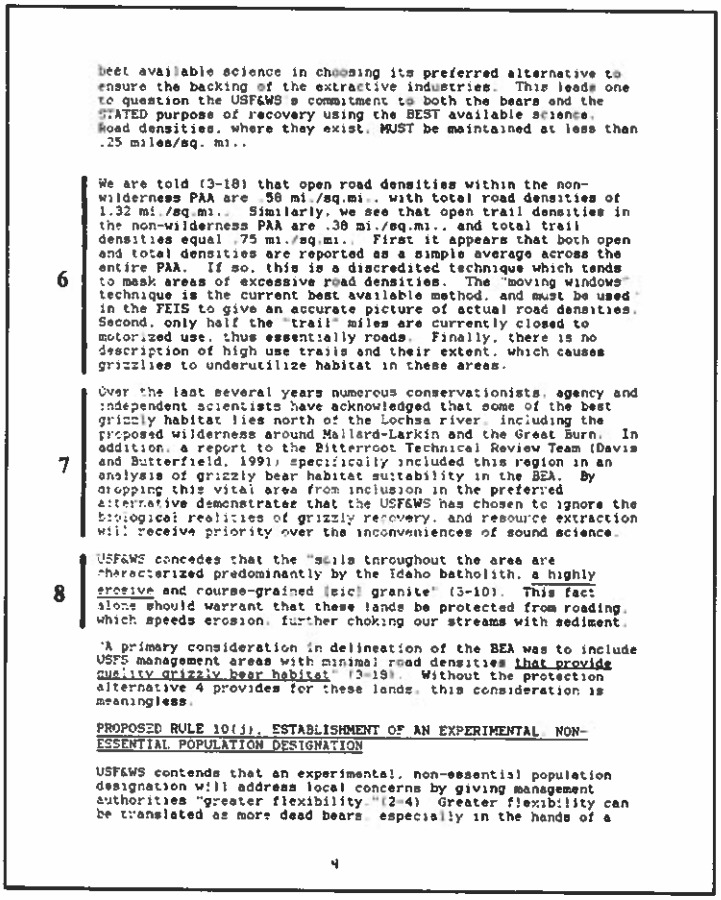
information provided at this workshop into the final EIS?

5 "Together these areas (the roadless, wilderness, and NF lands contiguous to the 5,785 sq. mi. recovery area) are of sufficient size to allow for grizzly bear recovery" (2-15). Thus the DEIS recognizes that by itself, the recovery area in its preferred alternative is TOO SMALL, but opts NOT to protect those contiguous areas that are essential for recovery.

"The key to recovery in the BE would likely be due to effective management including limitation of human-caused mortality rather than quantity of quality of habitat" (2-16). This statement is duplicitous and contradicts what the DEIS stated in the introduction--"Habitat loss and human-caused mortality have reduced numbers..." (xii). These two issues are very closely linked. Roads fragment habitat and significantly increase bear mortality. To separate the two is ludicrous. Furthermore, the Grizzly Bear Recovery Plan of 1993 states " Roads probably pose the most imminent threat to grizzly recovery today...The management of roads is the most powerful tool available to balance the needs of bears and all other wildlife with the activities of humans...Any unroaded land represents important and unique opportunities...Management should seek to maintain these area as unroaded...."

Mace and Manley (1993) found that grizzly bears avoided or underutilized habitat with open road densities greater than 1 mi./sq.mi. or total road densities above 2 mi./sq.mi., and that sow grizzlies with cubs select for roadless habitat. Kasworm and Manley (1991) found that grizzly bears used habitat within 914 meters of open roads and 122 meters of a trail less than expected. Aune and Kasworm (1989) found that 63% of known human-caused grizzly bear mortalities on the Rocky Mountain Front occurred within 1 km of a road, including 10 of 11 known female grizzly deaths. Mcreja (1993) demonstrated that even 1 mi of road per sq. mi. decreased grizzly habitat effectiveness by 70%. Finally, Mattson and Knight (1991) found roads are the GREATEST factor in grizzly mortality, and that even secondary roads in the Yellowstone Ecosystem increased the grizzly mortality risk by five times over roadless backcountry. Currently "national forest lands within the PAA contain about 26,164 miles of system roads.... Most roads have been developed as a direct result of timber harvest" (3-27). Further roading will decrease habitat effectiveness to ineffectual levels, precluding any meaningful attempt to recover the grizzly. Nonetheless, the preferred alternative states that where road densities exceed those recommended for fish & wildlife, closures would NOT result solely for the grizzly bear; road densities on the Clearwater and Nez Perce NFs are assumed to be adequate for grizzly bear recovery (despite the fact that the Clearwater NF "has plans to develop unroaded/essentially undeveloped areas (6-91-92); does not foresee any alterations to mineral extraction due to the grizzly; and that the CMC would "assure that resource extraction activities would be maintained." The USF&WS thus ignored the

3



best available science in choosing its preferred alternative to ensure the backing of the extractive industries. This leads one to question the USF&WS's commitment to both the bears and the STATED purpose of recovery using the BEST available science. Road densities, where they exist, MUST be maintained at less than .25 miles/sq. mi..

6 We are told (3-18) that open road densities within the non-wilderness PAA are .58 mi./sq.mi., with total road densities of 1.32 mi./sq.mi.. Similarly, we see that open trail densities in the non-wilderness PAA are .30 mi./sq.mi., and total trail densities equal .75 mi./sq.mi.. First it appears that both open and total densities are reported as a simple average across the entire PAA. If so, this is a discredited technique which tends to mask areas of excessive road densities. The "moving windows" technique is the current best available method, and must be used in the FEIS to give an accurate picture of actual road densities. Second, only half the "trail" miles are currently closed to motorized use, thus essentially roads. Finally, there is no description of high use trails and their extent, which causes grizzlies to underutilize habitat in these areas.

7 Over the last several years numerous conservationists, agency and independent scientists have acknowledged that some of the best grizzly habitat lies north of the Lochsa river, including the proposed wilderness around Mallard-Larkin and the Great Burn. In addition, a report to the Bitterroot Technical Review Team (Davis and Butterfield, 1991) specifically included this region in an analysis of grizzly bear habitat suitability in the BEA. By dropping this vital area from inclusion in the preferred alternative demonstrates that the USF&WS has chosen to ignore the biological realities of grizzly recovery, and resource extraction will receive priority over the inconveniences of sound science.

8 USF&WS concedes that the "soils throughout the area are characterized predominantly by the Idaho batholith, a highly erosive and course-grained [sic] granite" (3-10). This fact alone should warrant that these lands be protected from roading, which speeds erosion, further choking our streams with sediment.

"A primary consideration in delineation of the BEA was to include USFS management areas with minimal road densities that provide quality grizzly bear habitat" (3-19). Without the protection alternative 4 provides for these lands, this consideration is meaningless.

PROPOSED RULE 10(j), ESTABLISHMENT OF AN EXPERIMENTAL, NON-ESSENTIAL POPULATION DESIGNATION

USF&WS contends that an experimental, non-essential population designation will address local concerns by giving management authorities "greater flexibility."(2-4) Greater flexibility can be translated as more dead bears, especially in the hands of a

4

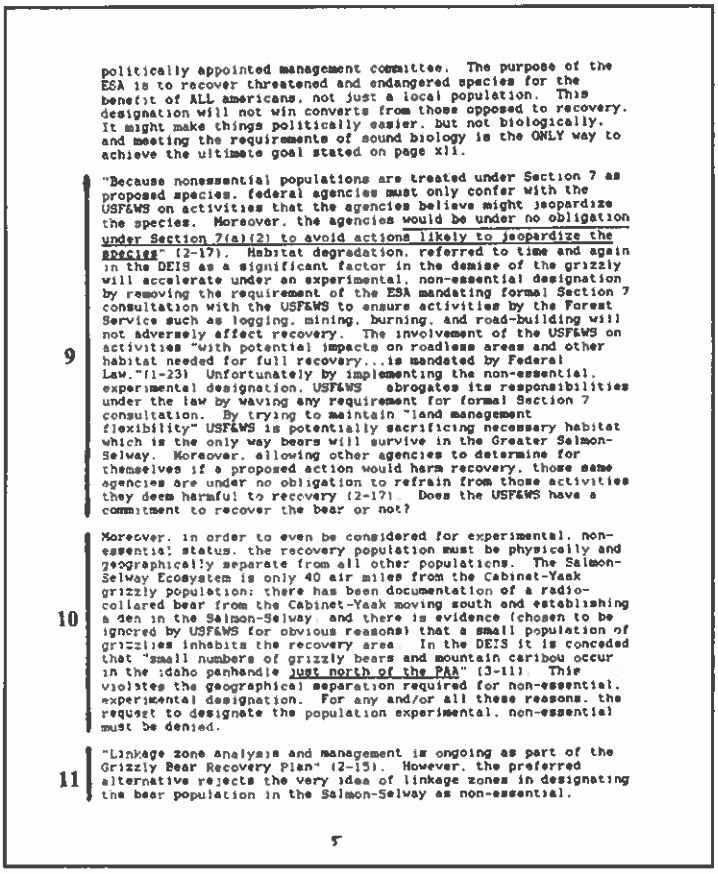
3. The proposal to restore grizzly bears to the Bitterroot Ecosystem complies with this treaty and all its intentions.

4. The USFWS was not "forced by the courts" to work on habitat-based criteria for the grizzly bear. The development of habitat criteria is a task in the Grizzly Bear Recovery Plan (task 423) and work on this task has been ongoing for many years. The core area of the Bitterroot recovery is the largest block of wilderness in the Rocky Mountains. This is the area of recovery emphasis. Surrounding public lands make up significant additional habitat that can support grizzly bears and currently supports other species of importance such as wolves and wolverines. Given this, the USFWS believes there is significant habitat available in this area to support a recovered grizzly population. The numerous and varied opinions expressed at the Bozeman habitat workshop were all considered.

5. This is not true. The recovery area is the area of recovery emphasis, not the area where recovery will be confined. Alternative 1 directs the CMC to make management recommendations to accommodate grizzly bears on public lands within the experimental area. The term "accommodate" means grizzly bears that move outside the recovery area onto public land in the experimental area will not be disturbed unless they demonstrate a real and imminent threat to human safety or livestock.

Grizzly bears outside the recovery area will be counted toward the recovery goal if there is reasonable certainty of their long-term occupancy in such habitats outside the recovery area. Also, any revised recovery goal will be established using the best available data based on the habitat available in the recovery area. Additional adjacent areas of public land may be considered for contribution of suitable habitat when the CMC revises the tentative recovery goal, if it is shown to be necessary by the best scientific and commercial data available. Any recommendations for revised recovery goals developed by the CMC would require public review and USFWS approval as appropriate for any revision of any recovery plan.

6. We have available to us the road and trail database that the land management agencies have. The USFWS is not in a position to redo these data layers. Concerns about motorized



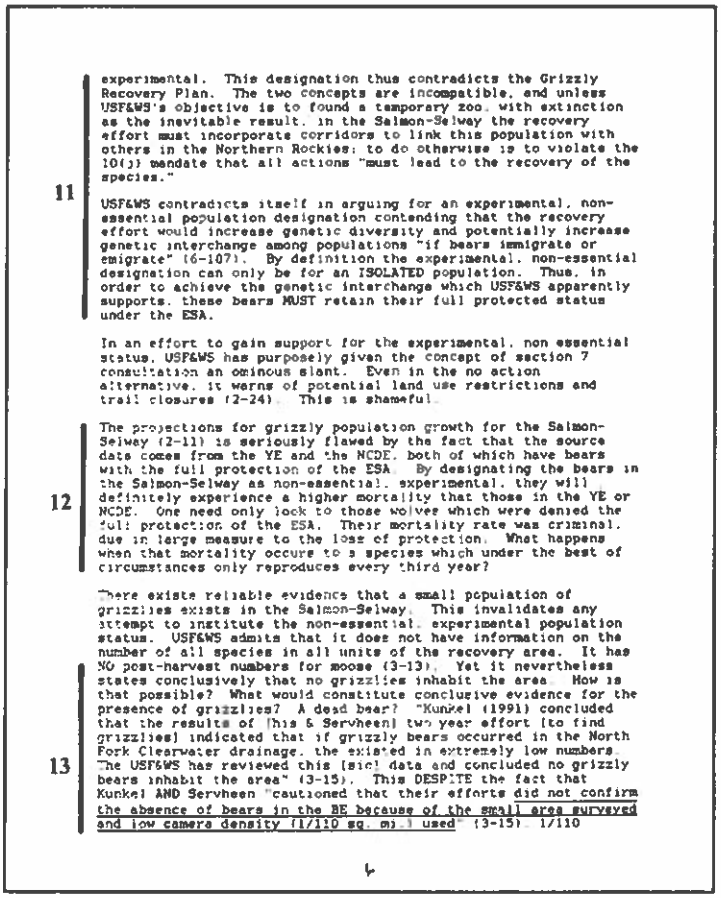
politically appointed management committee. The purpose of the ESA is to recover threatened and endangered species for the benefit of ALL americans, not just a local population. This designation will not win converts from those opposed to recovery. It might make things politically easier, but not biologically, and meeting the requirements of sound biology is the ONLY way to achieve the ultimate goal stated on page xii.

9 "Because nonessential populations are treated under Section 7 as proposed species, federal agencies must only confer with the USF&WS on activities that the agencies believe might jeopardize the species. Moreover, the agencies would be under no obligation under Section 7(a)(2) to avoid actions likely to jeopardize the species" (2-17). Habitat degradation, referred to time and again in the DEIS as a significant factor in the demise of the grizzly will accelerate under an experimental, non-essential designation by removing the requirement of the ESA mandating formal Section 7 consultation with the USF&WS to ensure activities by the Forest Service such as logging, mining, burning, and road-building will not adversely affect recovery. The involvement of the USF&WS on activities "with potential impacts on roadless areas and other habitat needed for full recovery...is mandated by Federal Law."(1-23) Unfortunately by implementing the non-essential, experimental designation, USF&WS abrogates its responsibilities under the law by waving any requirement for formal Section 7 consultation. By trying to maintain "land management flexibility" USF&WS is potentially sacrificing necessary habitat which is the only way bears will survive in the Greater Salmon-Selway. Moreover, allowing other agencies to determine for themselves if a proposed action would harm recovery, those same agencies are under no obligation to refrain from those activities they deem harmful to recovery (2-17). Does the USF&WS have a commitment to recover the bear or not?

10 Moreover, in order to even be considered for experimental, non-essential status, the recovery population must be physically and geographically separate from all other populations. The Salmon-Selway Ecosystem is only 40 air miles from the Cabinet-Yaak grizzly population; there has been documentation of a radio-collared bear from the Cabinet-Yaak moving south and establishing a den in the Salmon-Selway and there is evidence (chosen to be ignored by USF&WS for obvious reasons) that a small population of grizzlies inhabits the recovery area. In the DEIS it is conceded that "small numbers of grizzly bears and mountain caribou occur in the Idaho panhandle just north of the PAA" (3-11). This violates the geographical separation required for non-essential, experimental designation. For any and/or all these reasons, the request to designate the population experimental, non-essential must be denied.

11 "Linkage zone analysis and management is ongoing as part of the Grizzly Bear Recovery Plan" (2-15). However, the preferred alternative rejects the very idea of linkage zones in designating the bear population in the Salmon-Selway as non-essential.

5



11 experimental. This designation thus contradicts the Grizzly Recovery Plan. The two concepts are incompatible, and unless USF&WS's objective is to found a temporary zoo, with extinction as the inevitable result, in the Salmon-Selway the recovery effort must incorporate corridors to link this population with others in the Northern Rockies; to do otherwise is to violate the 10(j) mandate that all actions "must lead to the recovery of the species."

USF&WS contradicts itself in arguing for an experimental, non-essential population designation contending that the recovery effort would increase genetic diversity and potentially increase genetic interchange among populations "if bears immigrate or emigrate" (6-107). By definition the experimental, non-essential designation can only be for an ISOLATED population. Thus, in order to achieve the genetic interchange which USF&WS apparently supports, these bears MUST retain their full protected status under the ESA.

In an effort to gain support for the experimental, non essential status, USF&WS has purposely given the concept of section 7 consultation an ominous slant. Even in the no action alternative, it warns of potential land use restrictions and trail closures (2-24). This is shameful.

12 The projections for grizzly population growth for the Salmon-Selway (2-11) is seriously flawed by the fact that the source data comes from the YE and the NCDE, both of which have bears with the full protection of the ESA. By designating the bears in the Salmon-Selway as non-essential, experimental, they will definitely experience a higher mortality that those in the YE or NCDE. One need only look to those wolves which were denied the full protection of the ESA. Their mortality rate was criminal, due in large measure to the loss of protection. What happens when that mortality occurs to a species which under the best of circumstances only reproduces every third year?

13 There exists reliable evidence that a small population of grizzlies exists in the Salmon-Selway. This invalidates any attempt to institute the non-essential, experimental population status. USF&WS admits that it does not have information on the number of all species in all units of the recovery area. It has NO post-harvest numbers for moose (3-13). Yet it nevertheless states conclusively that no grizzlies inhabit the area. How is that possible? What would constitute conclusive evidence for the presence of grizzlies? A dead bear? "Kunkel (1991) concluded that the results of [his & Servheen] two year effort [to find grizzlies] indicated that if grizzly bears occurred in the North Fork Clearwater drainage, the existed in extremely low numbers. The USF&WS has reviewed this [sic] data and concluded no grizzly bears inhabit the area" (3-15). This DESPITE the fact that Kunkel AND Servheen "cautioned that their efforts did not confirm the absence of bears in the BE because of the small area surveyed and low camera density (1/110 sq. mi.) used" (3-15). 1/110

6

use of trails or high use roads and how these are represented on the data base of the land management agencies should be taken up with the land management agencies themselves.

7. This area is not "dropped" from the preferred alternative. See answer #5. Several habitat analyses have been added to this Final EIS (Appendix 21) and include areas both within and adjacent to the recovery area (including the area north of the Lochsa River and into the North Fork of the Clearwater River drainage).

8. This is not a grizzly bear issue.

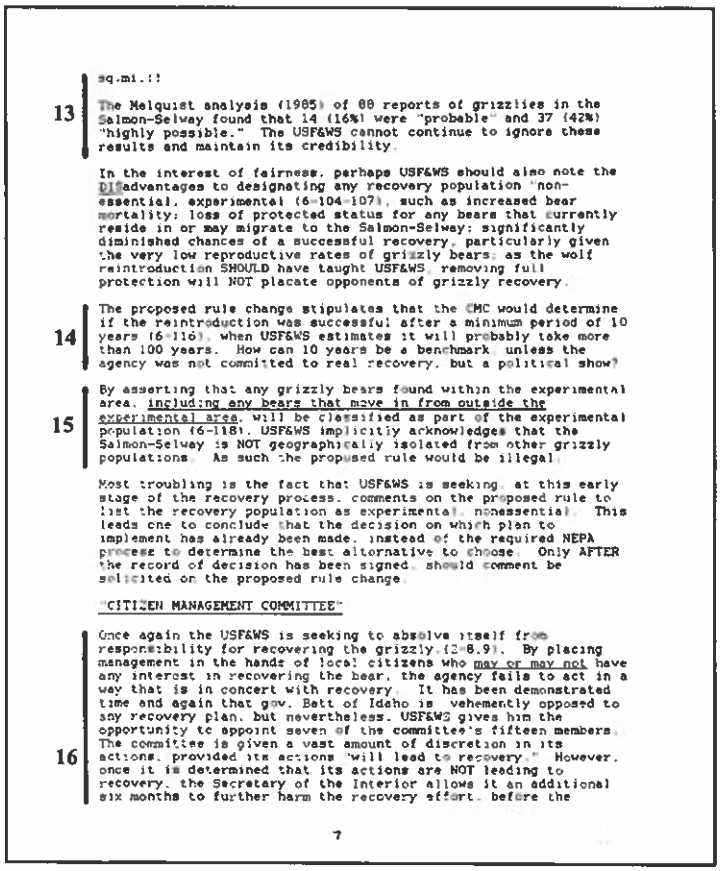
9. The use of experimental status allows more management flexibility, yet grizzly bears are not the only issue that determines land management decisions in the Bitterroot. Extensive limits currently exist on activities such as road building and timber harvest due to issues on anadromous fish, water quality, and elk management. These constraints serve to enhance the value of these lands to grizzly bears as well.

10. This is untrue. There is no "documentation of a radio-collared bear moving south and establishing a den in the Salmon-Selway". Nor is there any documentation that "a small population of grizzlies inhabits the recovery area". See FEIS Appendix 4.

11. See answer # 2.

12. Bears in the experimental population in the Bitterroot would be fully protected against illegal killing under federal law under the ESA. Grizzly bears could only be killed in the Bitterroot in self defense or defense of others (as in all fully listed populations), or, in the special circumstance on private land where a depredating bear was unable to be captured by state or federal management officials, a permit could be issued to that landowner to kill that bear. Otherwise killing of bears in the experimental Bitterroot population is illegal and would be prosecuted under federal law.

13. While there my be "persistent reports" there is no documented evidence of even a single grizzly bear in the experimental area defined in Alternative 1. No grizzly bear researchers have provided any documentation whatsoever of any



sq.mi.!!

13 The Melquist analysis (1985) of 88 reports of grizzlies in the Salmon-Selway found that 14 (16%) were "probable" and 37 (42%) "highly possible." The USF&WS cannot continue to ignore these results and maintain its credibility.

In the interest of fairness, perhaps USF&WS should also note the DISadvantages to designating any recovery population "non-essential, experimental (6-104-107), such as increased bear mortality; loss of protected status for any bears that currently reside in or may migrate to the Salmon-Selway; significantly diminished chances of a successful recovery, particularly given the very low reproductive rates of grizzly bears; as the wolf reintroduction SHOULD have taught USF&WS, removing full protection will NOT placate opponents of grizzly recovery.

14 The proposed rule change stipulates that the CMC would determine if the reintroduction was successful after a minimum period of 10 years (6-116), when USF&WS estimates it will probably take more than 100 years. How can 10 years be a benchmark, unless the agency was not committed to real recovery, but a political show?

15 By asserting that any grizzly bears found within the experimental area, including any bears that move in from outside the experimental area, will be classified as part of the experimental population (6-118), USF&WS implicitly acknowledges that the Salmon-Selway is NOT geographically isolated from other grizzly populations. As such the proposed rule would be illegal.

Most troubling is the fact that USF&WS is seeking, at this early stage of the recovery process, comments on the proposed rule to list the recovery population as experimental, nonessential. This leads one to conclude that the decision on which plan to implement has already been made, instead of the required NEPA process to determine the best alternative to choose. Only AFTER the record of decision has been signed, should comment be solicited on the proposed rule change.

"CITIZEN MANAGEMENT COMMITTEE"

16 Once again the USF&WS is seeking to absolve itself from responsibility for recovering the grizzly.(2-8,9). By placing management in the hands of local citizens who may or may not have any interest in recovering the bear, the agency fails to act in a way that is in concert with recovery. It has been demonstrated time and again that gov. Batt of Idaho is vehemently opposed to any recovery plan, but nevertheless, USF&WS gives him the opportunity to appoint seven of the committee's fifteen members. The committee is given a vast amount of discretion in its actions, provided its actions "will lead to recovery." However, once it is determined that its actions are NOT leading to recovery, the Secretary of the Interior allows it an additional six months to further harm the recovery effort, before the

7

16 Secretary would take over the committee's role. Moreover, it is not mandated in the DEIS that the Secretary MUST resume management responsibility if the CMC fails to make decisions based on the best science of grizzly biology. This is nothing but a legal shell-game. If the CMC takes action that is illegal, which body is legally responsible? The CMC? The USF&WS? The Secretary of the Interior?

The CMC makeup is characteristically vague. Aside from representatives from state and federal Fish & Wildlife departments, there is NO requirement to nominate anyone who is an expert on grizzlies, wildlife recovery plans, population viability, or basic biology. Moreover, there is no provision for the Secretary of the Interior to turn down unqualified nominees. The entire concept of the CMC is based not on sound science, but on political expedience; a bad omen for the grizzly.

17 The CMC as "defined" is very amorphous, given no concrete guidelines aside from "decisions that lead to recovery." It would have the power to make decisions, but with little or no accountability. It can act with impunity for a year or more before it MAY be stripped of its power. The result will be dead bears, wasted money, and perhaps the end of a recovery effort. Furthermore, the CMC is given sweeping authority to control roads and access management, logging, grazing, mining, oil & gas leasing, recreation, the adequacy of Forest Plans, and the life and death of bears, it has essentially been given CONTROL of national public lands. This is an unprecedented disaster. Will our national parks be next? What about foreign policy? There would be nothing wrong with establishing a Citizens ADVISORY Committee to provide USF&WS with local input, but management authority MUST remain with the Federal Government.

The DEIS requires that CMC members come from "within and adjacent to the recovery and experimental population areas." Thus, some of the region's most informed biologists and conservationists are automatically excluded, not to mention 99% of the other Americans who actually OWN the land.

Establishment of a CMC will not placate local opposition. There is virtually NO support in the Bitterroot Valley or elsewhere in Idaho & Montana for the CMC--not those supporting recovery, not those opposed to recovery. Local input, yes; local control, no.

SOURCE POPULATIONS FOR TRANSPLANTED BEARS

18 Both the preferred alternative and Alternative 4 mandate that "subadult grizzly bears of both sexes would be trapped each year for 5 years...[from] southeast British Columbia, the Northern Continental Divide Ecosystem (NCDE) population,... and the Yellowstone Ecosystem(YE) population."(2-16, 2-33) BC has recently stated that its bear population may be threatened, and the NCDE and YE populations are NOT recovered. Sink/source genetics tell us that to take prime reproducing female grizzlies

8

grizzly bears in the Bitterroot experimental area. A letter from Wayne Melquist clarifying the statements made in Melquist (1985) and Groves (1987) is Appendix 23 in this FEIS. This letter clarifies that no documented grizzly bear observations were or are available to substantiate the presence of even a single grizzly bear in the experimental area. The USFWS would welcome documentation of grizzly bears in the experimental area, but despite continual efforts to obtain such documentation and follow-ups on reports of bears, no documentation of any grizzly bears is available in the proposed experimental area. The commentor seems to interpret the work of Kunkel and Servheen (1991) that, since they could not confirm the absence of grizzly bears, this means they confirmed the presence of grizzly bears. This is illogical. We would welcome documentation of grizzly bear presence in the Bitterroot. We have no such documentation and the commentor produces none.

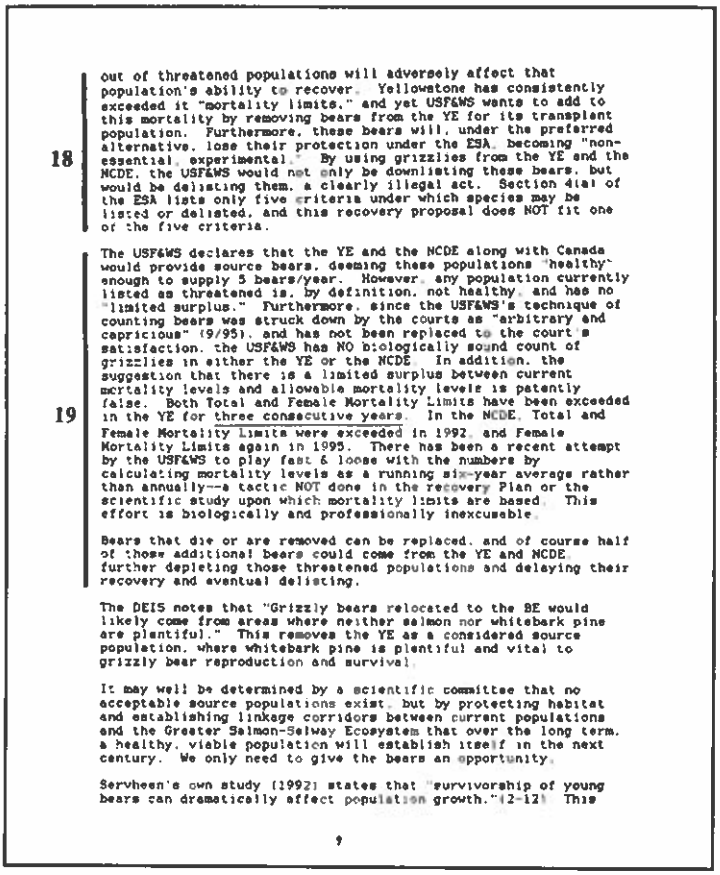
14. The evaluation of the success of the effort will require continued monitoring of marked bears in the restored population. The USFWS will work with scientists to further evaluate these issues in coordination with the CMC. Evaluation of success is a long-term effort. The initial evaluation effort would occur 10 years after the reintroduction, as a start in process of monitoring success of the project.

15. Agree. The sentence referred to has been deleted.

16. Wording has been added to Alternative 1 relating to nomination of CMC members. It states that governors must include with their nominations, written documentation of the qualifications of those nominees relating to their knowledge of and experience in a variety of natural resource issues and relating to their commitment to collaborative decision making.

To include scientific input in the CMC process, wording has been added to Alternative 1 to add 2 non-agency scientific advisors to the CMC who will attend all meetings and provide scientific data on which to make decisions.

The CMC decisions, management plans and their implementation must lead to grizzly bear recovery. If there is concern over CMC actions leading to recovery, a Scientific Review Panel could be invoked to review CMC actions and decisions and make recommendations as to whether CMC actions, decisions, or processes are in compliance with the Special Rule and are leading to recovery. If the Secretary decides to resume management implementation responsibility, he/she must consult with the Governors of Idaho and Montana before taking action. Under the Endangered Species Act, the Secretary of Interior must retain final authority and responsibility for implementation of the Act. See Chapter 2, Alternative 1 for further



out of threatened populations will adversely affect that population's ability to recover. Yellowstone has consistently exceeded it "mortality limits," and yet USF&WS wants to add to this mortality by removing bears from the YE for its transplant population. Furthermore, these bears will, under the preferred alternative, lose their protection under the ESA, becoming "non-essential, experimental." By using grizzlies from the YE and the NCDE, the USF&WS would not only be downlisting these bears, but would be delisting them, a clearly illegal act. Section 4(a) of the ESA lists only five criteria under which species may be listed or delisted, and this recovery proposal does NOT fit one of the five criteria.

18

The USF&WS declares that the YE and the NCDE along with Canada would provide source bears, deeming these populations "healthy" enough to supply 5 bears/year. However, any population currently listed as threatened is, by definition, not healthy, and has no "limited surplus." Furthermore, since the USF&WS's technique of counting bears was struck down by the courts as "arbitrary and capricious" (9/95), and has not been replaced to the court's satisfaction, the USF&WS has NO biologically sound count of grizzlies in either the YE or the NCDE. In addition, the suggestion that there is a limited surplus between current mortality levels and allowable mortality levels is patently false. Both Total and Female Mortality Limits have been exceeded in the YE for three consecutive years. In the NCDE, Total and Female Mortality Limits were exceeded in 1992, and Female Mortality Limits again in 1995. There has been a recent attempt by the USF&WS to play fast & loose with the numbers by calculating mortality levels as a running six-year average rather than annually--a tactic NOT done in the recovery Plan or the scientific study upon which mortality limits are based. This effort is biologically and professionally inexcusable.

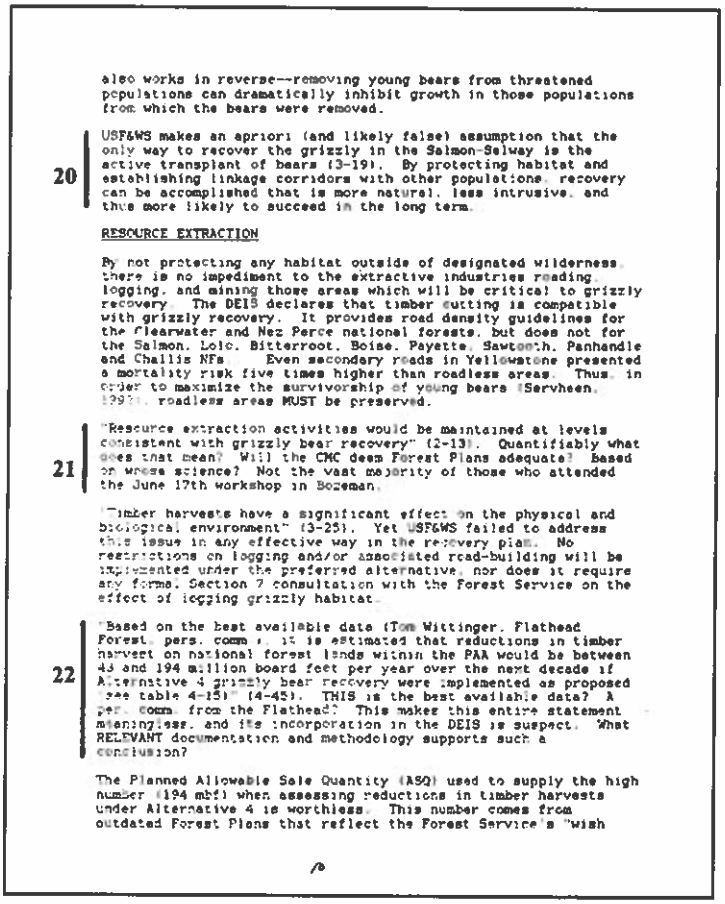
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Bears that die or are removed can be replaced, and of course half of those additional bears could come from the YE and NCDE, further depleting those threatened populations and delaying their recovery and eventual delisting.

The DEIS notes that "Grizzly bears relocated to the BE would likely come from areas where neither salmon nor whitebark pine are plentiful." This removes the YE as a considered source population, where whitebark pine is plentiful and vital to grizzly bear reproduction and survival.

It may well be determined by a scientific committee that no acceptable source populations exist, but by protecting habitat and establishing linkage corridors between current populations and the Greater Salmon-Selway Ecosystem that over the long term, a healthy, viable population will establish itself in the next century. We only need to give the bears an opportunity.

Servheen's own study (1992) states that "survivorship of young bears can dramatically affect population growth."(2-12) This



also works in reverse--removing young bears from threatened populations can dramatically inhibit growth in those populations from which the bears were removed.

20

USF&WS makes an apriori (and likely false) assumption that the only way to recover the grizzly in the Salmon-Selway is the active transplant of bears (3-19). By protecting habitat and establishing linkage corridors with other populations, recovery can be accomplished that is more natural, less intrusive, and thus more likely to succeed in the long term.

RESOURCE EXTRACTION

By not protecting any habitat outside of designated wilderness, there is no impediment to the extractive industries (roading, logging, and mining) those areas which will be critical to grizzly recovery. The DEIS declares that timber cutting is compatible with grizzly recovery. It provides road density guidelines for the Clearwater and Nez Perce national forests, but does not for the Salmon, Lolo, Bitterroot, Boise, Payette, Sawtooth, Panhandle and Challis NFs. Even secondary roads in Yellowstone presented a mortality risk five times higher than roadless areas. Thus, in order to maximize the survivorship of young bears (Servheen, 1993?), roadless areas MUST be preserved.

21

"Resource extraction activities would be maintained at levels consistent with grizzly bear recovery" (2-13). Quantifiably what does that mean? Will the CMC deem Forest Plans adequate? Based on whose science? Not the vast majority of those who attended the June 17th workshop in Bozeman.

"Timber harvests have a significant effect on the physical and biological environment" (3-25). Yet USF&WS failed to address this issue in any effective way in the recovery plan. No restrictions on logging and/or associated road-building will be implemented under the preferred alternative, nor does it require any forms of Section 7 consultation with the Forest Service on the effect of logging grizzly habitat.

22

"Based on the best available data (Tom Wittinger, Flathead Forest, pers. comm.), it is estimated that reductions in timber harvest on national forest lands within the PAA would be between 45 and 194 million board feet per year over the next decade if Alternative 4 grizzly bear recovery were implemented as proposed (see table 4-15)" (4-45). THIS is the best available data? A pers. comm. from the Flathead? This makes this entire statement meaningless, and its incorporation in the DEIS is suspect. What RELEVANT documentation and methodology supports such a conclusion?

The Planned Allowable Sale Quantity (ASQ) used to supply the high number (194 mbf) when assessing reductions in timber harvests under Alternative 4 is worthless. This number comes from outdated Forest Plans that reflect the Forest Service's "wish

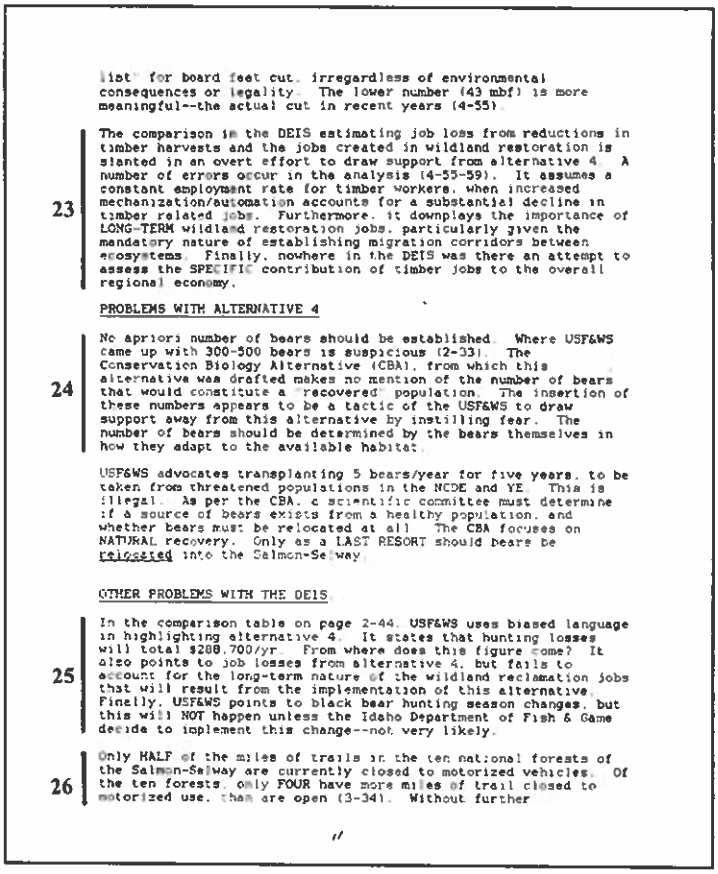
information.

17. The CMC would not have authority over pubic land management decisions. Such decisions are the purview of the National Forests and the processes and public involvement of these forests. The CMC could make recommendations to land and wildlife management agencies regarding changes to plans/policies, but the final decision on implementation of those recommendations would be made by those agencies. If the CMC recommendations would require significant changes to existing plans and policy, and the agencies tentatively agree to accept those recommendations, then the requirements of NEPA could apply.

Most public lands outside wilderness areas within the experimental area are currently subject to the concept of multiple use per NFMA and other national laws and policies. Such multiple use management is supposed to address the needs of both wildlife and human needs to the exclusion of neither, as per NFMA. Decisions about new roads or land developments on public lands are made by the public land management agencies. The CMC does not have authority to "approve or disprove" such decisions. The management of public lands in and around the recovery area is the purview of the public land management agencies, not the CMC.

18. The YE population is increasing and has been so for the last 6-8 years. In the last 3 years in the Yellowstone ecosystem, 204 cubs have been known to be born while 18 bears have been known to die due to human causes. This difference between births and deaths is why this population is increasing. No bears will be removed from any ecosystem in the U.S. if the mortality limits for that ecosystem have been reached or are even close to being reached. In addition, the USFWS will agree to make the decision to remove bears from any ecosystem in Montana or Wyoming only in consultation with the Fish and Game Department of that state. The USFWS has no intentions to allow the removal of grizzly bears from any ecosystems in the U.S. to impede recovery of those source populations. The USFWS will work in concert with the Fish and Game Departments of those states to judge these possible impacts to assure that this is the case.

Contribution of bears from either the YE or NCDE will be based on the current mortality levels for that ecosystem. Mortality data are updated annually and any removal of bears from either ecosystem will be predicated on achievement of the mortality limits. Since these data are updated each year, it is necessary to recalculate mortality levels for both the NCDE and YE prior to making a decision on the origin of any relocated bears. The specific number of grizzly bears that can be obtained from the NCDE or YE is unknown at this time. The female contribution will be designed to minimize



list" for board feet cut, irregardless of environmental consequences or legality. The lower number (43 mbf) is more meaningful--the actual cut in recent years (4-55).

23 The comparison in the DEIS estimating job loss from reductions in timber harvests and the jobs created in wildland restoration is slanted in an overt effort to draw support from alternative 4. A number of errors occur in the analysis (4-55-59). It assumes a constant employment rate for timber workers, when increased mechanization/automation accounts for a substantial decline in timber related jobs. Furthermore, it downplays the importance of LONG-TERM wildland restoration jobs, particularly given the mandatory nature of establishing migration corridors between ecosystems. Finally, nowhere in the DEIS was there an attempt to assess the SPECIFIC contribution of timber jobs to the overall regional economy.

PROBLEMS WITH ALTERNATIVE 4

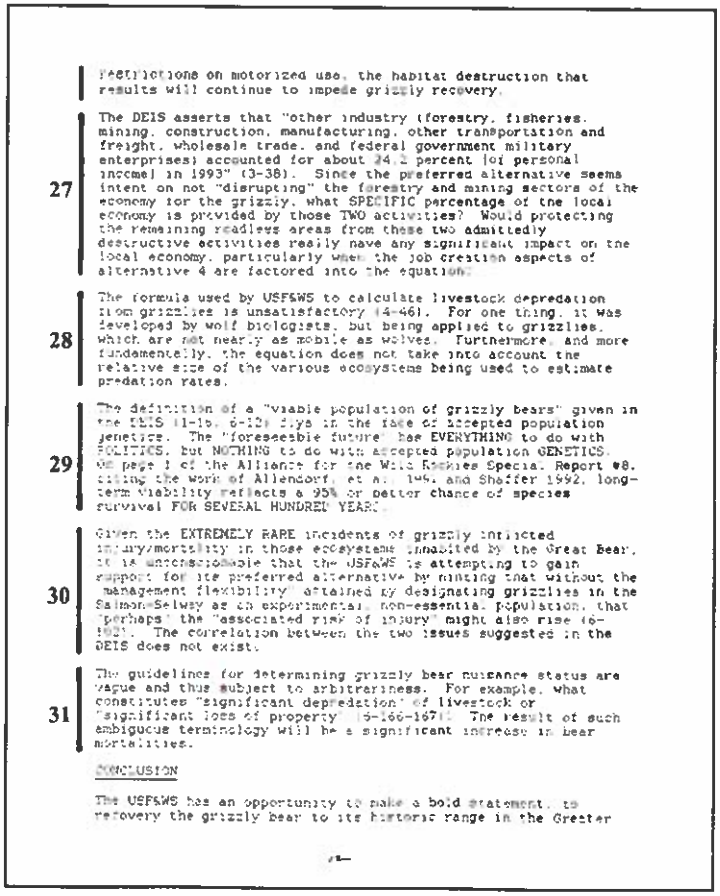
24 No apriori number of bears should be established. Where USF&WS came up with 300-500 bears is suspicious (2-33). The Conservation Biology Alternative (CBA), from which this alternative was drafted makes no mention of the number of bears that would constitute a "recovered" population. The insertion of these numbers appears to be a tactic of the USF&WS to draw support away from this alternative by instilling fear. The number of bears should be determined by the bears themselves in how they adapt to the available habitat.

USF&WS advocates transplanting 5 bears/year for five years, to be taken from threatened populations in the NCDE and YE. This is illegal. As per the CBA, a scientific committee must determine if a source of bears exists from a healthy population, and whether bears must be relocated at all. The CBA focuses on NATURAL recovery. Only as a LAST RESORT should bears be relocated into the Salmon-Selway.

OTHER PROBLEMS WITH THE DEIS

25 In the comparison table on page 2-44, USF&WS uses biased language in highlighting alternative 4. It states that hunting losses will total $288,700/yr. From where does this figure come? It also points to job losses from alternative 4, but fails to account for the long-term nature of the wildland reclamation jobs that will result from the implementation of this alternative. Finally, USF&WS points to black bear hunting season changes, but this will NOT happen unless the Idaho Department of Fish & Game decide to implement this change--not very likely.

26 Only HALF of the miles of trails in the ten national forests of the Salmon-Selway are currently closed to motorized vehicles. Of the ten forests, only FOUR have more miles of trail closed to motorized use, than are open (3-34). Without further



restrictions on motorized use, the habitat destruction that results will continue to impede grizzly recovery.

27 The DEIS asserts that "other industry (forestry, fisheries, mining, construction, manufacturing, other transportation and freight, wholesale trade, and federal government military enterprises) accounted for about 24.2 percent [of personal income] in 1993" (3-38). Since the preferred alternative seems intent on not "disrupting" the forestry and mining sectors of the economy for the grizzly, what SPECIFIC percentage of the local economy is provided by those TWO activities? Would protecting the remaining roadless areas from these two admittedly destructive activities really have any significant impact on the local economy, particularly when the job creation aspects of alternative 4 are factored into the equation?

28 The formula used by USF&WS to calculate livestock depredation from grizzlies is unsatisfactory (4-46). For one thing, it was developed by wolf biologists, but being applied to grizzlies, which are not nearly as mobile as wolves. Furthermore, and more fundamentally, the equation does not take into account the relative size of the various ecosystems being used to estimate predation rates.

29 The definition of a "viable population of grizzly bears" given in the EIS (1-10, 6-12) flys in the face of accepted population genetics. The "foreseeable future" has EVERYTHING to do with POLITICS, but NOTHING to do with accepted population GENETICS. On page 1 of the Alliance for the Wild Rockies Special Report #8, citing the work of Allendorf, et al., 1986, and Shaffer 1992, long-term viability reflects a 95% or better chance of species survival FOR SEVERAL HUNDRED YEARS.

30 Given the EXTREMELY RARE incidents of grizzly inflicted injury/mortality in those ecosystems inhabited by the Great Bear, it is unconscionable that the USF&WS is attempting to gain support for its preferred alternative by hinting that without the "management flexibility" obtained by designating grizzlies in the Salmon-Selway as an experimental, non-essential population, that "perhaps" the "associated risk of injury" might also rise (6-102). The correlation between the two issues suggested in the DEIS does not exist.

31 The guidelines for determining grizzly bear nuisance status are vague and thus subject to arbitrariness. For example, what constitutes "significant depredation" of livestock or "significant loss of property" (6-166-167)? The result of such ambiguous terminology will be a significant increase in bear mortalities.

CONCLUSION

The USF&WS has an opportunity to make a bold statement, to recovery the grizzly bear to its historic range in the Greater

impacts on the source population and no female grizzly bears will be removed from within the NCDE or YE recovery zone boundary or from within 10 miles outside the boundary. The male contribution can be a higher number because population increase is affected little by removal of subadult males. Since no bears will be removed from the YE or NCDE if the mortality limits will be exceeded, and no female bears will be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE will be nonexistent. See Chapter 4, Alternative 1 for the analysis of impacts to source populations.

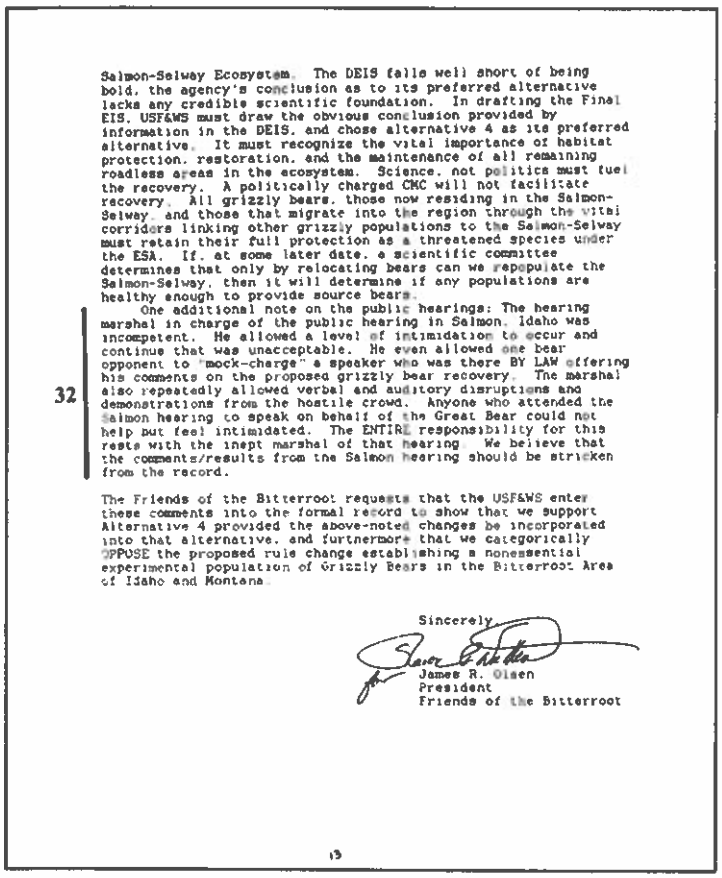
Any bears removed from Canadian populations would be removed under the management constraints on Canadian grizzly bear management which limit human-caused mortalities. We fully support those constraints.

The use of listed members of a species to create an experimental population of that species in a currently unoccupied area is what was intended by Congress in the amendments adding the 10(j) experimental population opportunity (See FEIS Appendix 12). Thus, experimental populations of California condors, blackfooted ferrets, and Mexican wolves have all used animals from listed populations as founders.

19. The wording on "surplus bears" is removed. See answer #18.

20. Disagree. Given that the nearest grizzly population to the Bitterroot experimental area is approximately 40 miles away in the Cabinet Mountains, and that data from more than 550 different radio-collared grizzly bears since 1975 shows no movement between any ecosystems, it is highly unlikely that such movement would occur into the Bitterroot from an area currently occupied by grizzly bears. The identification of linkage zones which will occur under the recovery plan does not mean grizzly bears will use such zones. In contrast to wolves, grizzly bears do not disperse much. In the long-term, the opportunity for bears to move between these ecosystems will improve the health of these populations. In the near term, recovery of a grizzly bear population in the Bitterroot will require placement of bears rather than waiting for eventual dispersal into this area, due to the limited distances of movements of bears outside of existing range to date. The preferred alternative does not preclude movement between systems. It is promoted because the likelihood of natural movement into the Bitterroot in the near term is highly improbable.

21. Existing forest plans are deemed adequate for recovery of the Bitterroot population with recovery emphasized in the 5785 square mile wilderness block as the core of this area.



Salmon-Selway Ecosystem. The DEIS falls well short of being bold, the agency's conclusion as to its preferred alternative lacks any credible scientific foundation. In drafting the Final EIS, USF&WS must draw the obvious conclusion provided by information in the DEIS, and chose alternative 4 as its preferred alternative. It must recognize the vital importance of habitat protection, restoration, and the maintenance of all remaining roadless areas in the ecosystem. Science, not politics must fuel the recovery. A politically charged CMC will not facilitate recovery. All grizzly bears, those now residing in the Salmon-Selway, and those that migrate into the region through the vital corridors linking other grizzly populations to the Salmon-Selway must retain their full protection as a threatened species under the ESA. If, at some later date, a scientific committee determines that only by relocating bears can we repopulate the Salmon-Selway, then it will determine if any populations are healthy enough to provide source bears.

One additional note on the public hearings: The hearing marshal in charge of the public hearing in Salmon, Idaho was incompetent. He allowed a level of intimidation to occur and continue that was unacceptable. He even allowed one bear opponent to "mock-charge" a speaker who was there BY LAW offering his comments on the proposed grizzly bear recovery. The marshal also repeatedly allowed verbal and auditory disruptions and demonstrations from the hostile crowd. Anyone who attended the Salmon hearing to speak on behalf of the Great Bear could not help but feel intimidated. The ENTIRE responsibility for this rests with the inept marshal of that hearing. We believe that the comments/results from the Salmon hearing should be stricken from the record.

32

The Friends of the Bitterroot requests that the USF&WS enter these comments into the formal record to show that we support Alternative 4 provided the above-noted changes be incorporated into that alternative, and furthermore that we categorically OPPOSE the proposed rule change establishing a nonessential experimental population of Grizzly Bears in the Bitterroot Area of Idaho and Montana.

Sincerely,

James R. Olsen
President
Friends of the Bitterroot

13

22. Disagree. This is the best available estimate on the impact of Alternative 4 on timber harvest based on information from the forest that has been the leader in implementation of access management.

23. The discussion of the economic effect of land use restrictions on timber harvest and of road reclamation work is found on pages 4-68 through 4-74 of the FEIS. This discussion attempts to place broad-range estimates of costs, benefits, and job loss and creation on the Alternative 4 actions. It is clear from the discussion and Table 4-16 that a great deal of uncertainty exists as to the short-term employment effects of the Alternative 4 actions. What the Alternative 4 discussion attempts to do is to fairly present the broad range of possible outcomes from Alternative 4 in the form of annual impacts. To do this we relied on the work of Garrity (1996), Power (1992), and information from the USFS. The estimates presented included consideration of changing timber harvest/employment ratios. It should be noted that the discussion of this alternative states that the long-term economic impacts of Alternative 4 may "be significantly more positive than the short-term employment estimates" presented in the document.

24. This number is based on the size of the area proposed for occupancy in Alternative 4 and the expected average density in this area based on best available estimates of expected density.

25. The discussion of how the estimate of potential losses associated with restrictions on black bear hunting were arrived at are found on pages 4-66 and 4-68 of the FEIS. Also noted on these pages is that such losses are dependent on actions being taken by Idaho Department of Fish and Game.

26. Comment noted.

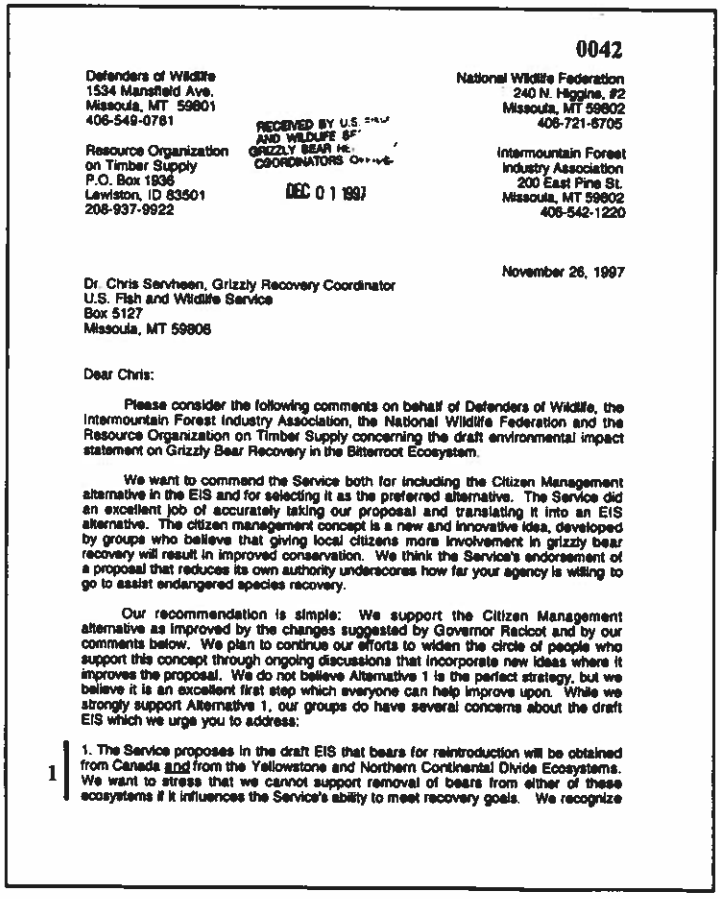
27. Perhaps the best way to answer the question of whether anticipated timber harvest restrictions and habitat restoration activities under Alternative 4 will significantly impact the economies of the local recovery area is to compare the anticipated net employment impacts to the population of the recovery area counties. It is anticipated that the Alternative 4 actions would result in a net annual job decrease over 10 years of between 117 and 1,136 jobs. In the context of an area with a population of roughly 250,000, this job loss likely represents a trivial to small impact on the area economy. Of course, the job impacts, both positive and negative, are unlikely to be distributed evenly throughout the area. Therefore, some localities may benefit or suffer disproportionately from the job impacts. Overall, however, the employment impacts estimated for Alternative 4 are unlikely to seriously impact the economy of the 14-county analysis area.

28. Disagree. The expected values are based on the best available data and estimates of predation rates. The commentor suggests no better method than that used in the DEIS.

29. A viable population is one that has an acceptable probability of survival. Given real world issues, the probability of survival for a population has nothing to do with theoretical genetic issues (no wild population of any animal has ever been documented to go extinct because of genetic problems) and everything to do with the quality and effort of management to address the needs of that population in a responsive and dynamic manner. We believe that the estimates of viability will have to continuously be upgraded based on the best available science and data and that the population will have to be carefully monitored in the future as recovery proceeds to assure that management meets the needs of the bears.

30. The clause that the commentor finds hints at this relationship has been removed.

31. Comment noted but we disagree. The atmosphere at the Salmon, Idaho public hearing was charged, but people holding all views were able to testify.



0042

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406-549-0761

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on Timber Supply
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208-937-9922

National Wildlife Federation
240 N. Higgins, #2
Missoula, MT 59802
406-721-5705

Intermountain Forest
Industry Association
200 East Pine St.
Missoula, MT 59802
406-542-1220

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE

DEC 01 1997

November 26, 1997

Dr. Chris Servheen, Grizzly Recovery Coordinator
U.S. Fish and Wildlife Service
Box 5127
Missoula, MT 59806

Dear Chris:

Please consider the following comments on behalf of Defenders of Wildlife, the Intermountain Forest Industry Association, the National Wildlife Federation and the Resource Organization on Timber Supply concerning the draft environmental impact statement on Grizzly Bear Recovery in the Bitterroot Ecosystem.

We want to commend the Service both for including the Citizen Management alternative in the EIS and for selecting it as the preferred alternative. The Service did an excellent job of accurately taking our proposal and translating it into an EIS alternative. The citizen management concept is a new and innovative idea, developed by groups who believe that giving local citizens more involvement in grizzly bear recovery will result in improved conservation. We think the Service's endorsement of a proposal that reduces its own authority underscores how far your agency is willing to go to assist endangered species recovery.

Our recommendation is simple: We support the Citizen Management alternative as improved by the changes suggested by Governor Racicot and by our comments below. We plan to continue our efforts to widen the circle of people who support this concept through ongoing discussions that incorporate new ideas where it improves the proposal. We do not believe Alternative 1 is the perfect strategy, but we believe it is an excellent first step which everyone can help improve upon. While we strongly support Alternative 1, our groups do have several concerns about the draft EIS which we urge you to address:

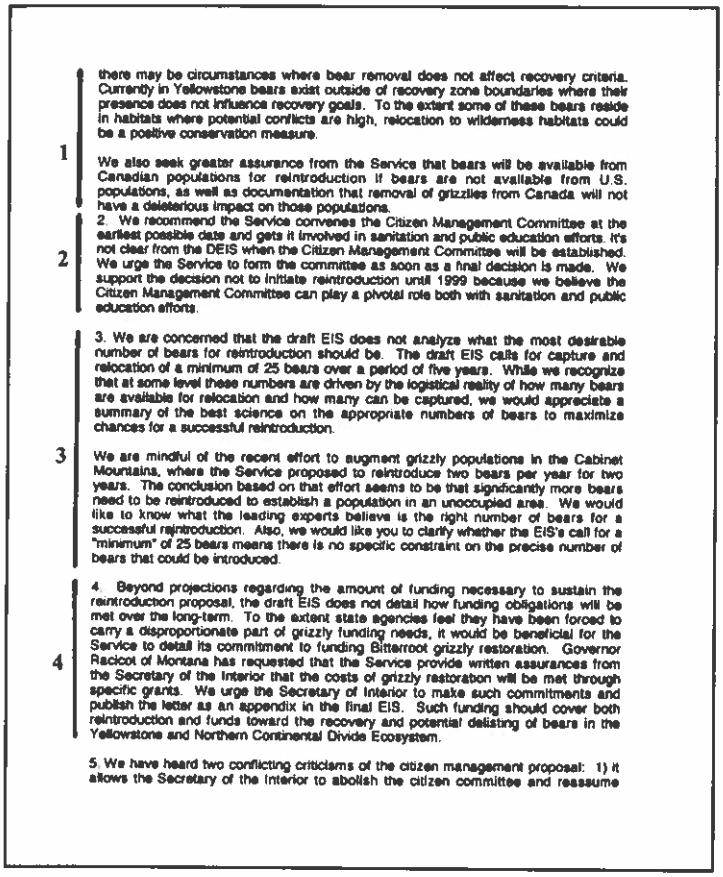
1 1. The Service proposes in the draft EIS that bears for reintroduction will be obtained from Canada and from the Yellowstone and Northern Continental Divide Ecosystems. We want to stress that we cannot support removal of bears from either of these ecosystems if it influences the Service's ability to meet recovery goals. We recognize

Private Organizations, Defenders of Wildlife, Resource Organization on Timber Supply, National Wildlife Federation, Intermountain Forest Industry Association: #42

1. Agree. We cannot formally ask Canada for bears until a decision on an alternative has been made. Any bears removed from Canadian populations would be removed under the management constraints on Canadian grizzly bear management which limit human-caused mortalities. We fully support those constraints.

2. Agree.

3. The DEIS and FEIS present information on the expected time to recovery with the introduction of 25 bears. The number of bears chosen for reintroduction in the preferred alternative was a balance between the availability of bears, the ability to capture and relocate a given number of bears each year, and the time to reach recovered population status. While we agree that it would be desirable to place more bears each year both



there may be circumstances where bear removal does not affect recovery criteria. Currently in Yellowstone bears exist outside of recovery zone boundaries where their presence does not influence recovery goals. To the extent some of these bears reside in habitats where potential conflicts are high, relocation to wilderness habitats could be a positive conservation measure.

1 We also seek greater assurance from the Service that bears will be available from Canadian populations for reintroduction if bears are not available from U.S. populations, as well as documentation that removal of grizzlies from Canada will not have a deleterious impact on those populations.

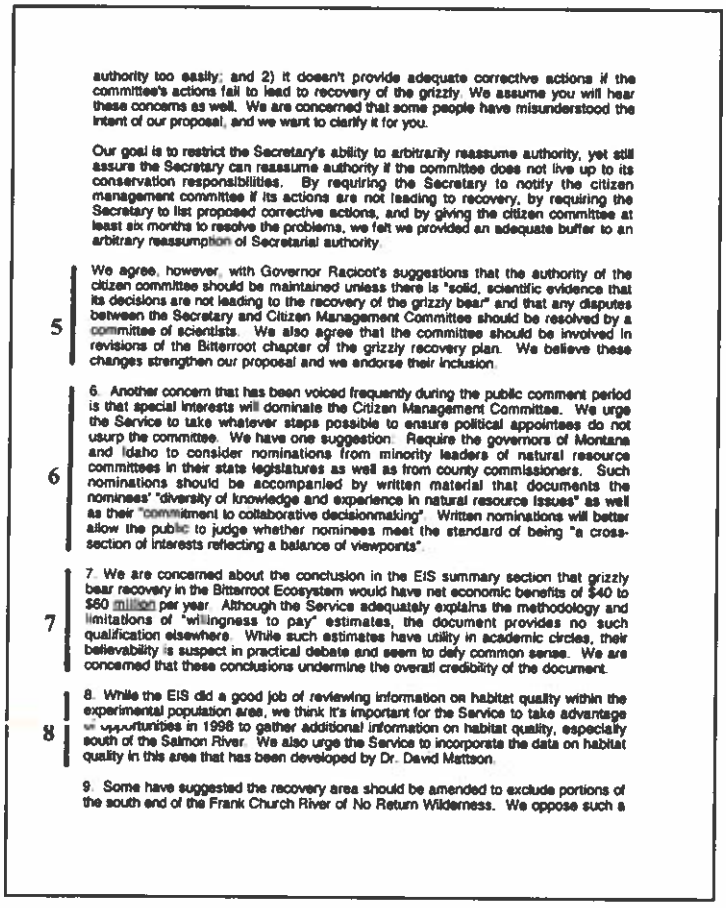
2. We recommend the Service convenes the Citizen Management Committee at the earliest possible date and gets it involved in sanitation and public education efforts. It's not clear from the DEIS when the Citizen Management Committee will be established. 2 We urge the Service to form the committee as soon as a final decision is made. We support the decision not to initiate reintroduction until 1999 because we believe the Citizen Management Committee can play a pivotal role both with sanitation and public education efforts.

3. We are concerned that the draft EIS does not analyze what the most desirable number of bears for reintroduction should be. The draft EIS calls for capture and relocation of a minimum of 25 bears over a period of five years. While we recognize that at some level these numbers are driven by the logistical reality of how many bears are available for relocation and how many can be captured, we would appreciate a summary of the best science on the appropriate numbers of bears to maximize chances for a successful reintroduction.

3 We are mindful of the recent effort to augment grizzly populations in the Cabinet Mountains, where the Service proposed to reintroduce two bears per year for two years. The conclusion based on that effort seems to be that significantly more bears need to be reintroduced to establish a population in an unoccupied area. We would like to know what the leading experts believe is the right number of bears for a successful reintroduction. Also, we would like you to clarify whether the EIS's call for a "minimum" of 25 bears means there is no specific constraint on the precise number of bears that could be introduced.

4. Beyond projections regarding the amount of funding necessary to sustain the reintroduction proposal, the draft EIS does not detail how funding obligations will be met over the long-term. To the extent state agencies feel they have been forced to carry a disproportionate part of grizzly funding needs, it would be beneficial for the Service to detail its commitment to funding Bitterroot grizzly restoration. Governor Racicot of Montana has requested that the Service provide written assurances from the Secretary of the Interior that the costs of grizzly restoration will be met through specific grants. 4 We urge the Secretary of Interior to make such commitments and publish the letter as an appendix in the final EIS. Such funding should cover both reintroduction and funds toward the recovery and potential delisting of bears in the Yellowstone and Northern Continental Divide Ecosystem.

5. We have heard two conflicting criticisms of the citizen management proposal: 1) it allows the Secretary of the Interior to abolish the citizen committee and reassume



authority too easily; and 2) it doesn't provide adequate corrective actions if the committee's actions fail to lead to recovery of the grizzly. We assume you will hear these concerns as well. We are concerned that some people have misunderstood the intent of our proposal, and we want to clarify it for you.

Our goal is to restrict the Secretary's ability to arbitrarily reassume authority, yet still assure the Secretary can reassume authority if the committee does not live up to its conservation responsibilities. By requiring the Secretary to notify the citizen management committee if its actions are not leading to recovery, by requiring the Secretary to list proposed corrective actions, and by giving the citizen committee at least six months to resolve the problems, we felt we provided an adequate buffer to an arbitrary reassumption of Secretarial authority.

5 We agree, however, with Governor Racicot's suggestions that the authority of the citizen committee should be maintained unless there is "solid, scientific evidence that its decisions are not leading to the recovery of the grizzly bear" and that any disputes between the Secretary and Citizen Management Committee should be resolved by a committee of scientists. We also agree that the committee should be involved in revisions of the Bitterroot chapter of the grizzly recovery plan. We believe these changes strengthen our proposal and we endorse their inclusion.

6. Another concern that has been voiced frequently during the public comment period is that special interests will dominate the Citizen Management Committee. We urge the Service to take whatever steps possible to ensure political appointees do not usurp the committee. We have one suggestion: Require the governors of Montana and Idaho to consider nominations from minority leaders of natural resource committees in their state legislatures as well as from county commissioners. Such nominations should be accompanied by written material that documents the nominees' "diversity of knowledge and experience in natural resource issues" as well as their "commitment to collaborative decisionmaking". Written nominations will better allow the public to judge whether nominees meet the standard of being "a cross-section of interests reflecting a balance of viewpoints".

6

7. We are concerned about the conclusion in the EIS summary section that grizzly bear recovery in the Bitterroot Ecosystem would have net economic benefits of $40 to $60 million per year. Although the Service adequately explains the methodology and limitations of "willingness to pay" estimates, the document provides no such qualification elsewhere. While such estimates have utility in academic circles, their believability is suspect in practical debate and seem to defy common sense. We are concerned that these conclusions undermine the overall credibility of the document.

7

8. While the EIS did a good job of reviewing information on habitat quality within the experimental population area, we think it's important for the Service to take advantage of opportunities in 1998 to gather additional information on habitat quality, especially south of the Salmon River. We also urge the Service to incorporate the data on habitat quality in this area that has been developed by Dr. David Mattson.

8

9. Some have suggested the recovery area should be amended to exclude portions of the south end of the Frank Church River of No Return Wilderness. We oppose such a

from the standpoint of a higher probability for success and a shorter time to recovery, we do not think it is possible to capture and relocate more than approximately 5-6 bears per year and the availability or more bears than that in any single year is also limited. Thus, we believe that the numbers selected in the preferred alternative will achieve recovery while establishing a target number of bears that can be relocated over the 5-year placement period. Obviously, the more bears placed in the Bitterroot, the greater the population size and the greater the chance for success, but there are limits on how many bears could be obtained. The "minimum of 25" statement allows replacement of bears that may die soon after placement. It allows placement of more than 25 bears should such mortalities occur.

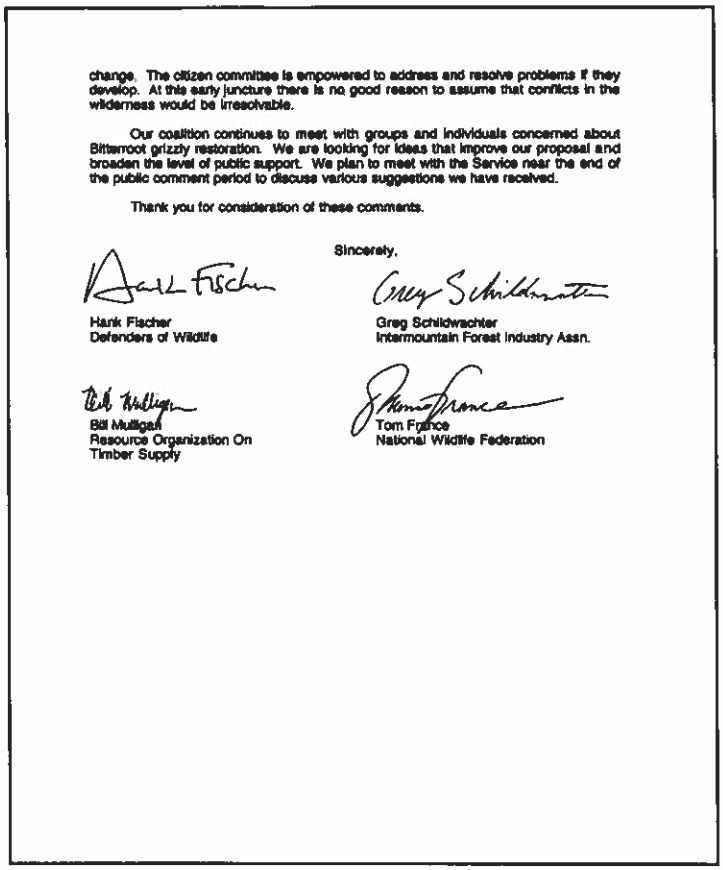
4. The letters from the Director of the USFWS to Governor Racicot of Montana regarding funding are added as FEIS Appendix 24.

5. Agree. A Scientific Review Panel has been added to Alternative 1 (preferred alternative) to judge the effectiveness of the CMC

6. Agree. Such wording has been added to Alternative 1 (preferred alternative).

7. The discussion of the estimation of existence values has been expanded and reorganized in the Final EIS to address the concerns of the relationship between the estimated existence values and money spent in the local communities, and the questions of the validity and usefulness of the value estimates.

Impacts associated with grizzly bear reintroduction in the BE can be measured using different accounting frameworks. The one which perhaps most people are familiar with relates to expenditures; how much more or less money is spent in an area as a result of a management change. Expenditure changes are rightfully of concern to local areas impacted by management actions. Changes in local expenditures impact local workers, businesses, and governments. From a national perspective, however, expenditure gains in one area tend to be offset by expenditure losses in another. Expenditure impacts (particularly from tourism) are largely distributional impacts, benefitting one area at the expense of another. A second accounting framework, a benefit-cost



change. The citizen committee is empowered to address and resolve problems if they develop. At this early juncture there is no good reason to assume that conflicts in the wilderness would be irresolvable.

Our coalition continues to meet with groups and individuals concerned about Bitterroot grizzly restoration. We are looking for ideas that improve our proposal and broaden the level of public support. We plan to meet with the Service near the end of the public comment period to discuss various suggestions we have received.

Thank you for consideration of these comments.

Sincerely,

Hank Fischer
Defenders of Wildlife

Greg Schildwachter
Intermountain Forest Industry Assn.

Bill Mulligan
Resource Organization On Timber Supply

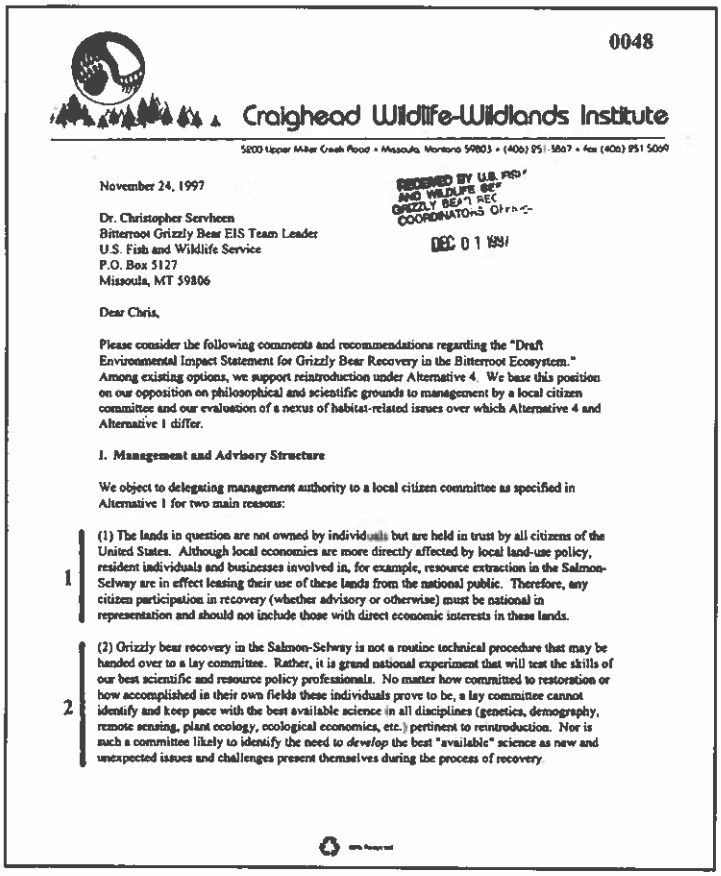
Tom France
National Wildlife Federation

framework, measures not expenditures, but societal benefits and costs. Benefits and costs can be closely, or loosely tied to actual market transactions. In the case of grizzly bear reintroduction, livestock losses are closely tied to market transactions while existence values are less obviously tied to the market.

It is important not to confuse these two accounting frameworks. The estimated annual existence value associated with grizzly reintroduction as reported in the EIS would NOT be characterized by increased expenditures in the recovery area. Rather, these estimates represent aggregate increases in value to people in the U.S. accruing as a result of grizzly reintroduction. A portion (but only a very small portion) of this non-market value would accrue to residents of the local area surrounding the recovery area.

Another concern raised in your letter questions the validity and usefulness of the existence value estimates. While the use of contingent valuation methods to estimate passive use values associated with proposed management changes is not a perfect tool, it is the only accepted tool currently available to economists to measure these types of non-use values. The general approach of using contingent valuation to measure passive-use values has been subject to a court test in a challenge to the 1986 DOI CERCLA regulations (Ohio v. DOI, 880 F.2d 432,474 (D.C. Circuit 1989)). Additionally, in 1992 the National Oceanic and Atmospheric Administration (NOAA) appointed a distinguished panel (including several Nobel laureates in economics) to evaluate the approach in the context of implementing the Oil Pollution Act of 1990. In both instances the method has been judged to be a useful tool for valuation in the context of litigation. For example, the NOAA panel concluded that: "CV studies can produce estimates reliable enough to be the starting point of a judicial process of damage assessment, including lost passive-use values" (Arrow et. al. 1993). It is clear from the above statement that passive-use value estimation using contingent valuation does not produce an irrefutably accurate estimate of value, nor is it claimed to. Rather, the method employed in the EIS provides a rough approximation of the existence value associated with grizzly reintroduction.

8. Appendix 21 on habitat evaluation results has been added to the Final EIS.



0048

Craighead Wildlife-Wildlands Institute

5200 Upper Miller Creek Road • Missoula, Montana 59803 • (406) 251-5867 • fax (406) 251-5099

November 24, 1997

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR REC COORDINATORS OFFICE

DEC 01 1997

Dr. Christopher Servheen
Bitterroot Grizzly Bear EIS Team Leader
U.S. Fish and Wildlife Service
P.O. Box 5127
Missoula, MT 59806

Dear Chris,

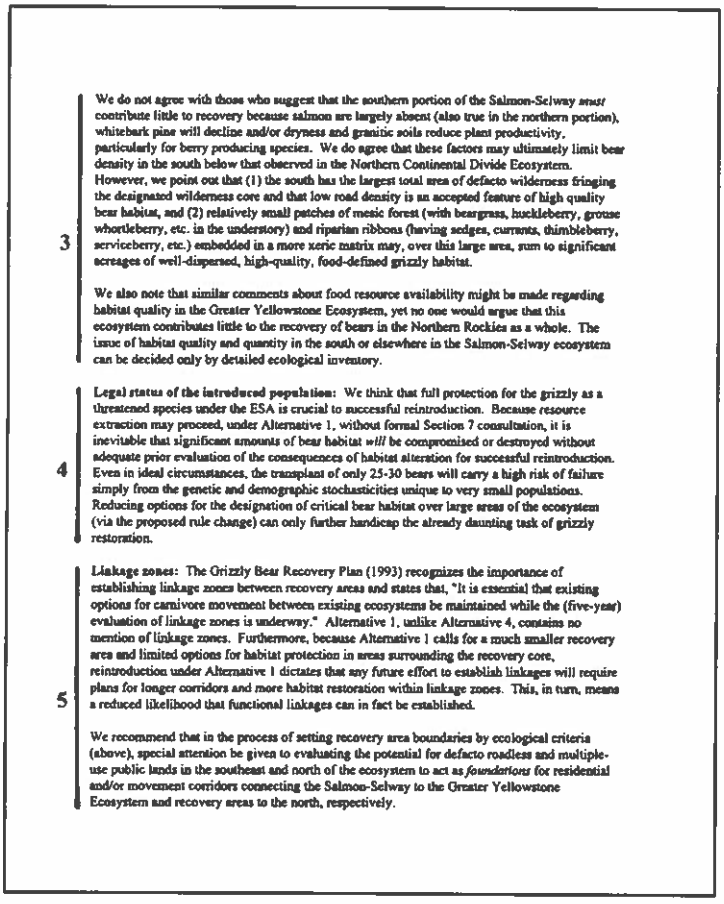
Please consider the following comments and recommendations regarding the "Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem." Among existing options, we support reintroduction under Alternative 4. We base this position on our opposition on philosophical and scientific grounds to management by a local citizen committee and our evaluation of a nexus of habitat-related issues over which Alternative 4 and Alternative 1 differ.

1. Management and Advisory Structure

We object to delegating management authority to a local citizen committee as specified in Alternative 1 for two main reasons:

1 (1) The lands in question are not owned by individuals but are held in trust by all citizens of the United States. Although local economies are more directly affected by local land-use policy, resident individuals and businesses involved in, for example, resource extraction in the Salmon-Selway are in effect leasing their use of these lands from the national public. Therefore, any citizen participation in recovery (whether advisory or otherwise) must be national in representation and should not include those with direct economic interests in these lands.

2 (2) Grizzly bear recovery in the Salmon-Selway is not a routine technical procedure that may be handed over to a lay committee. Rather, it is grand national experiment that will test the skills of our best scientific and resource policy professionals. No matter how committed to restoration or how accomplished in their own fields these individuals prove to be, a lay committee cannot identify and keep pace with the best available science in all disciplines (genetics, demography, remote sensing, plant ecology, ecological economics, etc.) pertinent to reintroduction. Nor is such a committee likely to identify the need to *develop* the best "available" science as new and unexpected issues and challenges present themselves during the process of recovery.



3 We do not agree with those who suggest that the southern portion of the Salmon-Selway *must* contribute little to recovery because salmon are largely absent (also true in the northern portion), whitebark pine will decline and/or dryness and granitic soils reduce plant productivity, particularly for berry producing species. We do agree that these factors may ultimately limit bear density in the south below that observed in the Northern Continental Divide Ecosystem. However, we point out that (1) the south has the largest total area of defacto wilderness fringing the designated wilderness core and that low road density is an accepted feature of high quality bear habitat, and (2) relatively small patches of mesic forest (with beargrass, huckleberry, grouse whortleberry, etc. in the understory) and riparian ribbons (having sedges, currants, thimbleberry, serviceberry, etc.) embedded in a more xeric matrix may, over this large area, sum to significant acreages of well-dispersed, high-quality, food-defined grizzly habitat.

We also note that similar comments about food resource availability might be made regarding habitat quality in the Greater Yellowstone Ecosystem, yet no one would argue that this ecosystem contributes little to the recovery of bears in the Northern Rockies as a whole. The issue of habitat quality and quantity in the south or elsewhere in the Salmon-Selway ecosystem can be decided only by detailed ecological inventory.

4 **Legal status of the introduced population:** We think that full protection for the grizzly as a threatened species under the ESA is crucial to successful reintroduction. Because resource extraction may proceed, under Alternative 1, without formal Section 7 consultation, it is inevitable that significant amounts of bear habitat *will* be compromised or destroyed without adequate prior evaluation of the consequences of habitat alteration for successful reintroduction. Even in ideal circumstances, the transplant of only 25-30 bears will carry a high risk of failure simply from the genetic and demographic stochasticities unique to very small populations. Reducing options for the designation of critical bear habitat over large areas of the ecosystem (via the proposed rule change) can only further handicap the already daunting task of grizzly restoration.

5 **Linkage zones:** The Grizzly Bear Recovery Plan (1993) recognizes the importance of establishing linkage zones between recovery areas and states that, "It is essential that existing options for carnivore movement between existing ecosystems be maintained while the (five-year) evaluation of linkage zones is underway." Alternative 1, unlike Alternative 4, contains no mention of linkage zones. Furthermore, because Alternative 1 calls for a much smaller recovery area and limited options for habitat protection in areas surrounding the recovery core, reintroduction under Alternative 1 dictates that any future effort to establish linkages will require plans for longer corridors and more habitat restoration within linkage zones. This, in turn, means a reduced likelihood that functional linkages can in fact be established.

We recommend that in the process of setting recovery area boundaries by ecological criteria (above), special attention be given to evaluating the potential for defacto roadless and multiple-use public lands in the southeast and north of the ecosystem to act as *foundations* for residential and/or movement corridors connecting the Salmon-Selway to the Greater Yellowstone Ecosystem and recovery areas to the north, respectively.

Private Organization, Craighead Wildlife-Wildlands Institute: # 48

1. Thank you for your comment.

2. Thank you for your comment.

3. Appendix 21 provides additional information regarding habitat quality in the BE.

4. Thank you for your comment.

5. A linkage zone analysis is currently ongoing and will determine the opportunities for connections from other ecosystems to the Bitterroot. This analysis and report is expected to be completed in 2000. Furthermore Alternative 1 states that linkage zones to the Bitterroot could be considered from management of other ecosystems. Any grizzly bears entering the experimental area from another ecosystem would be considered experimental, though this occurrence is not considered likely and is addressed in Alternative 2 No Action - Natural Recovery. See page 5-86, Friends of the Bitterroot letter #22 response, issue #2, for more information.

6. The answer to this question will be based on the Scientific Review Panel approach added to the FEIS to review CMC progress and provide recommendations to the Secretary as to whether CMC actions and decisions are leading to recovery. All steps within this process must be completed in a timely manner. See Chapter 2, Alternative 1 for more information. We are unable to predict the likelihood of lawsuits or the time associated with court decisions associated with such lawsuits

7. Thank you for your comment.

8. Thank you for your comment.

6 We realize that, under Alternative 1, all actions of the citizen committee must lead to recovery and that the Secretary of the Interior may resume management responsibility if he/she deems those actions inadequate for recovery. But what will be the lag time between such errors and their correction? And what is the likelihood that legal challenges over a disbanding of the committee will occur and further delay corrective action?

7 We have no objection to encouraging citizen involvement in endangered species recovery programs. In fact, we applaud the USFWS for its willingness to increase private sector involvement in the recovery process. Some of the ESA's most notable successes (e.g., the peregrine falcon) owe much to the efforts of the civilian *proponents* of recovery.

However, we think that the citizen committee specified by Alternative 1 could set a damaging precedent for resource management on our public lands. We suggest that you:

(i) retain management oversight and authority with the USFWS,

(ii) establish and substantively involve an advisory committee of independent scientists selected from a range of appropriate disciplines (as outlined in Alternative 4), and

(iii) similarly establish and involve a citizen advisory committee selected to represent both the national and regional population on issues for which such individuals may reasonably be regarded as experts.

More generally, we recommend a more considered and formal *national* discussion to evaluate the pros and cons of shifting federal management responsibility to local citizen committees.

II. Habitat Considerations

8 **Location and size of the recovery area:** Recovery area boundaries should be defined in the final action by explicit ecological criteria and not, as in Alternative 1, by arbitrary administrative boundaries. That is, boundaries should be defined by an informed consideration of how grizzlies can be expected to use the *entire* Salmon-Selway landscape in view of the spatial distribution of bear foods and other key habitat features (denning sites, road densities, etc.). Although Davis and Butterfield's (1991) early habitat evaluation was helpful in moving the idea of reintroduction forward, their inventory is not adequate to this task in large part because it is not sufficiently detailed and it is limited in geographical scope to portions of the Selway-Bitterroot Wilderness. Nonetheless, a proper ecological definition of the recovery area will not require new research or undue delays. We have invested two years (ca. 40 person-months of field work and 2000 well-distributed plots) in mapping vegetation throughout the Salmon-Selway (wilderness cores and fringing public lands). Our GIS contains the same types of layers as Davis and Butterfield (land cover, hydrography, roads, ownership, etc.) but uses more recent (Landsat TM) imagery, benefits from cutting-edge methods of image analysis, recognizes more cover classes, has a smaller minimum mapping unit (5 acres in uplands and 1 acre in riparian zones), and incorporates statistical innovations involving (i) prediction of the understory in addition to canopy and (ii) spatial analyses of the accuracy (error rate) of the understory and canopy classifications.

Thank you for your careful consideration of these comments.

Sincerely,

John J. Craighead
Founder/Board Chair

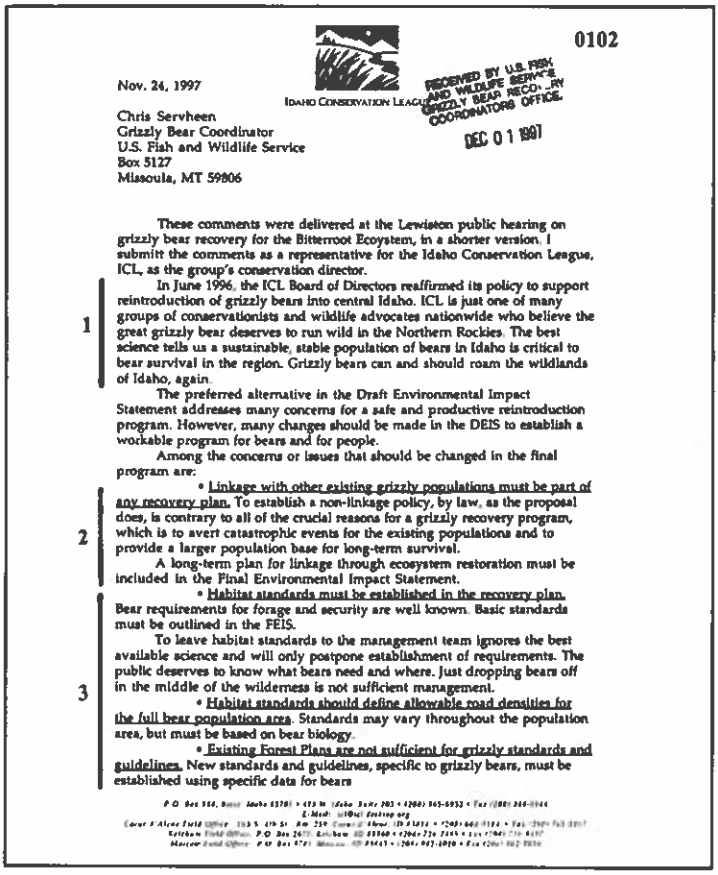
John T. Hogg
Science Director/Research Biologist

John W. Craighead
Research Biologist

Marcy Mahr
Research Biologist

Noel Weaver
Research Biologist

cc: Bitterroot Ecosystem Grizzly Bear Recovery EIS Team members



0102

Nov. 24, 1997

IDAHO CONSERVATION LEAGUE

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE.

DEC 01 1997

Chris Servheen
Grizzly Bear Coordinator
U.S. Fish and Wildlife Service
Box 5127
Missoula, MT 59806

These comments were delivered at the Lewiston public hearing on grizzly bear recovery for the Bitterroot Ecosystem, in a shorter version. I submit the comments as a representative for the Idaho Conservation League, ICL, as the group's conservation director.

1 In June 1996, the ICL Board of Directors reaffirmed its policy to support reintroduction of grizzly bears into central Idaho. ICL is just one of many groups of conservationists and wildlife advocates nationwide who believe the great grizzly bear deserves to run wild in the Northern Rockies. The best science tells us a sustainable, stable population of bears in Idaho is critical to bear survival in the region. Grizzly bears can and should roam the wildlands of Idaho, again.

The preferred alternative in the Draft Environmental Impact Statement addresses many concerns for a safe and productive reintroduction program. However, many changes should be made in the DEIS to establish a workable program for bears and for people.

Among the concerns or issues that should be changed in the final program are:

2 • Linkage with other existing grizzly populations must be part of any recovery plan. To establish a non-linkage policy, by law, as the proposal does, is contrary to all of the crucial reasons for a grizzly recovery program, which is to avert catastrophic events for the existing populations and to provide a larger population base for long-term survival.

A long-term plan for linkage through ecosystem restoration must be included in the Final Environmental Impact Statement.

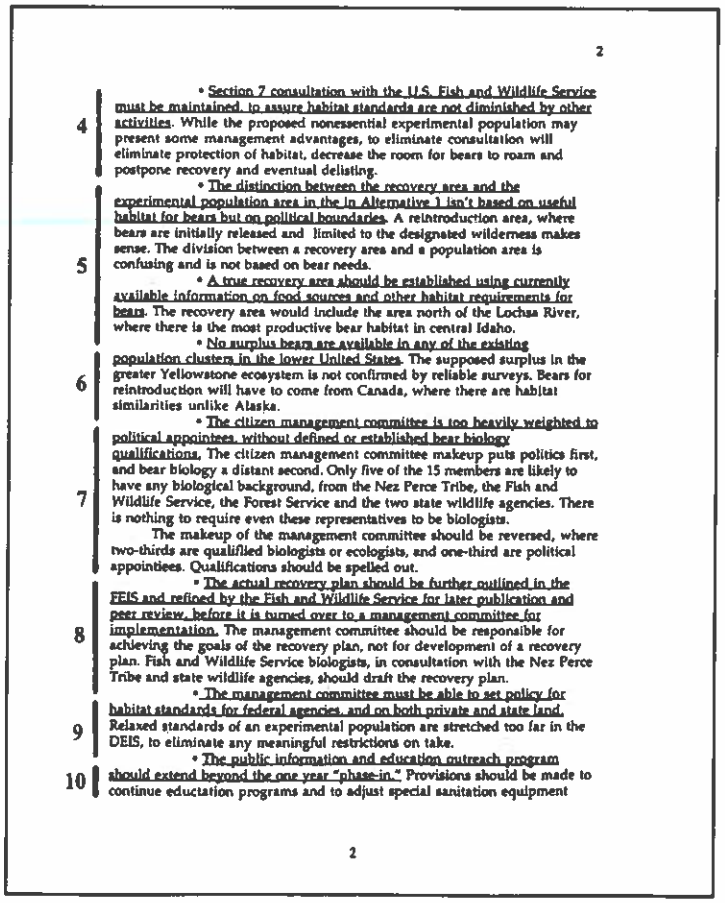
3 • Habitat standards must be established in the recovery plan. Bear requirements for forage and security are well known. Basic standards must be outlined in the FEIS.

To leave habitat standards to the management team ignores the best available science and will only postpone establishment of requirements. The public deserves to know what bears need and where. Just dropping bears off in the middle of the wilderness is not sufficient management.

• Habitat standards should define allowable road densities for the full bear population area. Standards may vary throughout the population area, but must be based on bear biology.

• Existing Forest Plans are not sufficient for grizzly standards and guidelines. New standards and guidelines, specific to grizzly bears, must be established using specific data for bears

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4 • Section 7 consultation with the U.S. Fish and Wildlife Service must be maintained, to assure habitat standards are not diminished by other activities. While the proposed nonessential experimental population may present some management advantages, to eliminate consultation will eliminate protection of habitat, decrease the room for bears to roam and postpone recovery and eventual delisting.

5 • The distinction between the recovery area and the experimental population area in the In Alternative 3 isn't based on useful habitat for bears but on political boundaries. A reintroduction area, where bears are initially released and limited to the designated wilderness makes sense. The division between a recovery area and a population area is confusing and is not based on bear needs.

• A true recovery area should be established using currently available information on food sources and other habitat requirements for bears. The recovery area would include the area north of the Lochsa River, where there is the most productive bear habitat in central Idaho.

6 • No surplus bears are available in any of the existing population clusters in the lower United States. The supposed surplus in the greater Yellowstone ecosystem is not confirmed by reliable surveys. Bears for reintroduction will have to come from Canada, where there are habitat similarities unlike Alaska.

7 • The citizen management committee is too heavily weighted to political appointees, without defined or established bear biology qualifications. The citizen management committee makeup puts politics first, and bear biology a distant second. Only five of the 15 members are likely to have any biological background, from the Nez Perce Tribe, the Fish and Wildlife Service, the Forest Service and the two state wildlife agencies. There is nothing to require even these representatives to be biologists.

The makeup of the management committee should be reversed, where two-thirds are qualified biologists or ecologists, and one-third are political appointees. Qualifications should be spelled out.

8 • The actual recovery plan should be further outlined in the FEIS and refined by the Fish and Wildlife Service for later publication and peer review, before it is turned over to a management committee for implementation. The management committee should be responsible for achieving the goals of the recovery plan, not for development of a recovery plan. Fish and Wildlife Service biologists, in consultation with the Nez Perce Tribe and state wildlife agencies, should draft the recovery plan.

9 • The management committee must be able to set policy for habitat standards for federal agencies, and on both private and state land. Relaxed standards of an experimental population are stretched too far in the DEIS, to eliminate any meaningful restrictions on take.

10 • The public information and education outreach program should extend beyond the one year "phase-in." Provisions should be made to continue education programs and to adjust special sanitation equipment

Private Organization, Idaho Conservation League: #102

1. Thank you for your comments.

2. See page 5-119, Friends of the Bitterroot letter #22 response, issue #2, for more information.

3. The USFWS believes adequate, quality habitat exists in Central Idaho to currently support a viable grizzly bear population. The USFWS has reviewed current land management plans via Section 7 consultation and has determined that current habitat management is sufficient. Future changes in habitat and agency land management plans will be reviewed for adequacy by the Citizen Management Committee. Future changes in the Recovery Plan will be made as appropriate.

4. The USFWS believes the Citizen Management Committee (as modified in this FEIS in response to public comment) oversight will be adequate.

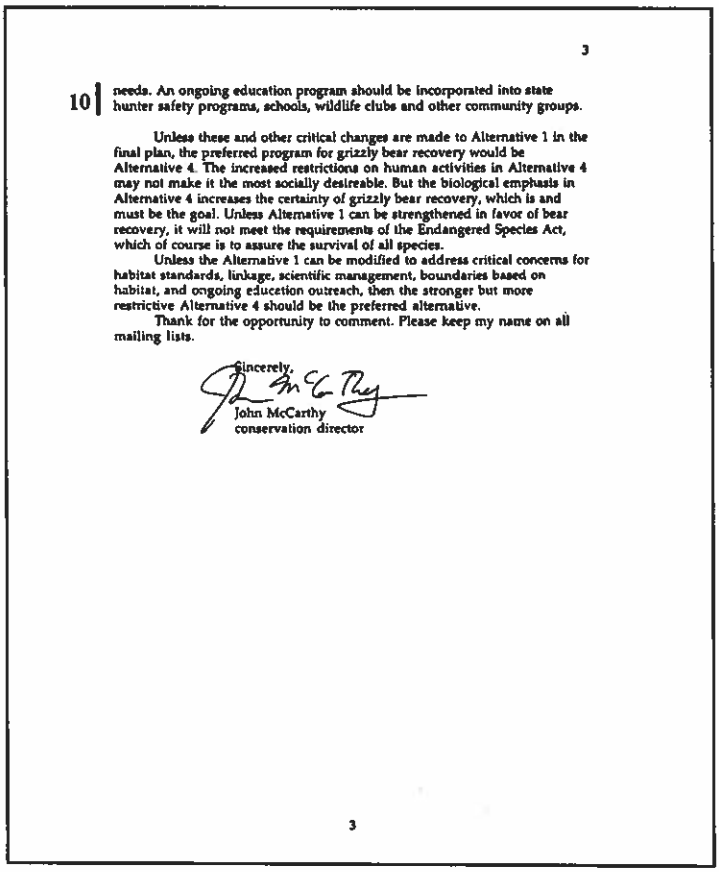
5. Thank you for your comment. The final proposal incorporates your suggestion.

6. Thank you for your comment.

7. The CMC has been modified in this FEIS, taking your suggestion into consideration.

8. The current Recovery Plan for the Bitterroot Ecosystem was developed and written by the agencies you suggested. The Service approved this chapter in September, 1996. Suggested initial goals for the CMC are presented in this FEIS (Chapter 2, Alternative 1).

The CMC may recommend refined interim recovery goals for the Bitterroot Chapter of the Grizzly Bear Recovery Plan and a final recovery goal when sufficient information is available. Sufficient information is currently not available to develop a scientifically sound final recovery goal. As this information becomes available, the CMC may recommend the recovery goal to the Secretary of the Interior and procedures for determining how this goal will be measured. The recovery goal for the Bitterroot grizzly bear population would be consistent with the habitat available within the Recovery Area. Additional adjacent areas of



3

10 needs. An ongoing education program should be incorporated into state hunter safety programs, schools, wildlife clubs and other community groups.

Unless these and other critical changes are made to Alternative 1 in the final plan, the preferred program for grizzly bear recovery would be Alternative 4. The increased restrictions on human activities in Alternative 4 may not make it the most socially desireable. But the biological emphasis in Alternative 4 increases the certainty of grizzly bear recovery, which is and must be the goal. Unless Alternative 1 can be strengthened in favor of bear recovery, it will not meet the requirements of the Endangered Species Act, which of course is to assure the survival of all species.

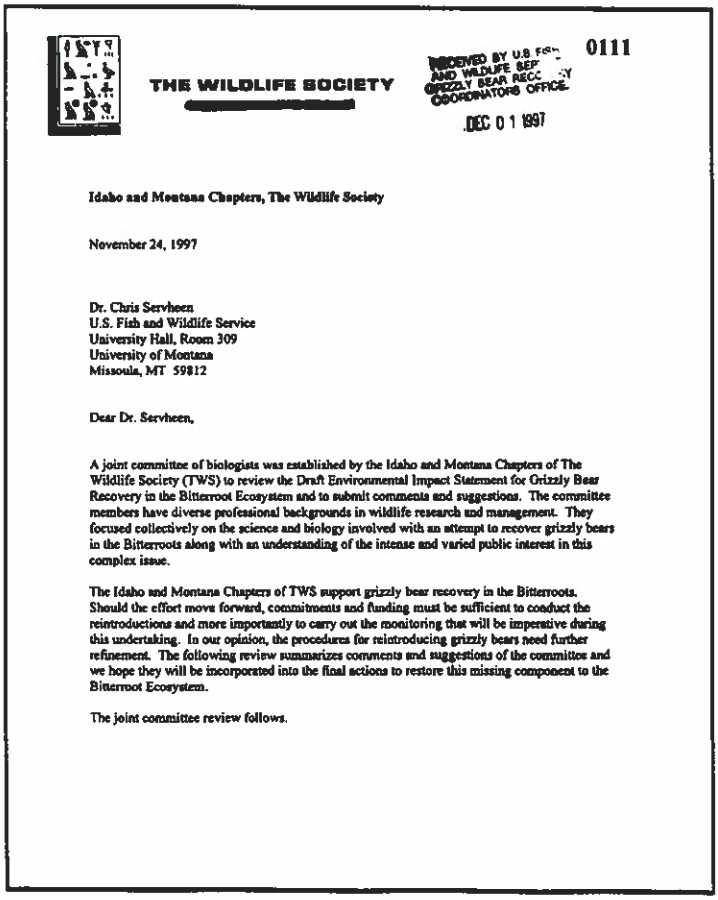
Unless the Alternative 1 can be modified to address critical concerns for habitat standards, linkage, scientific management, boundaries based on habitat, and ongoing education outreach, then the stronger but more restrictive Alternative 4 should be the preferred alternative.

Thank for the opportunity to comment. Please keep my name on all mailing lists.

Sincerely,

John McCarthy
conservation director

3



0111

THE WILDLIFE SOCIETY

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE

DEC 0 1 1997

Idaho and Montana Chapters, The Wildlife Society

November 24, 1997

Dr. Chris Servheen
U.S. Fish and Wildlife Service
University Hall, Room 309
University of Montana
Missoula, MT 59812

Dear Dr. Servheen,

A joint committee of biologists was established by the Idaho and Montana Chapters of The Wildlife Society (TWS) to review the Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem and to submit comments and suggestions. The committee members have diverse professional backgrounds in wildlife research and management. They focused collectively on the science and biology involved with an attempt to recover grizzly bears in the Bitterroots along with an understanding of the intense and varied public interest in this complex issue.

The Idaho and Montana Chapters of TWS support grizzly bear recovery in the Bitterroots. Should the effort move forward, commitments and funding must be sufficient to conduct the reintroductions and more importantly to carry out the monitoring that will be imperative during this undertaking. In our opinion, the procedures for reintroducing grizzly bears need further refinement. The following review summarizes comments and suggestions of the committee and we hope they will be incorporated into the final actions to restore this missing component to the Bitterroot Ecosystem.

The joint committee review follows.

public land may be considered for contribution of suitable habitat when setting the recovery goal if it is shown to be necessary by the best scientific and commercial data available. Any recommendations for revised recovery goals developed by the CMC would require public review and USFWS approval as appropriate for any revision of any recovery plan. Grizzly bears outside the Recovery Area and within the Experimental Area would contribute to meeting the recovery goal if there is reasonable certainty of their long-term occupancy in such habitats outside the Recovery Area.

9. This grizzly bear reintroduction proposal is not a land management allocation decision. This is not within the authority of the USFWS, and not within the scope of this FEIS. See Chapter 1, page 1-12, "Scope of this FEIS."

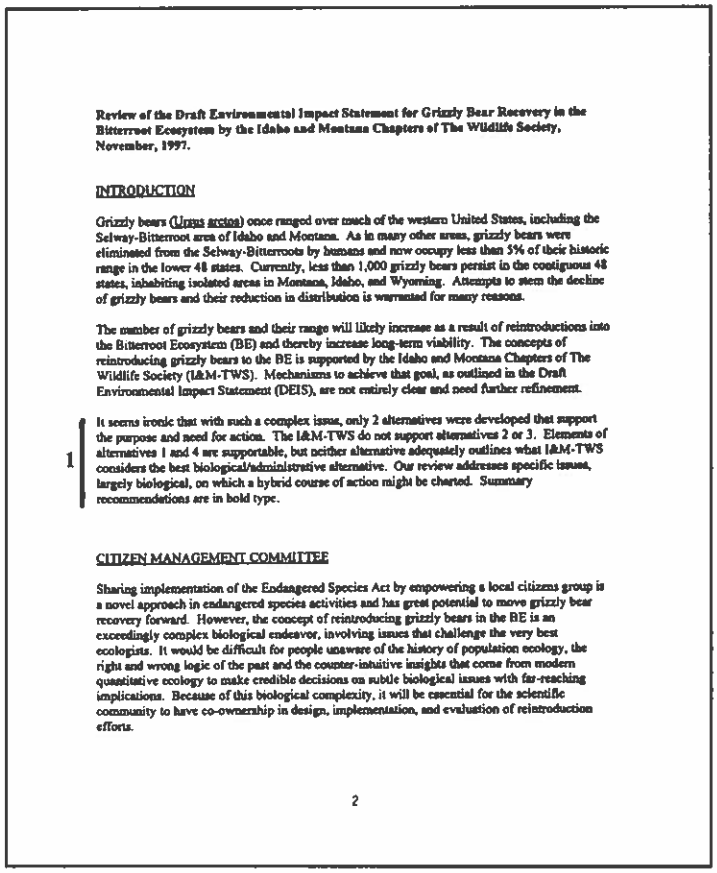
10. Grizzly bear conservation requires continuing outreach work. The USFWS expects this ongoing information/education need to be addressed and implemented via the CMC. The FEIS has been modified to include a proactive information and education program under the preferred alternative. The first year of Alternative 1 implementation would be focused on outreach, sanitation, and I&E activities.

Private Organization, The Wildlife Society: #111

1. Comment noted. Two additional alternatives have been added in this FEIS.

2. The wording of Alternative 1 has been modified to add two non-agency scientific advisors to the CMC to assure scientific involvement and to provide the CMC with he best available information to make decisions.

3. Management of nuisance bears is envisioned to be similar to the existing management system used in other ecosystems. Bears in the experimental population in the Bitterroot would be fully protected against illegal killing under federal law under the ESA. Grizzly bears could only be killed in the Bitterroot in self defense or defense of others (as in all fully listed populations), or, in the special circumstance on private land where a depredating bear was unable to be captured by state or federal management officials, a permit could be issued



Review of the Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem by the Idaho and Montana Chapters of The Wildlife Society, November, 1997.

INTRODUCTION

Grizzly bears (Ursus arctos) once ranged over much of the western United States, including the Selway-Bitterroot area of Idaho and Montana. As in many other areas, grizzly bears were eliminated from the Selway-Bitterroots by humans and now occupy less than 5% of their historic range in the lower 48 states. Currently, less than 1,000 grizzly bears persist in the contiguous 48 states, inhabiting isolated areas in Montana, Idaho, and Wyoming. Attempts to stem the decline of grizzly bears and their reduction in distribution is warranted for many reasons.

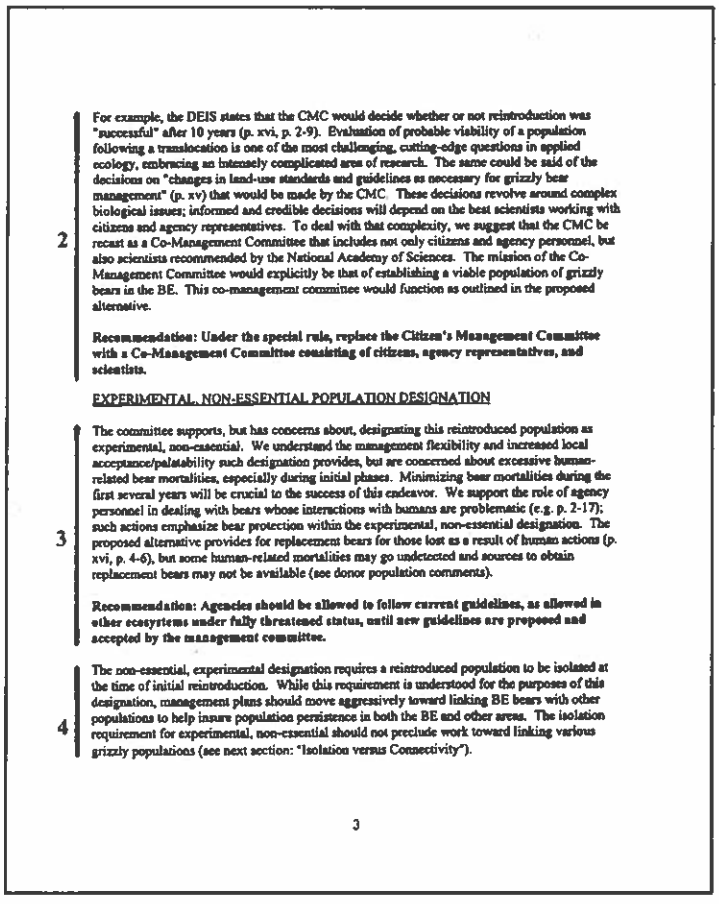
The number of grizzly bears and their range will likely increase as a result of reintroductions into the Bitterroot Ecosystem (BE) and thereby increase long-term viability. The concepts of reintroducing grizzly bears to the BE is supported by the Idaho and Montana Chapters of The Wildlife Society (I&M-TWS). Mechanisms to achieve that goal, as outlined in the Draft Environmental Impact Statement (DEIS), are not entirely clear and need further refinement.

1 It seems ironic that with such a complex issue, only 2 alternatives were developed that support the purpose and need for action. The I&M-TWS do not support alternatives 2 or 3. Elements of alternatives 1 and 4 are supportable, but neither alternative adequately outlines what I&M-TWS considers the best biological/administrative alternative. Our review addresses specific issues, largely biological, on which a hybrid course of action might be charted. Summary recommendations are in bold type.

CITIZEN MANAGEMENT COMMITTEE

Sharing implementation of the Endangered Species Act by empowering a local citizens group is a novel approach in endangered species activities and has great potential to move grizzly bear recovery forward. However, the concept of reintroducing grizzly bears in the BE is an exceedingly complex biological endeavor, involving issues that challenge the very best ecologists. It would be difficult for people unaware of the history of population ecology, the right and wrong logic of the past and the counter-intuitive insights that come from modern quantitative ecology to make credible decisions on subtle biological issues with far-reaching implications. Because of this biological complexity, it will be essential for the scientific community to have co-ownership in design, implementation, and evaluation of reintroduction efforts.

2



2 For example, the DEIS states that the CMC would decide whether or not reintroduction was "successful" after 10 years (p. xvi, p. 2-9). Evaluation of probable viability of a population following a translocation is one of the most challenging, cutting-edge questions in applied ecology, embracing an intensely complicated area of research. The same could be said of the decisions on "changes in land-use standards and guidelines as necessary for grizzly bear management" (p. xv) that would be made by the CMC. These decisions revolve around complex biological issues; informed and credible decisions will depend on the best scientists working with citizens and agency representatives. To deal with that complexity, we suggest that the CMC be recast as a Co-Management Committee that includes not only citizens and agency personnel, but also scientists recommended by the National Academy of Sciences. The mission of the Co-Management Committee would explicitly be that of establishing a viable population of grizzly bears in the BE. This co-management committee would function as outlined in the proposed alternative.

Recommendation: Under the special rule, replace the Citizen's Management Committee with a Co-Management Committee consisting of citizens, agency representatives, and scientists.

EXPERIMENTAL, NON-ESSENTIAL POPULATION DESIGNATION

3 The committee supports, but has concerns about, designating this reintroduced population as experimental, non-essential. We understand the management flexibility and increased local acceptance/palatability such designation provides, but are concerned about excessive human-related bear mortalities, especially during initial phases. Minimizing bear mortalities during the first several years will be crucial to the success of this endeavor. We support the role of agency personnel in dealing with bears whose interactions with humans are problematic (e.g. p. 2-17); such actions emphasize bear protection within the experimental, non-essential designation. The proposed alternative provides for replacement bears for those lost as a result of human actions (p. xvi, p. 4-6), but some human-related mortalities may go undetected and sources to obtain replacement bears may not be available (see donor population comments).

Recommendation: Agencies should be allowed to follow current guidelines, as allowed in other ecosystems under fully threatened status, until new guidelines are proposed and accepted by the management committee.

4 The non-essential, experimental designation requires a reintroduced population to be isolated at the time of initial reintroduction. While this requirement is understood for the purposes of this designation, management plans should move aggressively toward linking BE bears with other populations to help insure population persistence in both the BE and other areas. The isolation requirement for experimental, non-essential should not preclude work toward linking various grizzly populations (see next section: "Isolation versus Connectivity").

3

to that landowner to kill that bear. Otherwise killing of bears in the experimental Bitterroot population is illegal and would be prosecuted under federal law.

4. Agree. The linkage zone analysis is proceeding and will be completed in 2000. A metapopulation analysis completed for the FEIS is included as Appendix 21C.

5. Agree. The health of donor populations is important as well as the genetic diversity of the donor animals. We will work with scientists to further evaluate these issues in coordination with the CMC.

6. Agree. The evaluation of the success of the effort will require continued monitoring of marked bears in the restored populations. We will work with scientists to further evaluate these issues in coordination with the CMC.

7. Agree. The evaluation of release sites will be done.

8. Agree. The recovery goal will be evaluated in the future by the CMC based on the best available science as stated in Alternative 1, Chapter 2.

9. Agree. Additional habitat evaluations are presented in Appendix 21 of this FEIS.

10. Agree. Careful measures of success and progress are necessary. Such measures of success will be one of the tasks of the CMC with close involvement of the scientific advisors to the CMC. Public review of these measures for success will be available, and we welcome the input of the scientific community in this review.

Recommendation: In concert with the effort to link this and other grizzly populations, we recommend intensified efforts to develop and manage effective linkage zones and recover grizzlies in the other ecosystems.

ISOLATION VERSUS CONNECTIVITY

The DEIS develops a foundation for linkage zones and interchange among grizzly bear sub-populations as essential for long-term persistence (p. 1-5), yet the preferred alternative does not designate linkage zones. Successful re-colonization of the BE by grizzly bears has not occurred during the last 50 years and is very unlikely to occur, confirming the lack of effective linkages. If grizzlies become re-established in the BE, another isolated population may exist with all the inherent problems currently affecting the other island populations of grizzlies in the lower 48 states. Additionally, such isolation for an extremely small, initializing population would have more dramatic effects that would hinder or perhaps preclude population growth and establishment without large inputs of bears. We recognize establishment of linkage zones will be 4 difficult, especially given recent rates of human development that continue to erode these areas.

An isolated population is generally much more susceptible to extinction than a population that experiences gene flow with other populations, for both demographic and genetic reasons. It is important to stress that the advantages of connectivity magnify when population growth rates are inherently low, as in grizzly bears, because slow-growing populations are less able to escape the small numbers that make them most susceptible to extinction from demographic and genetic problems. Other forms of connectivity, such as helicopter movement among bear populations, are an unpleasant but possibly necessary alternative for successful linkages of bear populations.

Recommendation: Linkages between the reintroduced population and other populations should be pursued aggressively as soon as possible. To the extent that linkages are not developed, the DEIS should make extremely clear that an isolated population is not part of a metapopulation, and does not incur the advantages of a metapopulation described on p. 1-5. Additionally, expanded clarification of ongoing research on linkages such as described on p. 2-24, should be included in the proposed alternative.

DONOR GRIZZLY BEAR POPULATIONS

The committee supports the use of bears from other populations if such loss does not jeopardize recovery thresholds established for the donor ecosystems. To succeed, a thorough evaluation of the population size and dynamics of the donor population will be needed and should go beyond 5 simple assessment of recovery plan mortality thresholds. We further suggest that no one ecosystem, or area within an individual ecosystem, be over-exploited as a source for donors. Genetic diversity will be maximized, and impacts on the local population will be minimized, if a

4

concerted effort is made to draw bears from broad areas.

5 **Recommendation: Require the Co-Management Committee to review current information, propose additional analyses, and provide recommendations to minimize potential impacts to donor populations.**

ADEQUACY OF NUMBERS RELEASED AND RELEASE SITES

The DEIS does not convincingly justify that the preferred alternative minimum target of 25 bears over 5 years would have a high probability of success. There are numerous examples of isolated brown bear populations persisting at extremely low numbers and exhibiting no measurable population growth. A target introduction population of 25 bears in the Selway-Bitterroot over 5 years does not insure that the internal dynamics and behavior attributes for population growth will be in place. Although 25 bears is numerically sufficient to establish a nucleus of bears under the best of circumstances, we suggest that a positive and reliable indication of long-term population growth will not be realized for at least 20 years, after which growth rates will likely be less than 4%.

Validation of population growth rates must continue until the recovery goal is achieved. Growth rates may be lower than outlined in the DEIS and monitoring will likely be required for a longer time than anticipated. This monitoring will require long-term measurements of survival and reproductive rates based on data collected from marked bears.

6 **Recommendation: Analyses of population growth models, and scientific review of these outcomes, should be clearly explained as part of the EIS. The Co-Management Committee should monitor success and have the flexibility to modify the number of bears reintroduced, if necessary.**

Before any releases occur, the spatial organization of release locations should be assessed with rationales for site selection, site retention of bears, stocking density, time of year for release, sex and ages of released bears, juxtaposition, etc. We suggest releasing bears in the most productive habitats first and matching as much as possible the habitats from which the donor bears originate. Female bears nearing reproductive age released in the spring with males may help retain bears in 7 an area and begin establishing traditional use areas that should foster population establishment. Analysis of reproductive value may give demographic insights into the relative impact of using certain age classes in the reintroduced population (as well as the effect of removing those age classes from the donor populations).

Recommendation: Biological consideration for translocation sites should be clearly evaluated in a biological management plan prior to release of bears.

5

RECOVERY GOAL

The recovery population goal should be refined and solidified from the current statement that establishes "a tentative recovery goal of approximately 280 grizzly bears . . ." (p. xv, p. 2-9). While we understand this effort is an "experiment", there is no basis to believe that an isolated population of 280 is a legitimate size to be considered "recovered". Similarly, the section addressing "What is a Viable Grizzly Bear Population?" (p. 1-16) gives the estimated density of bears expected based on summing guesses across predicted densities at varied habitat quality levels across the BE. From a biological perspective focused on the expected dynamics of a reintroduced population, achieving an "average" density in an area is not the same as a viable population. A viable population is one that has a reasonably high probability of persistence for some specified time in the future. Population density is one component, but expected vital rates and population numbers are equally essential. A single-population census size of 280, the "recovery" size under the preferred alternative, is perhaps 2 to 20 times smaller than viable population sizes found in analyses of other isolated vertebrate populations.

More analysis is needed to demonstrate where, how and why the recovery goal target will result in a self-sustaining population. Milestones should be developed to assess progress on population establishment, provide feedback for development of adaptive management strategies, and to provide a basis for decisions about continuing the effort.

8 **Recommendation: The DEIS should clearly state in several locations that the population goal of 280 should not be confused with either a viable population, or an actual recovery goal. A range of recovery goals for analysis may be more appropriate until more information becomes available following bear use of the area and potential viability modeling using parameters developed through actual BE data.**

HABITAT

Habitats at translocation sites in the BE should be reasonably similar to habitats at donor bear origins.

The recovery area boundaries were apparently established on socioeconomic grounds as much as on their suitability for bears. Boundaries were adjusted from what was originally proposed for a variety of reasons, resulting in uneven habitat information throughout the recovery area. This limits the ability to predict bear population potentials and has a substantial influence on the

9 ability of the whole recovery area to support 280 bears. The final EIS should include all evaluations of grizzly bear habitat in central Idaho.

9 **Recommendation: Habitat quality should be more closely analyzed for the BE, including all areas evaluated for grizzlies in central Idaho, to assure adequate habitat exists to achieve recovery goals.**

IMPLEMENTATION AND MONITORING

Special rule development should be further refined to assure the primary goal is to recover grizzly bears in the BE. The co-management committee should determine minimum definitions

10 of success based on biology and time frames for evaluation. Short-term mortality rates will have a great influence on the ultimate ability to re-establish bears. The combined committee must develop measurable milestones for population growth and relationships to habitat and apply adaptive management principles to promote population establishment.

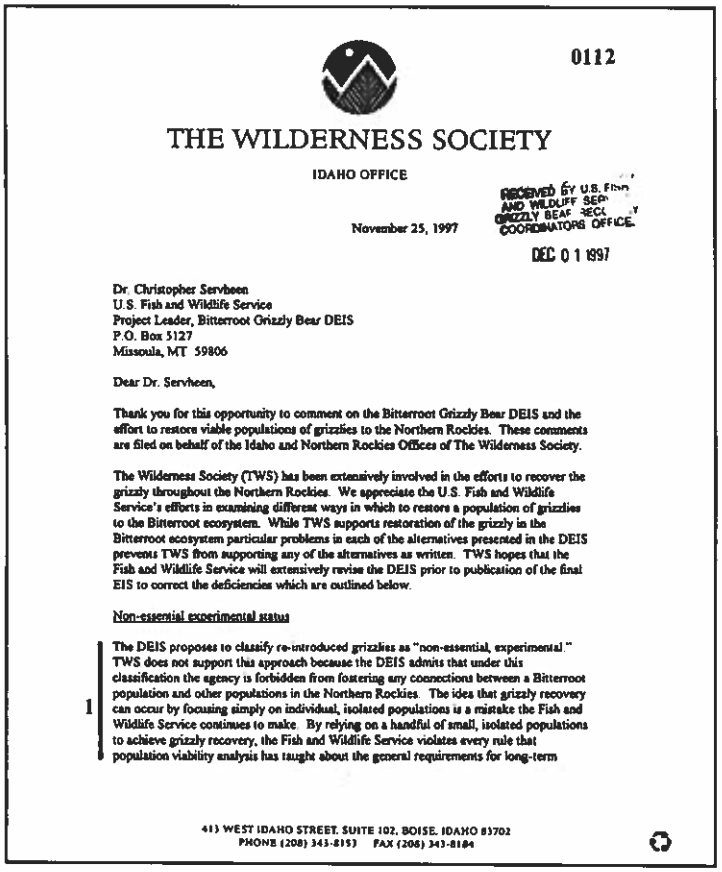
Recommendation: The Co-Management Committee should define milestones for evaluation and monitoring, and the special rules should outline these criteria and mission statement that bear recovery is their primary objective.

This review of the DEIS was approved by the Boards of the Idaho and Montana Chapters of TWS. Thank you for the opportunity to comment.

Sincerely,

James Unsworth
President
Idaho Chapter, The Wildlife Society
Boise, Idaho

Daniel Pletscher
President
Montana Chapter, The Wildlife Society
Missoula, Montana



0112

THE WILDERNESS SOCIETY

IDAHO OFFICE

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE

DEC 0 1 1997

November 25, 1997

Dr. Christopher Servheen
U.S. Fish and Wildlife Service
Project Leader, Bitterroot Grizzly Bear DEIS
P.O. Box 5127
Missoula, MT 59806

Dear Dr. Servheen,

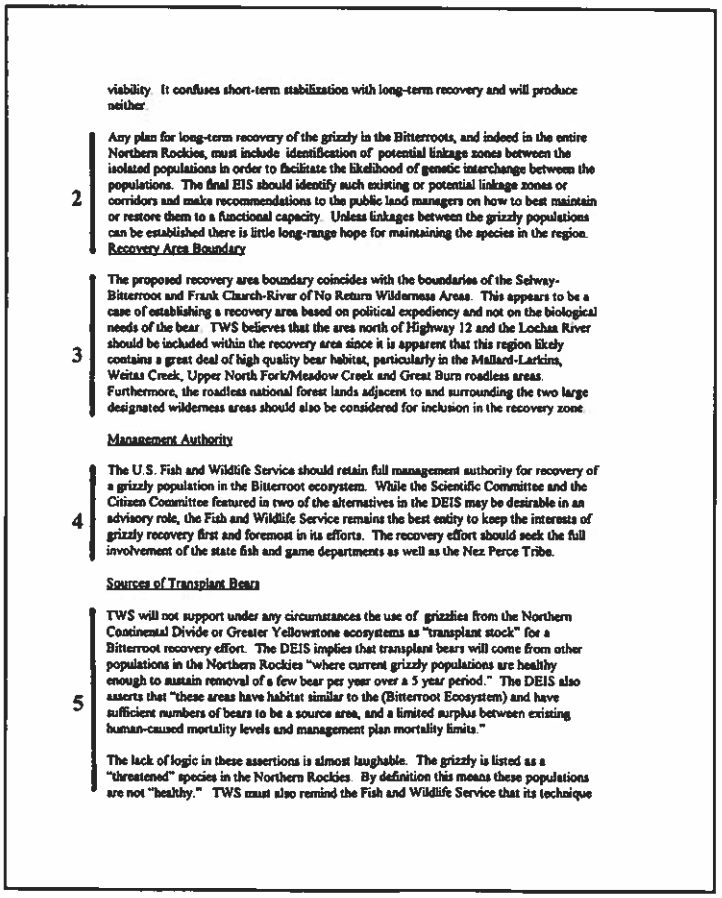
Thank you for this opportunity to comment on the Bitterroot Grizzly Bear DEIS and the effort to restore viable populations of grizzlies to the Northern Rockies. These comments are filed on behalf of the Idaho and Northern Rockies Offices of The Wilderness Society.

The Wilderness Society (TWS) has been extensively involved in the efforts to recover the grizzly throughout the Northern Rockies. We appreciate the U.S. Fish and Wildlife Service's efforts in examining different ways in which to restore a population of grizzlies to the Bitterroot ecosystem. While TWS supports restoration of the grizzly in the Bitterroot ecosystem particular problems in each of the alternatives presented in the DEIS prevents TWS from supporting any of the alternatives as written. TWS hopes that the Fish and Wildlife Service will extensively revise the DEIS prior to publication of the final EIS to correct the deficiencies which are outlined below.

Non-essential experimental status

1 The DEIS proposes to classify re-introduced grizzlies as "non-essential, experimental." TWS does not support this approach because the DEIS admits that under this classification the agency is forbidden from fostering any connections between a Bitterroot population and other populations in the Northern Rockies. The idea that grizzly recovery can occur by focusing simply on individual, isolated populations is a mistake the Fish and Wildlife Service continues to make. By relying on a handful of small, isolated populations to achieve grizzly recovery, the Fish and Wildlife Service violates every rule that population viability analysis has taught about the general requirements for long-term

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viability. It confuses short-term stabilization with long-term recovery and will produce neither.

2 Any plan for long-term recovery of the grizzly in the Bitterroots, and indeed in the entire Northern Rockies, must include identification of potential linkage zones between the isolated populations in order to facilitate the likelihood of genetic interchange between the populations. The final EIS should identify such existing or potential linkage zones or corridors and make recommendations to the public land managers on how to best maintain or restore them to a functional capacity. Unless linkages between the grizzly populations can be established there is little long-range hope for maintaining the species in the region.

Recovery Area Boundary

3 The proposed recovery area boundary coincides with the boundaries of the Selway-Bitterroot and Frank Church-River of No Return Wilderness Areas. This appears to be a case of establishing a recovery area based on political expediency and not on the biological needs of the bear. TWS believes that the area north of Highway 12 and the Lochsa River should be included within the recovery area since it is apparent that this region likely contains a great deal of high quality bear habitat, particularly in the Mallard-Larkins, Weitas Creek, Upper North Fork/Meadow Creek and Great Burn roadless areas. Furthermore, the roadless national forest lands adjacent to and surrounding the two large designated wilderness areas should also be considered for inclusion in the recovery zone.

Management Authority

4 The U.S. Fish and Wildlife Service should retain full management authority for recovery of a grizzly population in the Bitterroot ecosystem. While the Scientific Committee and the Citizen Committee featured in two of the alternatives in the DEIS may be desirable in an advisory role, the Fish and Wildlife Service remains the best entity to keep the interests of grizzly recovery first and foremost in its efforts. The recovery effort should seek the full involvement of the state fish and game departments as well as the Nez Perce Tribe.

Sources of Transplant Bears

5 TWS will not support under any circumstances the use of grizzlies from the Northern Continental Divide or Greater Yellowstone ecosystems as "transplant stock" for a Bitterroot recovery effort. The DEIS implies that transplant bears will come from other populations in the Northern Rockies "where current grizzly populations are healthy enough to sustain removal of a few bear per year over a 5 year period." The DEIS also asserts that "these areas have habitat similar to the (Bitterroot Ecosystem) and have sufficient numbers of bears to be a source area, and a limited surplus between existing human-caused mortality levels and management plan mortality limits."

The lack of logic in these assertions is almost laughable. The grizzly is listed as a "threatened" species in the Northern Rockies. By definition this means these populations are not "healthy." TWS must also remind the Fish and Wildlife Service that its technique

Private Organization, The Wilderness Society: #112

1. and 2. Thank you for your comment, however the agency is not forbidden from fostering connections from other populations to this experimental population in the future. A linkage zone analysis is currently ongoing and will determine the opportunities for connections from other ecosystems to the Bitterroot. This analysis and report is expected to be completed in 2000. Any grizzly bears entering the experimental area from another ecosystem would be considered experimental, though this occurrence is not considered likely and is addressed in Alternative 2 No Action - Natural Recovery.

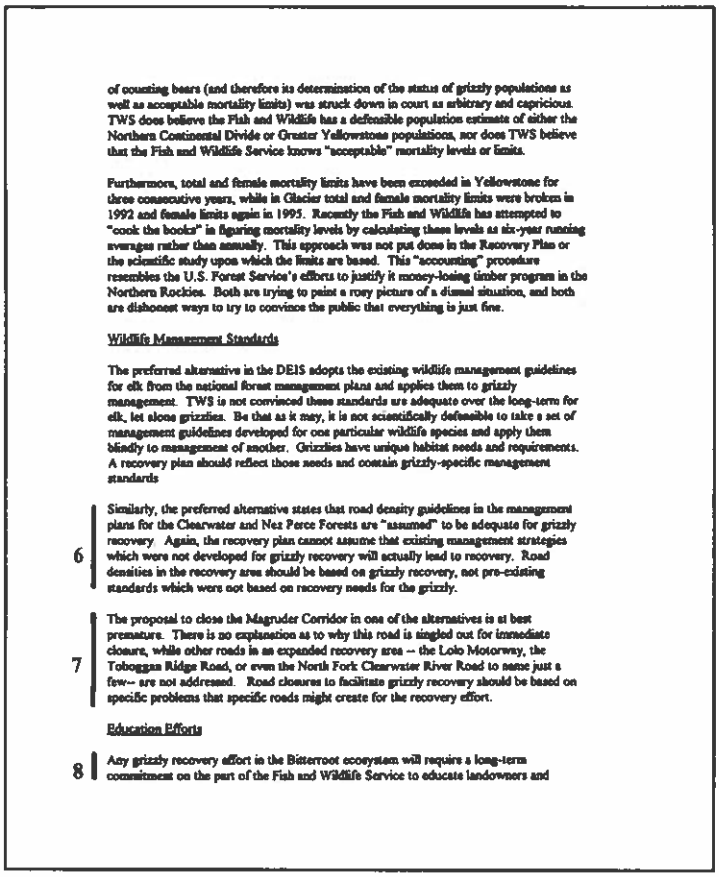
3. Thank you for your comment.

4. Thank you for your comment. Any alternative chosen will continue to seek involvement in grizzly bear management from the state fish and game departments and the Nez Perce Tribe

5. Thank you for your comment.

6. Road density within the Bitterroot Evaluation Area is described in Appendix 10. Outside of the wilderness portion there was 1,225 square miles of habitat. Open road densities on these lands range from 0.08-0.7 miles per square mile and restricted roads range from 0.01-0.38 miles per square mile. Road management emphasis associated with elk and fisheries (bull trout and pacific salmon) management is expected to limit the growth of road density near existing levels. Road densities in that range were not judged to be detrimental to bear occupation of those areas.

7. Alternative 4 "Restoration of Grizzly Bears as a Threatened Population with Full Protection of the ESA and Habitat Restoration," describes an extensive amount of road reclamation. This alternative was modeled after the Alliance for the Wild Rockies proposal. The Magruder corridor road was designated for closure to secure the core of the population and reduce the mortality risk to bears by eliminating the only motorized transportation route between the Selway-Bitterroot and Frank Church Wilderness Areas.



of counting bears (and therefore its determination of the status of grizzly populations as well as acceptable mortality limits) was struck down in court as arbitrary and capricious. TWS does believe the Fish and Wildlife has a defensible population estimate of either the Northern Continental Divide or Greater Yellowstone populations, nor does TWS believe that the Fish and Wildlife Service knows "acceptable" mortality levels or limits.

Furthermore, total and female mortality limits have been exceeded in Yellowstone for three consecutive years, while in Glacier total and female mortality limits were broken in 1992 and female limits again in 1995. Recently the Fish and Wildlife has attempted to "cook the books" in figuring mortality levels by calculating these levels as six-year running averages rather than annually. This approach was not put done in the Recovery Plan or the scientific study upon which the limits are based. This "accounting" procedure resembles the U.S. Forest Service's efforts to justify it money-losing timber program in the Northern Rockies. Both are trying to paint a rosy picture of a dismal situation, and both are dishonest ways to try to convince the public that everything is just fine.

Wildlife Management Standards

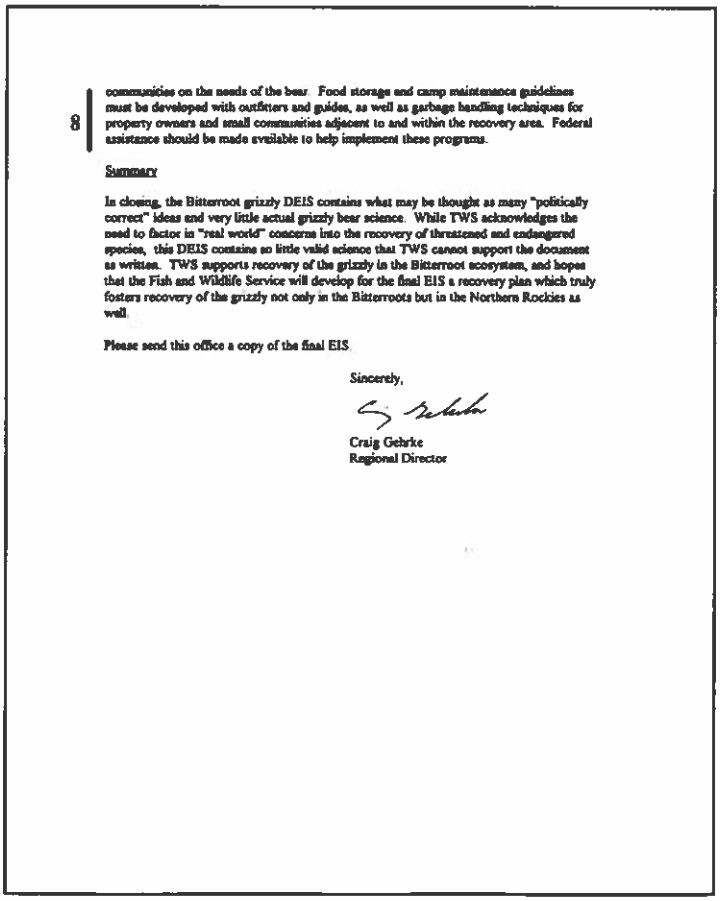
The preferred alternative in the DEIS adopts the existing wildlife management guidelines for elk from the national forest management plans and applies them to grizzly management. TWS is not convinced these standards are adequate over the long-term for elk, let alone grizzlies. Be that as it may, it is not scientifically defensible to take a set of management guidelines developed for one particular wildlife species and apply them blindly to management of another. Grizzlies have unique habitat needs and requirements. A recovery plan should reflect those needs and contain grizzly-specific management standards

6 Similarly, the preferred alternative states that road density guidelines in the management plans for the Clearwater and Nez Perce Forests are "assumed" to be adequate for grizzly recovery. Again, the recovery plan cannot assume that existing management strategies which were not developed for grizzly recovery will actually lead to recovery. Road densities in the recovery area should be based on grizzly recovery, not pre-existing standards which were not based on recovery needs for the grizzly.

7 The proposal to close the Magruder Corridor in one of the alternatives is at best premature. There is no explanation as to why this road is singled out for immediate closure, while other roads in an expanded recovery area -- the Lolo Motorway, the Toboggan Ridge Road, or even the North Fork Clearwater River Road to name just a few-- are not addressed. Road closures to facilitate grizzly recovery should be based on specific problems that specific roads might create for the recovery effort.

Education Efforts

8 Any grizzly recovery effort in the Bitterroot ecosystem will require a long-term commitment on the part of the Fish and Wildlife Service to educate landowners and



8 communities on the needs of the bear. Food storage and camp maintenance guidelines must be developed with outfitters and guides, as well as garbage handling techniques for property owners and small communities adjacent to and within the recovery area. Federal assistance should be made available to help implement these programs.

Summary

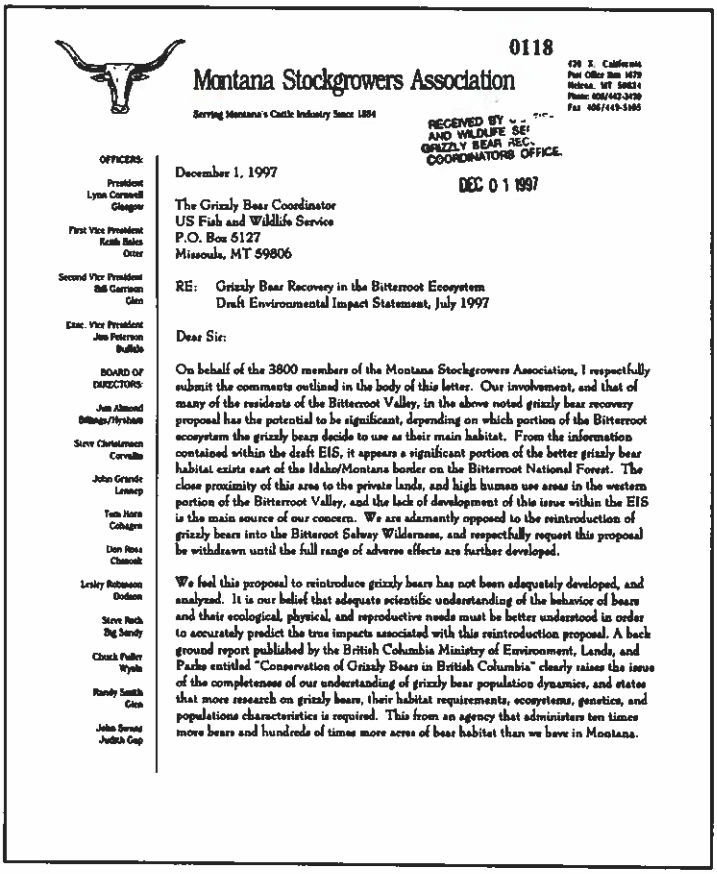
In closing, the Bitterroot grizzly DEIS contains what may be thought as many "politically correct" ideas and very little actual grizzly bear science. While TWS acknowledges the need to factor in "real world" concerns into the recovery of threatened and endangered species, this DEIS contains so little valid science that TWS cannot support the document as written. TWS supports recovery of the grizzly in the Bitterroot ecosystem, and hopes that the Fish and Wildlife Service will develop for the final EIS a recovery plan which truly fosters recovery of the grizzly not only in the Bitterroots but in the Northern Rockies as well.

Please send this office a copy of the final EIS.

Sincerely,

Craig Gehrke
Regional Director

8. An extensive information and education effort associated with sanitation is part of all alternatives involving reintroduction of grizzly bears. Under Alternatives 1, 1A, and 4A, these efforts would begin one year in advance of any bear releases in the Selway-Bitterroot Wilderness. Efforts would be directed at back country and front country users of bear habitat. Funding is included for upgrading garbage handling facilities to wildlife resistant containers.



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Montana Stockgrowers Association

Serving Montana's Cattle Industry Since 1884

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DEC 01 1997

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Wyola
Randy Smith
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December 1, 1997

The Grizzly Bear Coordinator
US Fish and Wildlife Service
P.O. Box 6127
Missoula, MT 59806

RE: Grizzly Bear Recovery in the Bitterroot Ecosystem
Draft Environmental Impact Statement, July 1997

Dear Sir:

On behalf of the 3800 members of the Montana Stockgrowers Association, I respectfully submit the comments outlined in the body of this letter. Our involvement, and that of many of the residents of the Bitterroot Valley, in the above noted grizzly bear recovery proposal has the potential to be significant, depending on which portion of the Bitterroot ecosystem the grizzly bears decide to use as their main habitat. From the information contained within the draft EIS, it appears a significant portion of the better grizzly bear habitat exists east of the Idaho/Montana border on the Bitterroot National Forest. The close proximity of this area to the private lands, and high human use areas in the western portion of the Bitterroot Valley, and the lack of development of this issue within the EIS is the main source of our concern. We are adamantly opposed to the reintroduction of grizzly bears into the Bitterroot Selway Wilderness, and respectfully request this proposal be withdrawn until the full range of adverse effects are further developed.

We feel this proposal to reintroduce grizzly bears has not been adequately developed, and analyzed. It is our belief that adequate scientific understanding of the behavior of bears and their ecological, physical, and reproductive needs must be better understood in order to accurately predict the true impacts associated with this reintroduction proposal. A back ground report published by the British Columbia Ministry of Environment, Lands, and Parks entitled "Conservation of Grizzly Bears in British Columbia" clearly raises the issue of the completeness of our understanding of grizzly bear population dynamics, and states that more research on grizzly bears, their habitat requirements, ecosystems, genetics, and populations characteristics is required. This from an agency that administers ten times more bears and hundreds of times more acres of bear habitat than we have in Montana.

1 Do we really believe we have enough information to predict the recoverability of a distinct grizzly bear population, or accurately predict potential positive or negative impacts from this action? Thus far the only secure reason for this proposal is that the B/S Wilderness represents the largest block of wilderness lands in the lowers 48 states, which is simply not enough justification to carry out this reintroduction program.

This document contains questionable data, presumptions, inconclusive statements, and a general lack of scientific based conclusions. Statements within much of the text clearly indicate this:
..evaluations of this possibility are continuing
..there is no real way to determine or predict
..some undetermined level of mortality is expected
..the specific number of bears that could be obtained is unknown at this time
..predictions are statistical, and are not intended to show exact depredations
..however, by the time bears are recovered in the BE conflicts should be greatly reduced because more would be known.

These statements clearly indicate we are operating at less than adequate knowledge to make factual, timely and accurate predictions as to the ramifications of implementing this program at this time.

2 This proposal will see grizzly bears placed in back yard of the fastest growing community in the State, commonly referred to as Montana's Banana Belt. The Montana Census Bureau of the Department of Commerce shows that the population of the Bitterroot Valley (Ravalli County) has increased 34.3% over the past five years, and estimates indicate the current population of 34,000 will reach almost 55,000 by the year 2025, another 40% increase. Yet this information is not addressed in this EIS document. The use of sparsely populated county data to dilute population and other demographic data associated with impacts directly related to the most affected county is a clear demonstration of the questionable scientific data used to support this reintroduction program.

3 The questionable population data will also affect the assessment of grizzly bear interactions or conflicts with private property, and again we assert that this issue is also not adequately addressed in the document. The EIS states that during the period of 1986 to 1990 the NCDE averaged 26 incidents per year, and during 1994 and 1995 the YE averaged 118 incidents per year. It then goes on to state that private property incidents involving bears in the BE are estimated to be to be between 0 and 118. Clearly the use of such statistically unreliable data in this manner brings into question the application of other data through out the document. Use of such poor data is the same as saying that wolves will kill between 1 and 28 livestock each time they depredate because that is range we have seen from existing wolf depredations in Montana. Conclusions of this nature clearly shows the USFWS have a very limited understanding of the potential private property conflicts may occur in the BE, and until a clearer distinction can be drawn the program should not be permitted to move forward.

Private Organization, Montana Stockgrowers Association: #118

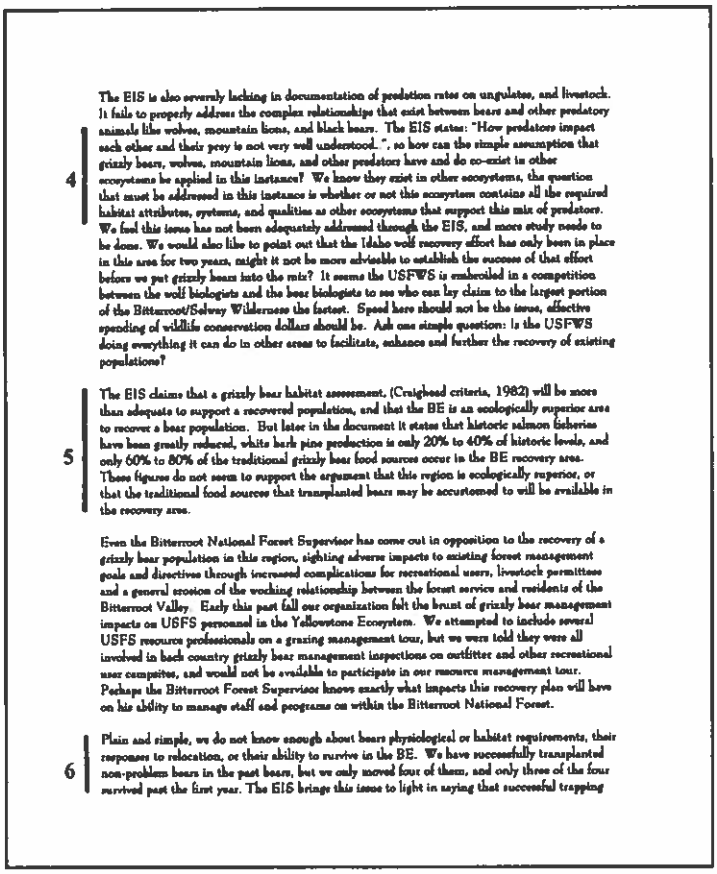
1. Thank you for your comment. Additional habitat analyses are presented in Appendix 21 of the Final EIS.

2. Current human population data from all affected counties in Idaho and Montana is displayed in Chapter 3 of the EIS. Bears are not expected to inhabit the more densely populated areas of the Bitterroot Valley (Ravalli County) and bears frequenting highly populated areas will be removed. Though Ravalli county is one of the more heavily populated counties within the principal analysis area, about half of it's 2,400 square miles lie within the 25,140 square mile experimental area.

Under Alternative 1, unless the CMC determines otherwise, private lands outside the national forest boundary in the Bitterroot Valley, Montana are an area where any human/grizzly conflicts would be considered unacceptable. Grizzly bear occupancy would be discouraged in these areas and grizzly bears would be captured and returned to the Recovery Area. If a grizzly bear enters this area, state and federal wildlife management agencies would attempt to capture it immediately and notify the public of its presence as soon as possible. The public would be updated until the bear is caught. Further, any grizzly bear that occupies inhabited human settlement areas on private land within the Experimental Area that in the judgement of the management agencies or CMC presents a clear threat to human safety or where there is indication that it may become habituated to humans, may be relocated by management agencies.

3. The data referred to in your comment are documented conflict situations in the Northern Continental Divide and Yellowstone Ecosystems. This data has been updated in the FEIS. This is the best information available to assess the potential impacts associated with nuisance bear situations on private property in the BE if bears are reintroduced there.

4. Thank you for your comment. The Bitterroot area supported grizzly bears, wolves, mountain lions, and numerous other predators prior to the extermination of wolves and grizzly

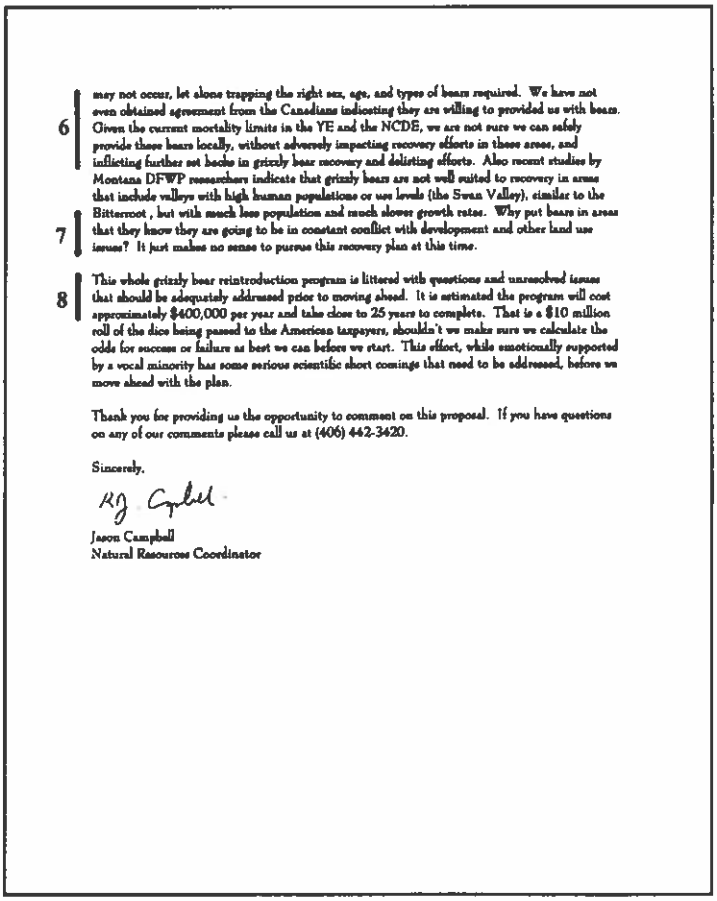


The EIS is also severely lacking in documentation of predation rates on ungulates, and livestock. It fails to properly address the complex relationships that exist between bears and other predatory animals like wolves, mountain lions, and black bears. The EIS states: "How predators impact each other and their prey is not very well understood.", so how can the simple assumption that grizzly bears, wolves, mountain lions, and other predators have and do co-exist in other ecosystems be applied in this instance? We know they exist in other ecosystems, the question that must be addressed in this instance is whether or not this ecosystem contains all the required habitat attributes, systems, and qualities as other ecosystems that support this mix of predators. We feel this issue has not been adequately addressed through the EIS, and more study needs to be done. We would also like to point out that the Idaho wolf recovery effort has only been in place in this area for two years, might it not be more advisable to establish the success of that effort before we put grizzly bears into the mix? It seems the USFWS is embroiled in a competition between the wolf biologists and the bear biologists to see who can lay claim to the largest portion of the Bitterroot/Selway Wilderness the fastest. Speed here should not be the issue, effective spending of wildlife conservation dollars should be. Ask one simple question: Is the USFWS doing everything it can do in other areas to facilitate, enhance and further the recovery of existing populations? 4

The EIS claims that a grizzly bear habitat assessment, (Craighead criteria, 1982) will be more than adequate to support a recovered population, and that the BE is an ecologically superior area to recover a bear population. But later in the document it states that historic salmon fisheries have been greatly reduced, white bark pine production is only 20% to 40% of historic levels, and only 60% to 80% of the traditional grizzly bear food sources occur in the BE recovery area. These figures do not seem to support the argument that this region is ecologically superior, or that the traditional food sources that transplanted bears may be accustomed to will be available in the recovery area. 5

Even the Bitterroot National Forest Supervisor has come out in opposition to the recovery of a grizzly bear population in this region, sighting adverse impacts to existing forest management goals and directives through increased complications for recreational users, livestock permittees and a general erosion of the working relationship between the forest service and residents of the Bitterroot Valley. Early this past fall our organization felt the brunt of grizzly bear management impacts on USFS personnel in the Yellowstone Ecosystem. We attempted to include several USFS resource professionals on a grazing management tour, but we were told they were all involved in back country grizzly bear management inspections on outfitter and other recreational user campsites, and would not be available to participate in our resource management tour. Perhaps the Bitterroot Forest Supervisor knows exactly what impacts this recovery plan will have on his ability to manage staff and programs on within the Bitterroot National Forest.

Plain and simple, we do not know enough about bears physiological or habitat requirements, their responses to relocation, or their ability to survive in the BE. We have successfully transplanted non-problem bears in the past bears, but we only moved four of them, and only three of the four survived past the first year. The EIS brings this issue to light in saying that successful trapping 6



may not occur, let alone trapping the right sex, age, and types of bears required. We have not even obtained agreement from the Canadians indicating they are willing to provided us with bears. Given the current mortality limits in the YE and the NCDE, we are not sure we can safely provide these bears locally, without adversely impacting recovery efforts in these areas, and inflicting further set backs in grizzly bear recovery and delisting efforts. Also recent studies by Montana DFWP researchers indicate that grizzly bears are not well suited to recovery in areas that include valleys with high human populations or use levels (the Swan Valley), similar to the Bitterroot, but with much less population and much slower growth rates. Why put bears in areas that they know they are going to be in constant conflict with development and other land use issues? It just makes no sense to pursue this recovery plan at this time. 6 7

This whole grizzly bear reintroduction program is littered with questions and unresolved issues that should be adequately addressed prior to moving ahead. It is estimated the program will cost approximately $400,000 per year and take close to 25 years to complete. That is a $10 million roll of the dice being passed to the American taxpayers, shouldn't we make sure we calculate the odds for success or failure as best we can before we start. This effort, while emotionally supported by a vocal minority has some serious scientific short comings that need to be addressed, before we move ahead with the plan. 8

Thank you for providing us the opportunity to comment on this proposal. If you have questions on any of our comments please call us at (406) 442-3420.

Sincerely,

RJ Campbell

Jason Campbell
Natural Resources Coordinator

bears by humans because of livestock concerns during the early 1900's. Predators and prey coexisted in the Bitterroot area for thousands of years prior to predator extermination. There are numerous places in Canada and Alaska where an identical or similar mix of predators and prey coexist. Further habitat examinations have been undertaken and are displayed in FEIS Appendix 21.

5. Grizzly bears exist in many other areas such as the Selkirk Mountains of northern Idaho and southern British Columbia, the Cabinet Mountains of northwest Montana, and the Purcell Mountains of northwest Montana and southern British Columbia without whitebark pine or salmon fisheries. Grizzly bear populations in the Northern Continental Divide and Yellowstone exist without salmon fisheries and appear to be expanding in areas where whitebark pine has declined similar to the Bitterroot. These items could enhance grizzly bear foraging opportunities and in places where pine stands occur bears are expected to feed on the nut crops. The figures cited for traditional grizzly bear food sources apply to food items consumed by grizzly bears throughout the U.S. and southern British Columbia. The fact that the Bitterroot area contains 60-80% of these items indicates the richness and diversity of the habitat for grizzly bears. See Appendix 21D.

6. Thank you for your comment. Bears that would be transplanted to the Bitterroot would likely be younger animals that have most of their reproductive life ahead of them yet and are more adaptable to setting up a home range in a new area. Bears may be obtained from British Columbia and from the U.S. The removal of males from either the Yellowstone or the Northern Continental Divide has the least potential for affecting either of those populations.

7. Thank you for your comment. Bears will be released in the Selway-Bitterroot Wilderness about 30 airline miles from the Bitterroot Valley in Montana. The Selway-Bitterroot and Frank Church Wilderness areas contain over 5,700 square miles of unoccupied habitat for bears and surrounding lands offer an additional 18,000 to 20,000 square miles of public land in the form of National Forest and Bureau of Land Management administered lands.

8. Thank you for your comment. Annual costs for the first 5 years are estimated to be $433,632 with $193,000 per year in monitoring and management costs.

0120

Idaho Montana Wyoming Oregon Washington Alberta British Columbia

Alliance for the Wild Rockies

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RECEIVED BY U.S FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE

DEC 01 1997

Dr. Chris Servheen
Grizzly Bear Coordinator
P.O. Box 5127
Missoula, Montana 59806

November 26, 1997

Dear Dr. Servheen,

Please accept for consideration our comments on the Draft Environmental Impact Statement (DEIS) for proposed reintroduction of grizzly bears into the Salmon-Selway-Bitterroot region.

I. Introduction

Alliance for the Wild Rockies is a regional conservation organization consisting of more than 4,000 individual members and more than 900 businesses and organizations. We are directly affected by any plan regarding the recovery of the grizzly bear in the Northern Rockies. Many of our members, board members, and advisors have been directly involved in numerous studies of the grizzly bear.

Alliance for the Wild Rockies supports Alternative 4 for grizzly bear recovery in the Greater Salmon-Selway-Bitterroot Ecosystem, with amendments, as discussed below. We desire that the U.S. Fish & Wildlife Service implement Alternative 4 as the action alternative in the form that it was originally submitted to U.S. Fish & Wildlife Service (Alliance for the Wild Rockies Special Report #8, 1996). A full copy of the alternative, as proposed, is attached as Appendix A. There are several issues within the DEIS that we wish to see addressed and corrected.

In general, we are troubled by the vagueness which characterizes the DEIS. There is a lack of specificity on several key issues which indicates that many major decisions on how to carry out the program will presumably be left to the Citizen Management Committee to design and carry out. With a sensitive and rare species such as the grizzly bear, we feel many more specifics need to be addressed well before reintroduction is contemplated. The effort, as described in the preferred alternative, indicates that the citizen committee will make up recovery efforts as they go, which we find unacceptable. Key questions regarding the reintroduction and recovery effort go unanswered in the DEIS. There is also a shallow foundation of factual data upon which the

1

preferred alternative is based. We beleive that the Endangered Species Act (ESA) and National Environmental Policy Act (NEPA) both require a more thorough analysis of the issues associated with proposed reintroduction and recovery of a listed species.

II. Specific Problems With the Preferred Alternative in the DEIS

A. "Experimental, Non-Essential" Designation is Not Legal

The "experimental, non-essential" population designation would not be legal under section 10(j) of the Endangered Species Act (ESA), which specifies that experimental populations must be wholly separate, geographically, from other populations of the same species. According to U.S. Fish and Wildlife Service maps, the Bitterroot area is less than 40 miles from an established grizzly bear population in the Cabinet Mountains (U.S. Fish & Wildlife Service 1993).

Moreover, a list of credible grizzly bear sightings south of the Clark Fork River were provided by the U.S. Fish & Wildlife Service (1997). The list of 17 sightings between 1979-1996, including some in Idaho, puts verified grizzly bear presence even closer to the Bitterroot Recovery Area, particularly as delineated under Alternative 4. There have also been persistent reports of grizzly bears from throughout the proposed recovery region. Many hunters and hunting outfitters have reported sightings of grizzly bears and other reliable sources, including grizzly bear researchers, believe a small population of grizzly bears is likely to inhabit this region.

1

The DEIS incorrectly cites papers by Melquist (1985) and Groves (1987) as presenting conclusive evidence supportive of the U.S. Fish & Wildlife Service position that there are no grizzly bears in the Bitterroot Recovery Area. Both papers contained sections on conclusions. Both concluded that at least a few grizzlies were likely to be inhabiting the area.

B. The Non-essential Designation is Inconsistent With the Goals of the DEIS and the Grizzly Bear Recovery Plan

The ultimate goal of the Grizzly Bear Recovery Plan is the recovery of the grizzly bear and its removal from the list of threatened and endangered species. The goal of the DEIS is the recovery of the grizzly bear in the Bitterroot Recovery Area as well as recovery in the lower 48 states. The DEIS contains several statements that are at odds with a determination that the population should be classified as non-essential, in both the Proposed Rule and the preferred alternative. The DEIS states in its Purpose and Need for Action section that:

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Private Organization, Alliance for the Wild Rockies: #120

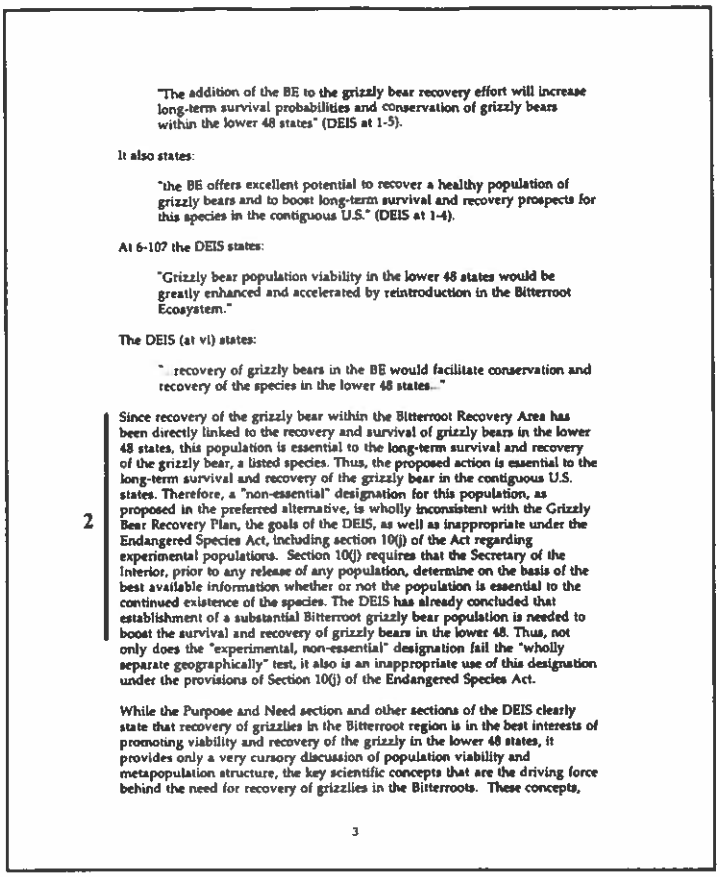
1. The Bitterroot area is 40 miles from the nearest grizzly population in the Cabinet Mountains. This is "wholly separate". The sightings provided by USFWS are not in the Bitterroot experimental area as defined in Alternative 1 and therefore do not invalidate experimental status. While there may be "persistent reports" there is no documented evidence of even a single grizzly bear in the experimental area defined in Alternative 1. No grizzly bear researchers have provided any documentation whatsoever of any grizzly bears in the Bitterroot experimental area. A letter from Wayne Melquist clarifying the statements made in Melquist (1985) and Groves (1987) is in Appendix 23. This letter clarifies that no documented grizzly bear observations were or are available to substantiate the presence of even a single grizzly bear in the experimental area. The USFWS would welcome documentation of grizzly bears in the experimental area, but despite continual efforts to obtain such documentation and follow-ups on reports of bears, no documentation of any grizzly bears is available in the proposed experimental area.

2. The experimental designation is supported by the USFWS because the reintroduction of grizzly bears into the Bitterroot would increase the probability of maintaining health grizzly populations south of Canada, but it is not essential to maintaining such healthy populations.

3. A metapopulation analysis that addresses this issue is presented in FEIS Appendix 21C.

4. Given that the nearest grizzly population to the Bitterroot experimental area is approximately 40 miles away in the Cabinet Mountains, and that data from more than 550 different radio-collared grizzly bears since 1975 shows no movement between any ecosystems, it is highly unlikely that such movement would occur into the Bitterroot from an area currently occupied by grizzly bears.

5. Further analysis of impacts to source populations has been added to FEIS Chapter 4. Any removals from either the NCDE or YE



"The addition of the BE to the grizzly bear recovery effort will increase long-term survival probabilities and conservation of grizzly bears within the lower 48 states" (DEIS at 1-5).

It also states:

"the BE offers excellent potential to recover a healthy population of grizzly bears and to boost long-term survival and recovery prospects for this species in the contiguous U.S." (DEIS at 1-4).

At 6-107 the DEIS states:

"Grizzly bear population viability in the lower 48 states would be greatly enhanced and accelerated by reintroduction in the Bitterroot Ecosystem."

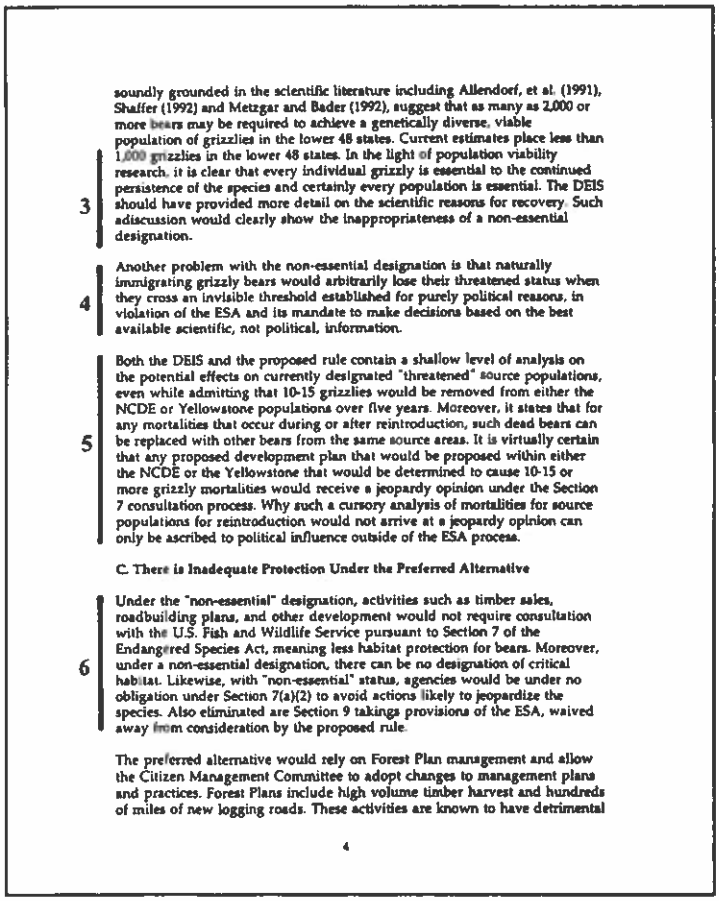
The DEIS (at vi) states:

" recovery of grizzly bears in the BE would facilitate conservation and recovery of the species in the lower 48 states..."

2 Since recovery of the grizzly bear within the Bitterroot Recovery Area has been directly linked to the recovery and survival of grizzly bears in the lower 48 states, this population is essential to the long-term survival and recovery of the grizzly bear, a listed species. Thus, the proposed action is essential to the long-term survival and recovery of the grizzly bear in the contiguous U.S. states. Therefore, a "non-essential" designation for this population, as proposed in the preferred alternative, is wholly inconsistent with the Grizzly Bear Recovery Plan, the goals of the DEIS, as well as inappropriate under the Endangered Species Act, including section 10(j) of the Act regarding experimental populations. Section 10(j) requires that the Secretary of the Interior, prior to any release of any population, determine on the basis of the best available information whether or not the population is essential to the continued existence of the species. The DEIS has already concluded that establishment of a substantial Bitterroot grizzly bear population is needed to boost the survival and recovery of grizzly bears in the lower 48. Thus, not only does the "experimental, non-essential" designation fail the "wholly separate geographically" test, it also is an inappropriate use of this designation under the provisions of Section 10(j) of the Endangered Species Act.

While the Purpose and Need section and other sections of the DEIS clearly state that recovery of grizzlies in the Bitterroot region is in the best interests of promoting viability and recovery of the grizzly in the lower 48 states, it provides only a very cursory discussion of population viability and metapopulation structure, the key scientific concepts that are the driving force behind the need for recovery of grizzlies in the Bitterroots. These concepts,

3



soundly grounded in the scientific literature including Allendorf, et al. (1991), Shaffer (1992) and Metzgar and Bader (1992), suggest that as many as 2,000 or more bears may be required to achieve a genetically diverse, viable population of grizzlies in the lower 48 states. Current estimates place less than 1,000 grizzlies in the lower 48 states. In the light of population viability research, it is clear that every individual grizzly is essential to the continued persistence of the species and certainly every population is essential. The DEIS

3 should have provided more detail on the scientific reasons for recovery. Such adiscussion would clearly show the inappropriateness of a non-essential designation.

4 Another problem with the non-essential designation is that naturally immigrating grizzly bears would arbitrarily lose their threatened status when they cross an invisible threshold established for purely political reasons, in violation of the ESA and its mandate to make decisions based on the best available scientific, not political, information.

5 Both the DEIS and the proposed rule contain a shallow level of analysis on the potential effects on currently designated "threatened" source populations, even while admitting that 10-15 grizzlies would be removed from either the NCDE or Yellowstone populations over five years. Moreover, it states that for any mortalities that occur during or after reintroduction, such dead bears can be replaced with other bears from the same source areas. It is virtually certain that any proposed development plan that would be proposed within either the NCDE or the Yellowstone that would be determined to cause 10-15 or more grizzly mortalities would receive a jeopardy opinion under the Section 7 consultation process. Why such a cursory analysis of mortalities for source populations for reintroduction would not arrive at a jeopardy opinion can only be ascribed to political influence outside of the ESA process.

C. There is Inadequate Protection Under the Preferred Alternative

6 Under the "non-essential" designation, activities such as timber sales, roadbuilding plans, and other development would not require consultation with the U.S. Fish and Wildlife Service pursuant to Section 7 of the Endangered Species Act, meaning less habitat protection for bears. Moreover, under a non-essential designation, there can be no designation of critical habitat. Likewise, with "non-essential" status, agencies would be under no obligation under Section 7(a)(2) to avoid actions likely to jeopardize the species. Also eliminated are Section 9 takings provisions of the ESA, waived away from consideration by the proposed rule.

The preferred alternative would rely on Forest Plan management and allow the Citizen Management Committee to adopt changes to management plans and practices. Forest Plans include high volume timber harvest and hundreds of miles of new logging roads. These activities are known to have detrimental

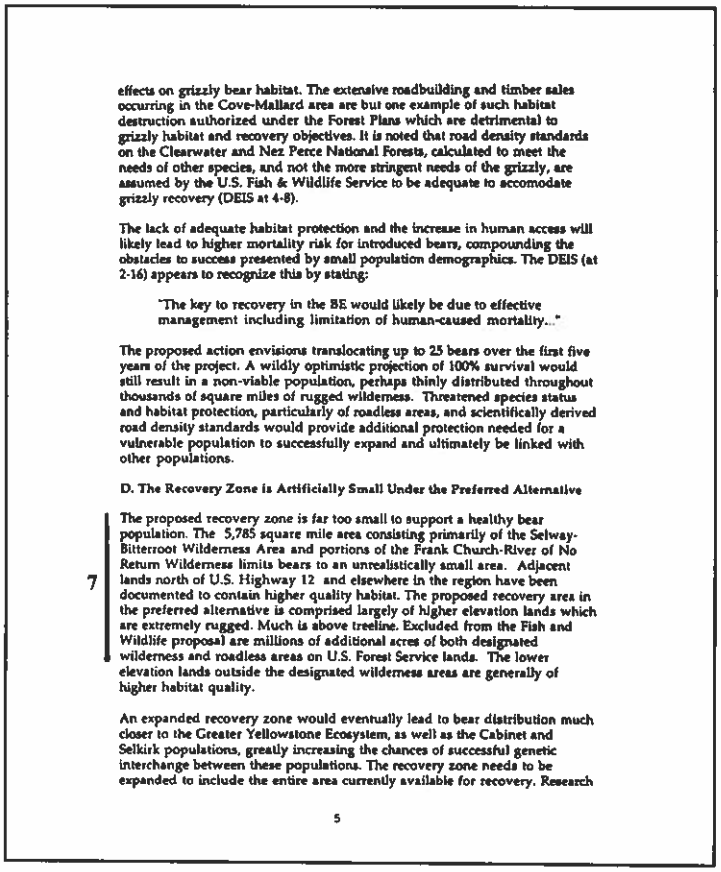
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populations would only be done if such removals would be within the mortality limits for that ecosystem. We disagree with the premise that removals of bears for recovery of a Bitterroot population that would increase the probability of overall grizzly recovery should be viewed the same as removal of bears due to mortality related to a development plan. Nonetheless, any removals will be counted against the human-caused mortality quota for the source ecosystem and no removals would take place if this quota was reached or even close to being reached.

6. Agree with most of this statement except the "takings" section. Bears in the experimental population in the Bitterroot would be fully protected against illegal killing under federal law under the ESA. Grizzly bears could only be killed in the Bitterroot in self defense or defense of others (as in all fully listed populations), or, in the special circumstance on private land where a depredating bear was unable to be captured by state or federal management officials, a permit could be issued to that landowner to kill that bear. Otherwise killing of bears in the experimental Bitterroot population is illegal and would be prosecuted under federal law.

7. A detailed habitat analysis both inside and outside the wilderness areas is presented in Appendices 21(A, B, C, D) in this FEIS. The suitability of the area south of the Salmon River is also addressed separately in these appendices. The reader is referred to these appendices for a full review of this information. While the recovery area is the area of initial placement of bears and of recovery emphasis, grizzly bear occupancy of adjacent public lands outside the wilderness is expected and the CMC is directed to make recommendations to accommodate grizzly bear presence on these lands. Thus, recovery and occupancy is not solely confined to the recovery area. See Alternative 1, Chapter 2 and Friends of Bitterroot letter (#22) response #5, page 5-120.

8. The tentative recovery goal is to be reevaluated by the CMC using the best available science. Any revised recovery goal will be established using the best available data based on the habitat in the recovery area. Additional adjacent areas of public land may be



effects on grizzly bear habitat. The extensive roadbuilding and timber sales occurring in the Cove-Mallard area are but one example of such habitat destruction authorized under the Forest Plans which are detrimental to grizzly habitat and recovery objectives. It is noted that road density standards on the Clearwater and Nez Perce National Forests, calculated to meet the needs of other species, and not the more stringent needs of the grizzly, are assumed by the U.S. Fish & Wildlife Service to be adequate to accomodate grizzly recovery (DEIS at 4-8).

The lack of adequate habitat protection and the increase in human access will likely lead to higher mortality risk for introduced bears, compounding the obstacles to success presented by small population demographics. The DEIS (at 2-16) appears to recognize this by stating:

> "The key to recovery in the BE would likely be due to effective management including limitation of human-caused mortality..."

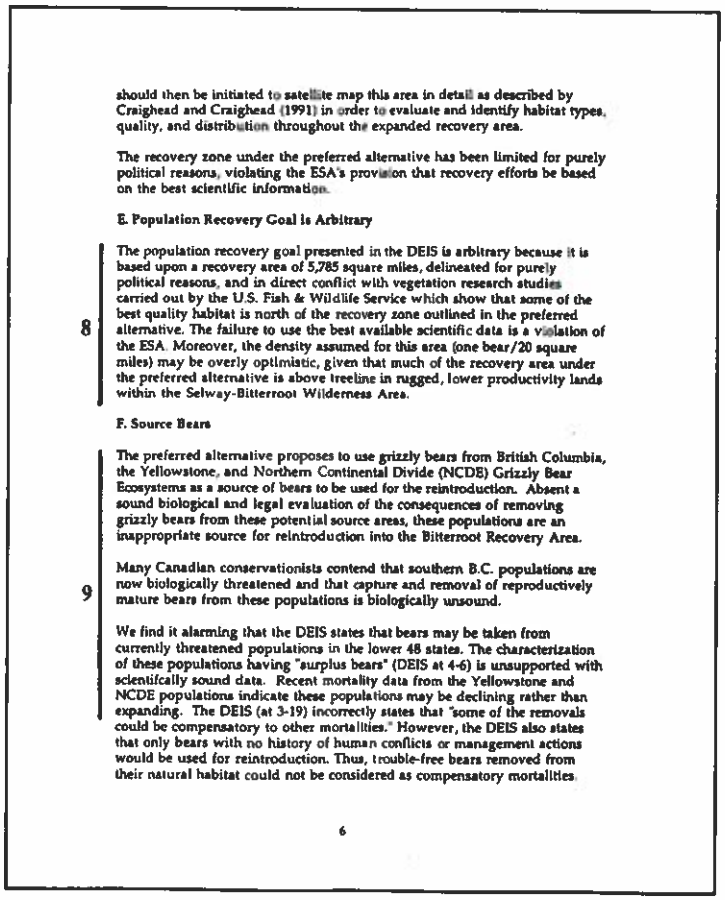
The proposed action envisions translocating up to 25 bears over the first five years of the project. A wildly optimistic projection of 100% survival would still result in a non-viable population, perhaps thinly distributed throughout thousands of square miles of rugged wilderness. Threatened species status and habitat protection, particularly of roadless areas, and scientifically derived road density standards would provide additional protection needed for a vulnerable population to successfully expand and ultimately be linked with other populations.

D. The Recovery Zone is Artificially Small Under the Preferred Alternative

7 The proposed recovery zone is far too small to support a healthy bear population. The 5,785 square mile area consisting primarily of the Selway-Bitterroot Wilderness Area and portions of the Frank Church-River of No Return Wilderness limits bears to an unrealistically small area. Adjacent lands north of U.S. Highway 12 and elsewhere in the region have been documented to contain higher quality habitat. The proposed recovery area in the preferred alternative is comprised largely of higher elevation lands which are extremely rugged. Much is above treeline. Excluded from the Fish and Wildlife proposal are millions of additional acres of both designated wilderness and roadless areas on U.S. Forest Service lands. The lower elevation lands outside the designated wilderness areas are generally of higher habitat quality.

An expanded recovery zone would eventually lead to bear distribution much closer to the Greater Yellowstone Ecosystem, as well as the Cabinet and Selkirk populations, greatly increasing the chances of successful genetic interchange between these populations. The recovery zone needs to be expanded to include the entire area currently available for recovery. Research

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should then be initiated to satellite map this area in detail as described by Craighead and Craighead (1991) in order to evaluate and identify habitat types, quality, and distribution throughout the expanded recovery area.

The recovery zone under the preferred alternative has been limited for purely political reasons, violating the ESA's provision that recovery efforts be based on the best scientific information.

E. Population Recovery Goal is Arbitrary

8 The population recovery goal presented in the DEIS is arbitrary because it is based upon a recovery area of 5,785 square miles, delineated for purely political reasons, and in direct conflict with vegetation research studies carried out by the U.S. Fish & Wildlife Service which show that some of the best quality habitat is north of the recovery zone outlined in the preferred alternative. The failure to use the best available scientific data is a violation of the ESA. Moreover, the density assumed for this area (one bear/20 square miles) may be overly optimistic, given that much of the recovery area under the preferred alternative is above treeline in rugged, lower productivity lands within the Selway-Bitterroot Wilderness Area.

F. Source Bears

The preferred alternative proposes to use grizzly bears from British Columbia, the Yellowstone, and Northern Continental Divide (NCDE) Grizzly Bear Ecosystems as a source of bears to be used for the reintroduction. Absent a sound biological and legal evaluation of the consequences of removing grizzly bears from these potential source areas, these populations are an inappropriate source for reintroduction into the Bitterroot Recovery Area.

9 Many Canadian conservationists contend that southern B.C. populations are now biologically threatened and that capture and removal of reproductively mature bears from these populations is biologically unsound.

We find it alarming that the DEIS states that bears may be taken from currently threatened populations in the lower 48 states. The characterization of these populations having "surplus bears" (DEIS at 4-6) is unsupported with scientifcally sound data. Recent mortality data from the Yellowstone and NCDE populations indicate these populations may be declining rather than expanding. The DEIS (at 3-19) incorrectly states that "some of the removals could be compensatory to other mortalities." However, the DEIS also states that only bears with no history of human conflicts or management actions would be used for reintroduction. Thus, trouble-free bears removed from their natural habitat could not be considered as compensatory mortalities.

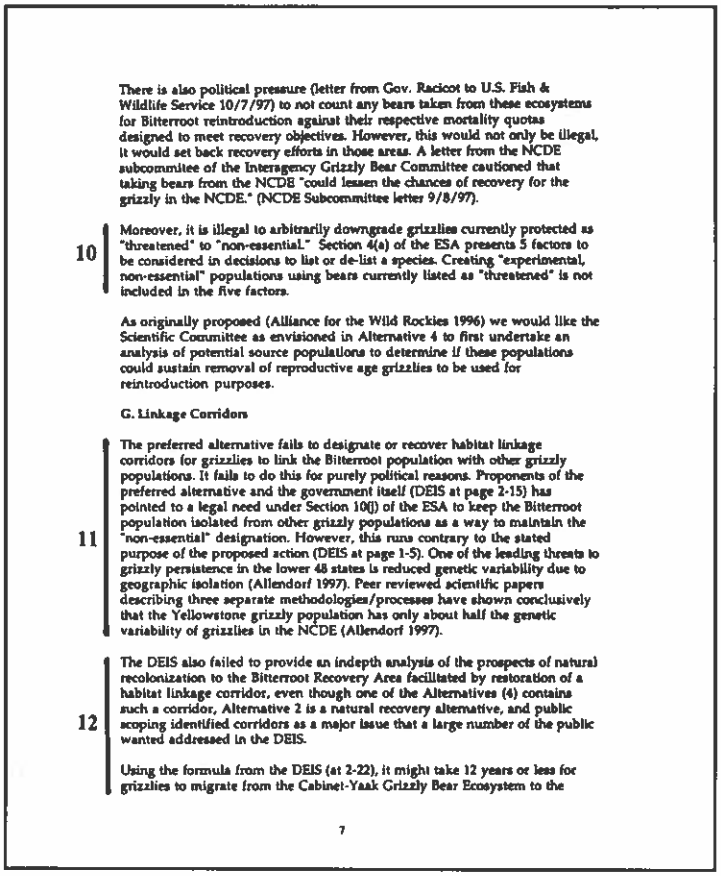
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considered for contribution of suitable habitat when the CMC revises the tentative recovery goal, if it is shown to be necessary by the best scientific and commercial data available. Any recommendations for revised recovery goals developed by the CMC would require public review and USFWS approval as appropriate for any revision of any recovery plan.

9. The wording on "surplus bears" is removed. The Yellowstone population is increasing and has been so for the last 6-8 years. In the last 3 years in the Yellowstone ecosystem, 204 cubs have been known to be born while 18 bears have been known to die due to human causes. This difference between births and deaths is why this population is increasing.

No bears will be removed from any ecosystem in the U.S. if the mortality limits for that ecosystem have been reached or are even close to being reached. In addition, the USFWS will agree to make the decision to remove bears from any ecosystem in Montana or Wyoming only in consultation with the Fish and Game Department of that state. The USFWS has no intentions to allow the removal of grizzly bears from any ecosystems in the U.S. to impede recovery of those source populations. The USFWS will work in concert with the Fish and Game Departments of those states to judge these possible impacts to assure that this is the case.

Contribution of bears from either the YE or NCDE will be based on the current mortality levels for that ecosystem. Mortality data are updated annually and any removal of bears from either ecosystem will be predicated on achievement of the mortality limits. Since these data are updated each year, it is necessary to recalculate mortality levels for both the NCDE and YE prior to making a decision on the origin of any relocated bears. The specific number of grizzly bears that can be obtained from the NCDE or YE is unknown at this time. The female contribution will be designed to minimize impacts on the source population and no female grizzly bears will be removed from within the NCDE or YE recovery zone boundary or from within 10 miles outside the boundary. The male contribution can be a higher number because population increase is affected little by removal of subadult males. Since no bears will be removed from the YE or NCDE if the mortality limits will be exceeded,



There is also political pressure (letter from Gov. Racicot to U.S. Fish & Wildlife Service 10/7/97) to not count any bears taken from these ecosystems for Bitterroot reintroduction against their respective mortality quotas designed to meet recovery objectives. However, this would not only be illegal, it would set back recovery efforts in those areas. A letter from the NCDE subcommitee of the Interagency Grizzly Bear Committee cautioned that taking bears from the NCDE "could lessen the chances of recovery for the grizzly in the NCDE." (NCDE Subcommittee letter 9/8/97).

10 Moreover, it is illegal to arbitrarily downgrade grizzlies currently protected as "threatened" to "non-essential." Section 4(a) of the ESA presents 5 factors to be considered in decisions to list or de-list a species. Creating "experimental, non-essential" populations using bears currently listed as "threatened" is not included in the five factors.

As originally proposed (Alliance for the Wild Rockies 1996) we would like the Scientific Committee as envisioned in Alternative 4 to first undertake an analysis of potential source populations to determine if these populations could sustain removal of reproductive age grizzlies to be used for reintroduction purposes.

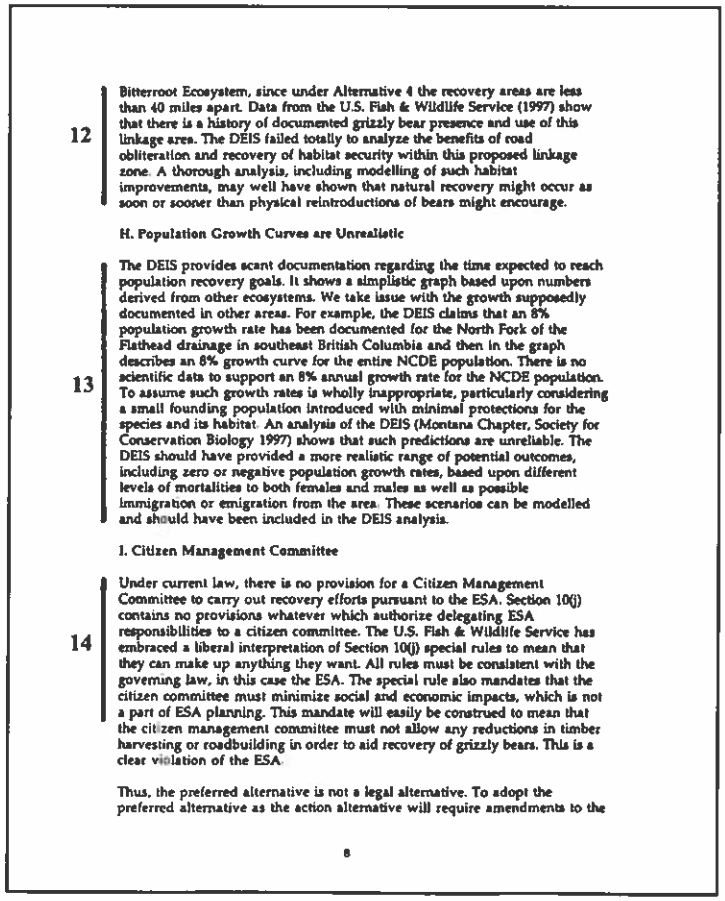
G. Linkage Corridors

11 The preferred alternative fails to designate or recover habitat linkage corridors for grizzlies to link the Bitterroot population with other grizzly populations. It fails to do this for purely political reasons. Proponents of the preferred alternative and the government itself (DEIS at page 2-15) has pointed to a legal need under Section 10(j) of the ESA to keep the Bitterroot population isolated from other grizzly populations as a way to maintain the "non-essential" designation. However, this runs contrary to the stated purpose of the proposed action (DEIS at page 1-5). One of the leading threats to grizzly persistence in the lower 48 states is reduced genetic variability due to geographic isolation (Allendorf 1997). Peer reviewed scientific papers describing three separate methodologies/processes have shown conclusively that the Yellowstone grizzly population has only about half the genetic variability of grizzlies in the NCDE (Allendorf 1997).

12 The DEIS also failed to provide an indepth analysis of the prospects of natural recolonization to the Bitterroot Recovery Area facilitated by restoration of a habitat linkage corridor, even though one of the Alternatives (4) contains such a corridor, Alternative 2 is a natural recovery alternative, and public scoping identified corridors as a major issue that a large number of the public wanted addressed in the DEIS.

Using the formula from the DEIS (at 2-22), it might take 12 years or less for grizzlies to migrate from the Cabinet-Yaak Grizzly Bear Ecosystem to the

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12 Bitterroot Ecosystem, since under Alternative 4 the recovery areas are less than 40 miles apart. Data from the U.S. Fish & Wildlife Service (1997) show that there is a history of documented grizzly bear presence and use of this linkage area. The DEIS failed totally to analyze the benefits of road obliteration and recovery of habitat security within this proposed linkage zone. A thorough analysis, including modelling of such habitat improvements, may well have shown that natural recovery might occur as soon or sooner than physical reintroductions of bears might encourage.

H. Population Growth Curves are Unrealistic

13 The DEIS provides scant documentation regarding the time expected to reach population recovery goals. It shows a simplistic graph based upon numbers derived from other ecosystems. We take issue with the growth supposedly documented in other areas. For example, the DEIS claims that an 8% population growth rate has been documented for the North Fork of the Flathead drainage in southeast British Columbia and then in the graph describes an 8% growth curve for the entire NCDE population. There is no scientific data to support an 8% annual growth rate for the NCDE population. To assume such growth rates is wholly inappropriate, particularly considering a small founding population introduced with minimal protections for the species and its habitat. An analysis of the DEIS (Montana Chapter, Society for Conservation Biology 1997) shows that such predictions are unreliable. The DEIS should have provided a more realistic range of potential outcomes, including zero or negative population growth rates, based upon different levels of mortalities to both females and males as well as possible immigration or emigration from the area. These scenarios can be modelled and should have been included in the DEIS analysis.

I. Citizen Management Committee

14 Under current law, there is no provision for a Citizen Management Committee to carry out recovery efforts pursuant to the ESA. Section 10(j) contains no provisions whatever which authorize delegating ESA responsibilities to a citizen committee. The U.S. Fish & Wildlife Service has embraced a liberal interpretation of Section 10(j) special rules to mean that they can make up anything they want. All rules must be consistent with the governing law, in this case the ESA. The special rule also mandates that the citizen committee must minimize social and economic impacts, which is not a part of ESA planning. This mandate will easily be construed to mean that the citizen management committee must not allow any reductions in timber harvesting or roadbuilding in order to aid recovery of grizzly bears. This is a clear violation of the ESA.

Thus, the preferred alternative is not a legal alternative. To adopt the preferred alternative as the action alternative will require amendments to the

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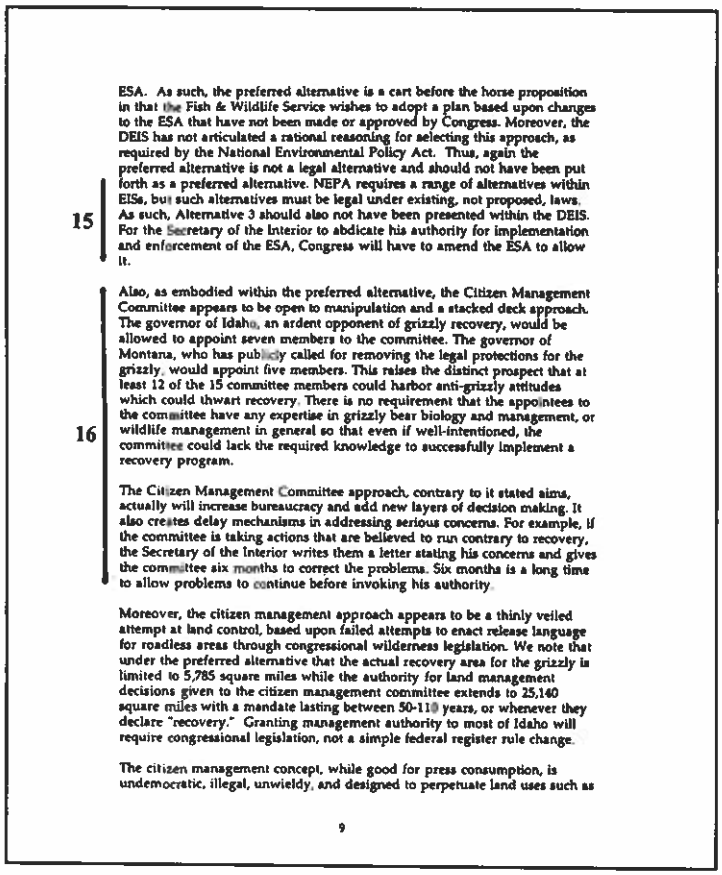
and no female bears will be removed from within the recovery zone or within 10 miles of the recovery zone boundary of either ecosystem, then the effects on recovery of any removals of bears from the NCDE or YE will be nonexistent. See Chapter 4, Alternative 1 for the analysis of impacts to source populations.

Any bears removed from Canadian populations would be removed under the management constraints on Canadian grizzly bear management which limit human-caused mortalities. We fully support those constraints.

10. The use of listed members of a species to create an experimental population of that species in a currently unoccupied area is what was intended by Congress in the amendments adding the 10(j) experimental population opportunity (See FEIS Appendix 12). Thus, experimental populations of California condors, blackfooted ferrets, and Mexican wolves have all used animals from listed populations as founders.

11. The statement concerning genetic diversity of the Yellowstone population in relation to the NCDE population is incorrect. The USFWS intends to complete a linkage zone analysis that will detail the possible linkage areas between the existing ecosystems and between the Bitterroot and existing ecosystems. The linkage zone analysis is a GIS-computer modeling effort that looks at the levels of human impact and activity in the intervening areas between ecosystems and identifies the best linkage areas based on this human activity. This linkage zone analysis is a separate Recovery Plan Task and will be completed regardless of which alternative is selected for the Bitterroot.

Maintenance of linkage zones retains the opportunity for grizzly bears and other wildlife species to move between the existing large blocks of public lands in order to maintain demographic and genetic health. In the long-term, the opportunity for bears to move between these ecosystems will improve the health of these populations. In the near term, recovery of a grizzly bear population in the Bitterroot will require placement of bears rather than waiting for eventual dispersal into this area, due to the limited distances of movements of bears outside of existing range to date. The preferred alternative does not preclude movement between systems. It is promoted because



ESA. As such, the preferred alternative is a cart before the horse proposition in that the Fish & Wildlife Service wishes to adopt a plan based upon changes to the ESA that have not been made or approved by Congress. Moreover, the DEIS has not articulated a rational reasoning for selecting this approach, as required by the National Environmental Policy Act. Thus, again the preferred alternative is not a legal alternative and should not have been put forth as a preferred alternative. NEPA requires a range of alternatives within EISs, but such alternatives must be legal under existing, not proposed, laws. As such, Alternative 3 should also not have been presented within the DEIS. For the Secretary of the Interior to abdicate his authority for implementation and enforcement of the ESA, Congress will have to amend the ESA to allow it.

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Also, as embodied within the preferred alternative, the Citizen Management Committee appears to be open to manipulation and a stacked deck approach. The governor of Idaho, an ardent opponent of grizzly recovery, would be allowed to appoint seven members to the committee. The governor of Montana, who has publicly called for removing the legal protections for the grizzly, would appoint five members. This raises the distinct prospect that at least 12 of the 15 committee members could harbor anti-grizzly attitudes which could thwart recovery. There is no requirement that the appointees to the committee have any expertise in grizzly bear biology and management, or wildlife management in general so that even if well-intentioned, the committee could lack the required knowledge to successfully implement a recovery program.

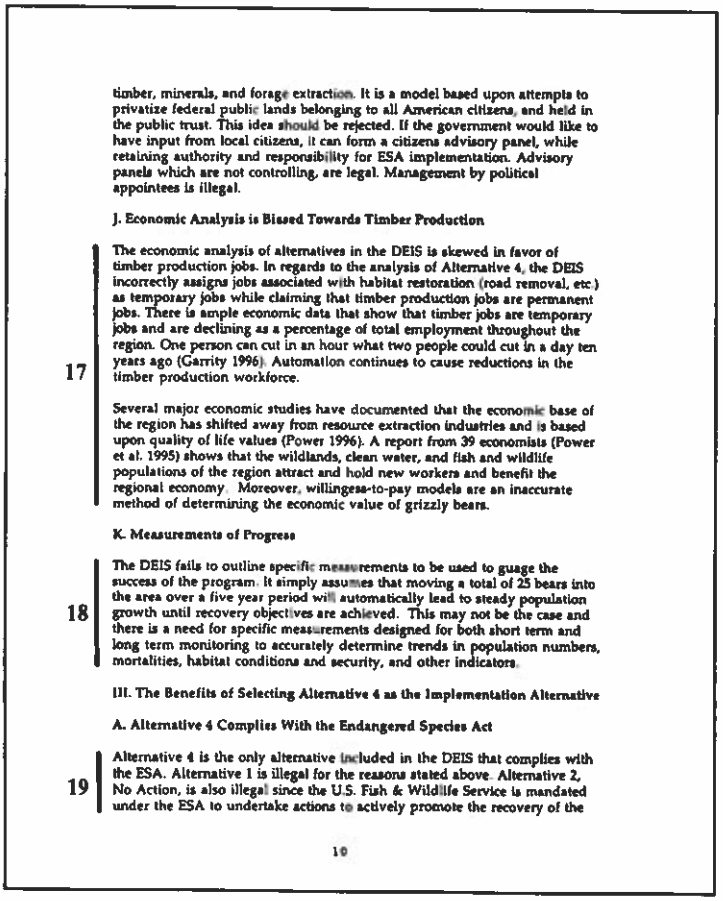
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The Citizen Management Committee approach, contrary to it stated aims, actually will increase bureaucracy and add new layers of decision making. It also creates delay mechanisms in addressing serious concerns. For example, if the committee is taking actions that are believed to run contrary to recovery, the Secretary of the Interior writes them a letter stating his concerns and gives the committee six months to correct the problems. Six months is a long time to allow problems to continue before invoking his authority.

Moreover, the citizen management approach appears to be a thinly veiled attempt at land control, based upon failed attempts to enact release language for roadless areas through congressional wilderness legislation. We note that under the preferred alternative that the actual recovery area for the grizzly is limited to 5,785 square miles while the authority for land management decisions given to the citizen management committee extends to 25,140 square miles with a mandate lasting between 50-110 years, or whenever they declare "recovery." Granting management authority to most of Idaho will require congressional legislation, not a simple federal register rule change.

The citizen management concept, while good for press consumption, is undemocratic, illegal, unwieldy, and designed to perpetuate land uses such as

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timber, minerals, and forage extraction. It is a model based upon attempts to privatize federal public lands belonging to all American citizens, and held in the public trust. This idea should be rejected. If the government would like to have input from local citizens, it can form a citizens advisory panel, while retaining authority and responsibility for ESA implementation. Advisory panels which are not controlling, are legal. Management by political appointees is illegal.

J. Economic Analysis is Biased Towards Timber Production

The economic analysis of alternatives in the DEIS is skewed in favor of timber production jobs. In regards to the analysis of Alternative 4, the DEIS incorrectly assigns jobs associated with habitat restoration (road removal, etc.) as temporary jobs while claiming that timber production jobs are permanent jobs. There is ample economic data that show that timber jobs are temporary jobs and are declining as a percentage of total employment throughout the region. One person can cut in an hour what two people could cut in a day ten years ago (Garrity 1996). Automation continues to cause reductions in the timber production workforce.

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Several major economic studies have documented that the economic base of the region has shifted away from resource extraction industries and is based upon quality of life values (Power 1996). A report from 39 economists (Power et al. 1995) shows that the wildlands, clean water, and fish and wildlife populations of the region attract and hold new workers and benefit the regional economy. Moreover, willingess-to-pay models are an inaccurate method of determining the economic value of grizzly bears.

K. Measurements of Progress

The DEIS fails to outline specific measurements to be used to guage the success of the program. It simply assumes that moving a total of 25 bears into the area over a five year period will automatically lead to steady population growth until recovery objectives are achieved. This may not be the case and there is a need for specific measurements designed for both short term and long term monitoring to accurately determine trends in population numbers, mortalities, habitat conditions and security, and other indicators.

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III. The Benefits of Selecting Alternative 4 as the Implementation Alternative

A. Alternative 4 Complies With the Endangered Species Act

Alternative 4 is the only alternative included in the DEIS that complies with the ESA. Alternative 1 is illegal for the reasons stated above. Alternative 2, No Action, is also illegal since the U.S. Fish & Wildlife Service is mandated under the ESA to undertake actions to actively promote the recovery of the

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the likelihood of natural movement into the Bitterroot Ecosystem in the near term is highly improbable.

12. Same as #11. We are unaware of a scientifically credible method to predict the probability of movement from populations approximately 40 miles away into and occupancy of presently unoccupied habitats where forest roads have been closed. The issues of "corridors" are addressed in #4 and #11 above.

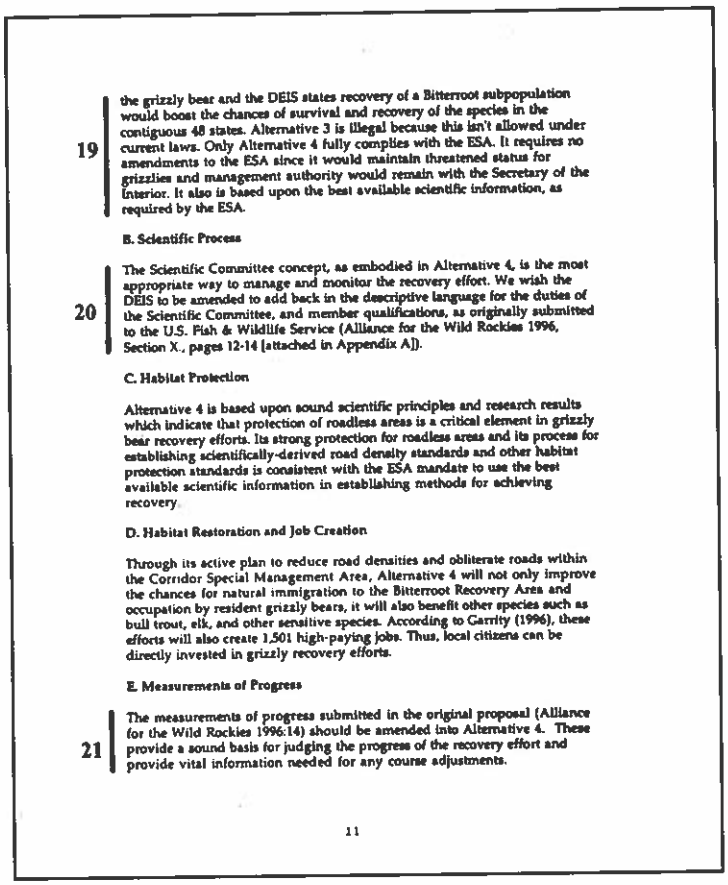
13. We do not state that the NCDE is growing at an 8% growth rate. This rate is used as an example of the result of such a rate of change. The variance in the expected rate of population growth is wide due to the multiple factors that can influence such change. The examples in the DEIS are just that, examples. As monitoring of the restored population continues, it may be possible to improve these projections on rates of growth. Such efforts will be accomplished as these monitoring data are gathered. To further speculate on future growth rates would only serve to increase uncertainly and we see no need to do so.

14. The wording of the Final Special Rule involving Alternative 1 and the CMC will be consistent with all federal laws and regulations.

15. The DEIS contained alternatives including a wide range of actions consistent with mandate of NEPA and with the comments received during the scoping process. Two additional alternatives have been added to the FEIS.

16. Wording has been added to Alternative 1 regarding the nomination of CMC members. It states that the governor's nominations must include written documentation of the qualifications of those members relating to their knowledge of and experience in a variety of natural resource issues and relating to their commitment to collaborative decision making. To include scientific input in the CMC process, wording has been added to Alternative 1 to have two non-agency scientific advisors to the CMC who will attend all meetings and provide scientific data on which to make decisions.

17. There is much to agree with in this



the grizzly bear and the DEIS states recovery of a Bitterroot subpopulation would boost the chances of survival and recovery of the species in the contiguous 48 states. Alternative 3 is illegal because this isn't allowed under
19 current laws. Only Alternative 4 fully complies with the ESA. It requires no amendments to the ESA since it would maintain threatened status for grizzlies and management authority would remain with the Secretary of the Interior. It also is based upon the best available scientific information, as required by the ESA.

B. Scientific Process

The Scientific Committee concept, as embodied in Alternative 4, is the most appropriate way to manage and monitor the recovery effort. We wish the
20 DEIS to be amended to add back in the descriptive language for the duties of the Scientific Committee, and member qualifications, as originally submitted to the U.S. Fish & Wildlife Service (Alliance for the Wild Rockies 1996, Section X., pages 12-14 [attached in Appendix A]).

C. Habitat Protection

Alternative 4 is based upon sound scientific principles and research results which indicate that protection of roadless areas is a critical element in grizzly bear recovery efforts. Its strong protection for roadless areas and its process for establishing scientifically-derived road density standards and other habitat protection standards is consistent with the ESA mandate to use the best available scientific information in establishing methods for achieving recovery.

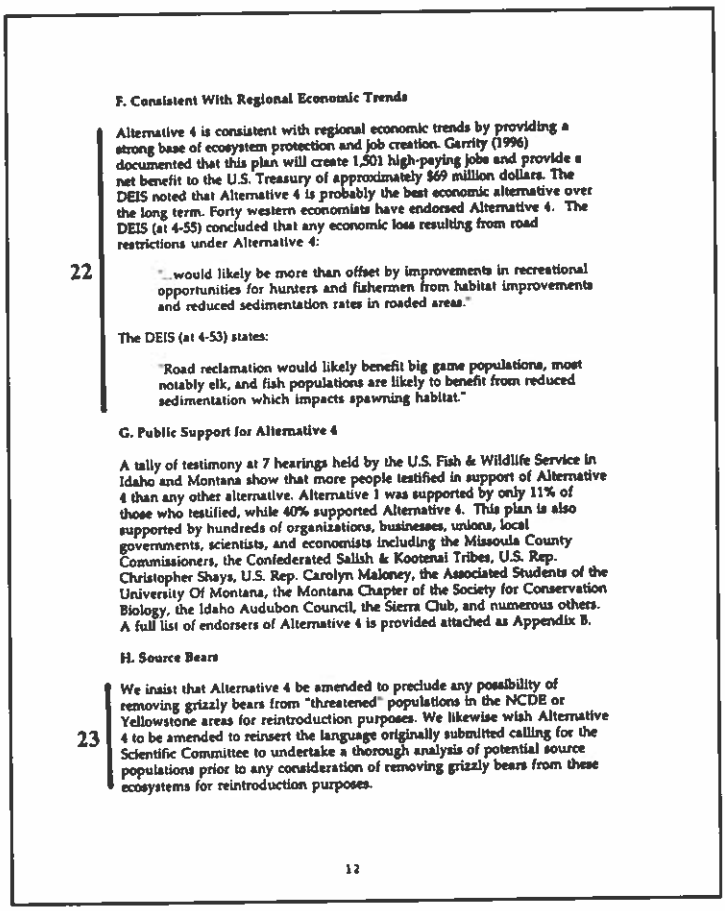
D. Habitat Restoration and Job Creation

Through its active plan to reduce road densities and obliterate roads within the Corridor Special Management Area, Alternative 4 will not only improve the chances for natural immigration to the Bitterroot Recovery Area and occupation by resident grizzly bears, it will also benefit other species such as bull trout, elk, and other sensitive species. According to Garrity (1996), these efforts will also create 1,501 high-paying jobs. Thus, local citizens can be directly invested in grizzly recovery efforts.

E. Measurements of Progress

The measurements of progress submitted in the original proposal (Alliance
21 for the Wild Rockies 1996:14) should be amended into Alternative 4. These provide a sound basis for judging the progress of the recovery effort and provide vital information needed for any course adjustments.

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F. Consistent With Regional Economic Trends

Alternative 4 is consistent with regional economic trends by providing a strong base of ecosystem protection and job creation. Garrity (1996) documented that this plan will create 1,501 high-paying jobs and provide a net benefit to the U.S. Treasury of approximately $69 million dollars. The DEIS noted that Alternative 4 is probably the best economic alternative over the long term. Forty western economists have endorsed Alternative 4. The DEIS (at 4-55) concluded that any economic loss resulting from road restrictions under Alternative 4:

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> "...would likely be more than offset by improvements in recreational opportunities for hunters and fishermen from habitat improvements and reduced sedimentation rates in roaded areas."

The DEIS (at 4-53) states:

> "Road reclamation would likely benefit big game populations, most notably elk, and fish populations are likely to benefit from reduced sedimentation which impacts spawning habitat."

G. Public Support for Alternative 4

A tally of testimony at 7 hearings held by the U.S. Fish & Wildlife Service in Idaho and Montana show that more people testified in support of Alternative 4 than any other alternative. Alternative 1 was supported by only 11% of those who testified, while 40% supported Alternative 4. This plan is also supported by hundreds of organizations, businesses, unions, local governments, scientists, and economists including the Missoula County Commissioners, the Confederated Salish & Kootenai Tribes, U.S. Rep. Christopher Shays, U.S. Rep. Carolyn Maloney, the Associated Students of the University Of Montana, the Montana Chapter of the Society for Conservation Biology, the Idaho Audubon Council, the Sierra Club, and numerous others. A full list of endorsers of Alternative 4 is provided attached as Appendix B.

H. Source Bears

We insist that Alternative 4 be amended to preclude any possibility of removing grizzly bears from "threatened" populations in the NCDE or
23 Yellowstone areas for reintroduction purposes. We likewise wish Alternative 4 to be amended to reinsert the language originally submitted calling for the Scientific Committee to undertake a thorough analysis of potential source populations prior to any consideration of removing grizzly bears from these ecosystems for reintroduction purposes.

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statement. Timber worker productivity has increased dramatically, and the economic base of the region has in general shifted away from resource extraction industries. The analysis of Alternative 4 (pages 4-68 - 4-74), however, deals more narrowly with the somewhat offsetting employment impacts of timber reductions and habitat restoration. We feel that given the large range of uncertainty about future BE timber harvests, we have estimated a reasonable range of possible timber related job losses for the next 10 years. The DEIS notes on page 4-71 that these losses may decline or disappear beyond the 10 year period examined here. Regarding the temporary nature of the habitat restoration jobs, these jobs are described as temporary to be consistent with the assumptions detailed by Garrity (1996). Finally, regarding the potential flaws and unreliability of willingness-to-pay models, notwithstanding any shortcomings, contingent valuation willingness-to-pay models remain the only tool available to economists with which to measure passive-use, or existence values.

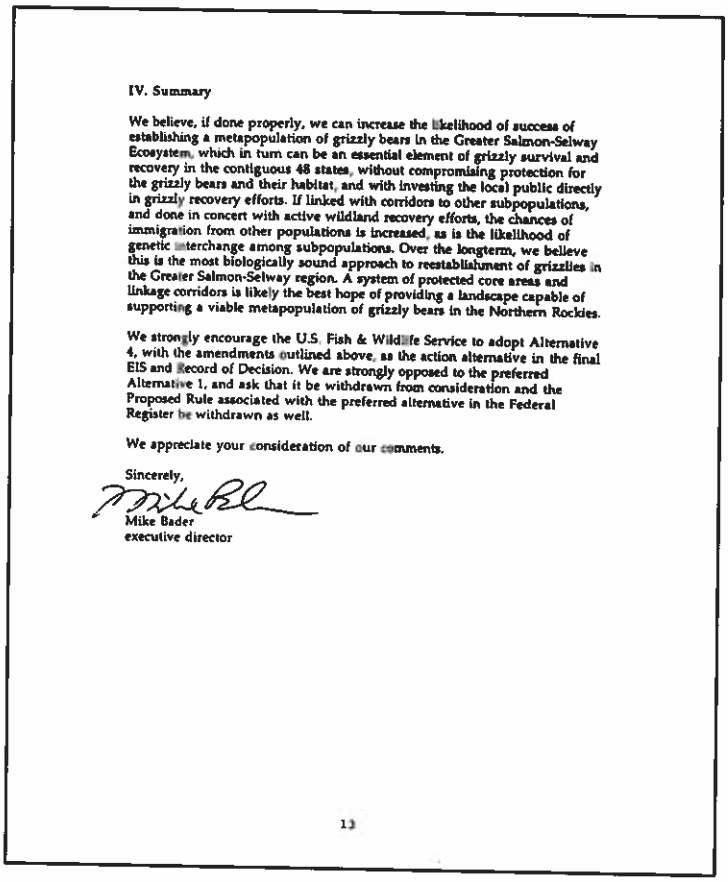
18. We agree that careful measures of success and progress are necessary. Such measures of success will be one of the tasks of the CMC with close involvement of the scientific advisors to the CMC. Since there are agency members on the CMC including USFWS, USFS, Nez Perce Tribe, and Montana and Idaho Fish and Game Department members, this will involve significant input and review.

19. We disagree. The alternatives present a wide range of actions as required by NEPA. None of the alternatives are "illegal". See Elmore County Commissioners, #3, page 5-52.

20. Comment noted. The requested additions will not be added as the description of Alternative 4 is sufficient to represent the intent of the Alternative.

21. Comment noted. Th e requested additions will not be added as the description of Alternative 4 is sufficient to represent the intent of the alternative.

22. Garrity (1996) analyzed the economic impact of the alternative proposed by the Alliance for the Wild Rockies (1996), and his conclusions are documented in the 1996 report



IV. Summary

We believe, if done properly, we can increase the likelihood of success of establishing a metapopulation of grizzly bears in the Greater Salmon-Selway Ecosystem, which in turn can be an essential element of grizzly survival and recovery in the contiguous 48 states, without compromising protection for the grizzly bears and their habitat, and with investing the local public directly in grizzly recovery efforts. If linked with corridors to other subpopulations, and done in concert with active wildland recovery efforts, the chances of immigration from other populations is increased, as is the likelihood of genetic interchange among subpopulations. Over the longterm, we believe this is the most biologically sound approach to reestablishment of grizzlies in the Greater Salmon-Selway region. A system of protected core areas and linkage corridors is likely the best hope of providing a landscape capable of supporting a viable metapopulation of grizzly bears in the Northern Rockies.

We strongly encourage the U.S. Fish & Wildlife Service to adopt Alternative 4, with the amendments outlined above, as the action alternative in the final EIS and Record of Decision. We are strongly opposed to the preferred Alternative 1, and ask that it be withdrawn from consideration and the Proposed Rule associated with the preferred alternative in the Federal Register be withdrawn as well.

We appreciate your consideration of our comments.

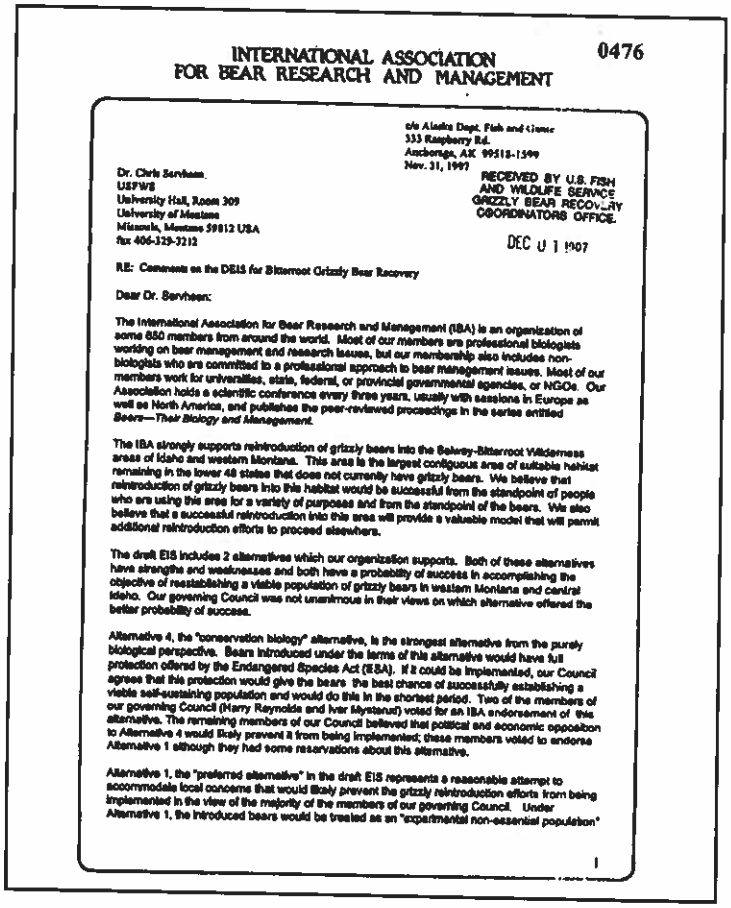
Sincerely,

Mike Bader
executive director

13

produced by the Alliance. The economic analysis presented in the DEIS and FEIS for Alternative 4 differs in many aspects from the Garrity (1996) analysis and results.

23. Comment noted and declined since sufficient explanation about the minimal impact of removal of bears from the Northern Continental Divide or Yellowstone Ecosystem, and the cautions that would be used prior to any such removals are already present in the FEIS. See answer to issue #9 above. The requested additions will not be added as the description of Alternative 4 is sufficient to represent the intent of the alternative.



INTERNATIONAL ASSOCIATION
FOR BEAR RESEARCH AND MANAGEMENT

0476

c/o Alaska Dept. Fish and Game
333 Raspberry Rd.
Anchorage, AK 99518-1599
Nov. 31, 1997

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE

DEC 0 1 1997

Dr. Chris Servheen
USFWS
University Hall, Room 309
University of Montana
Missoula, Montana 59812 USA
fax 406-329-3212

RE: Comments on the DEIS for Bitterroot Grizzly Bear Recovery

Dear Dr. Servheen:

The International Association for Bear Research and Management (IBA) is an organization of some 650 members from around the world. Most of our members are professional biologists working on bear management and research issues, but our membership also includes non-biologists who are committed to a professional approach to bear management issues. Most of our members work for universities, state, federal, or provincial governmental agencies, or NGOs. Our Association holds a scientific conference every three years, usually with sessions in Europe as well as North America, and publishes the peer-reviewed proceedings in the series entitled *Bears—Their Biology and Management*.

The IBA strongly supports reintroduction of grizzly bears into the Selway-Bitterroot Wilderness areas of Idaho and western Montana. This area is the largest contiguous area of suitable habitat remaining in the lower 48 states that does not currently have grizzly bears. We believe that reintroduction of grizzly bears into this habitat would be successful from the standpoint of people who are using this area for a variety of purposes and from the standpoint of the bears. We also believe that a successful reintroduction into this area will provide a valuable model that will permit additional reintroduction efforts to proceed elsewhere.

The draft EIS includes 2 alternatives which our organization supports. Both of these alternatives have strengths and weaknesses and both have a probability of success in accomplishing the objective of reestablishing a viable population of grizzly bears in western Montana and central Idaho. Our governing Council was not unanimous in their views on which alternative offered the better probability of success.

Alternative 4, the "conservation biology" alternative, is the strongest alternative from the purely biological perspective. Bears introduced under the terms of this alternative would have full protection offered by the Endangered Species Act (ESA). If it could be implemented, our Council agrees that this protection would give the bears the best chance of successfully establishing a viable self-sustaining population and would do this in the shortest period. Two of the members of our governing Council (Harry Reynolds and Ivar Mysterud) voted for an IBA endorsement of this alternative. The remaining members of our Council believed that political and economic opposition to Alternative 4 would likely prevent it from being implemented; these members voted to endorse Alternative 1 although they had some reservations about this alternative.

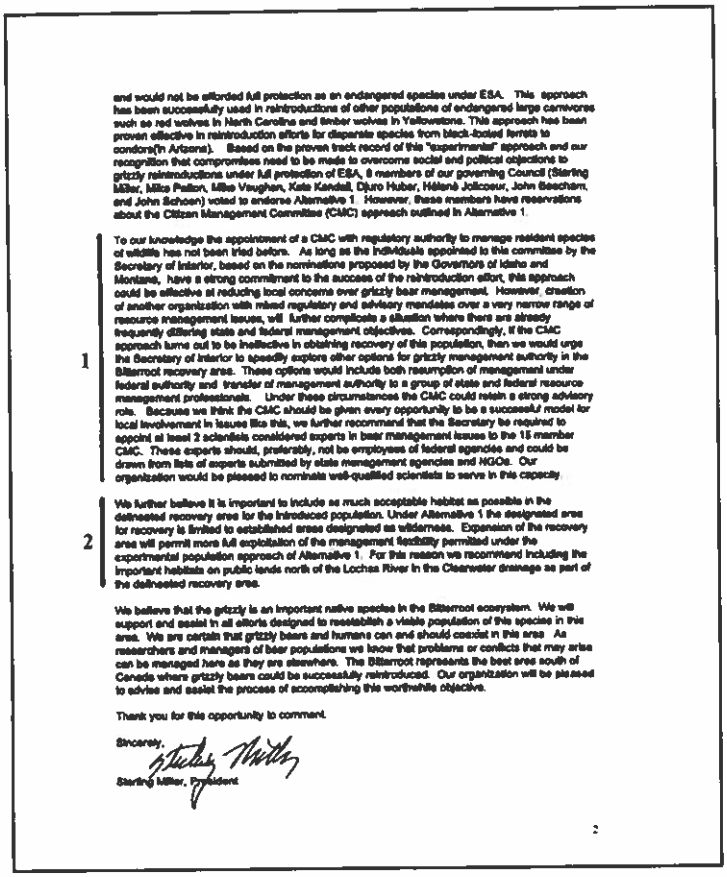
Alternative 1, the "preferred alternative" in the draft EIS represents a reasonable attempt to accommodate local concerns that would likely prevent the grizzly reintroduction efforts from being implemented in the view of the majority of the members of our governing Council. Under Alternative 1, the introduced bears would be treated as an "experimental non-essential population"

1

Private Organization, International Association for Bear Research and Management: #476

1. Agree. Wording in Alternative 1 has been changed to require the appointment of two non-agency scientists as advisors to the CMC. These scientific advisors will attend all meetings and will serve to assure that scientific viewpoints are available to the CMC and that the best available science is presented to the CMC on all issues they deal with.

2. The recovery area is the area for initial placement of bears and is the area where recovery emphasis will take place initially. This means that outreach and education efforts with wilderness users will be focused in the recovery area initially. We expect that the population of grizzly bears will be centered in the recovery area and will expand from there as the population grows in future years. There are several appendices added to this FEIS addressing habitat capability in both the recovery area and the surrounding public lands (See Appendices 21A, B, C, D). The CMC is charged with making recommendation to



and would not be afforded full protection as an endangered species under ESA. This approach has been successfully used in reintroductions of other populations of endangered large carnivores such as red wolves in North Carolina and timber wolves in Yellowstone. This approach has been proven effective in reintroduction efforts for disparate species from black-footed ferrets to condors(in Arizona). Based on the proven track record of this "experimental" approach and our recognition that compromises need to be made to overcome social and political objections to grizzly reintroductions under full protection of ESA, 8 members of our governing Council (Sterling Miller, Mike Patton, Mike Vaughan, Kate Kendall, Djuro Huber, Hélène Jolicoeur, John Beecham, and John Schoen) voted to endorse Alternative 1. However, these members have reservations about the Citizen Management Committee (CMC) approach outlined in Alternative 1.

To our knowledge the appointment of a CMC with regulatory authority to manage resident species of wildlife has not been tried before. As long as the individuals appointed to this committee by the Secretary of Interior, based on the nominations proposed by the Governors of Idaho and Montana, have a strong commitment to the success of the reintroduction effort, this approach could be effective at reducing local concerns over grizzly bear management. However, creation of another organization with mixed regulatory and advisory mandates over a very narrow range of resource management issues, will further complicate a situation where there are already frequently differing state and federal management objectives. Correspondingly, if the CMC approach turns out to be ineffective in obtaining recovery of this population, then we would urge the Secretary of Interior to speedily explore other options for grizzly management authority in the Bitterroot recovery area. These options would include both resumption of management under federal authority and transfer of management authority to a group of state and federal resource management professionals. Under these circumstances the CMC could retain a strong advisory role. Because we think the CMC should be given every opportunity to be a successful model for local involvement in issues like this, we further recommend that the Secretary be required to appoint at least 2 scientists considered experts in bear management issues to the 15 member CMC. These experts should, preferably, not be employees of federal agencies and could be drawn from lists of experts submitted by state management agencies and NGOs. Our organization would be pleased to nominate well-qualified scientists to serve in this capacity.

1

We further believe it is important to include as much acceptable habitat as possible in the delineated recovery area for the introduced population. Under Alternative 1 the designated area for recovery is limited to established areas designated as wilderness. Expansion of the recovery area will permit more full exploitation of the management flexibility permitted under the experimental population approach of Alternative 1. For this reason we recommend including the important habitats on public lands north of the Lochsa River in the Clearwater drainage as part of the delineated recovery area.

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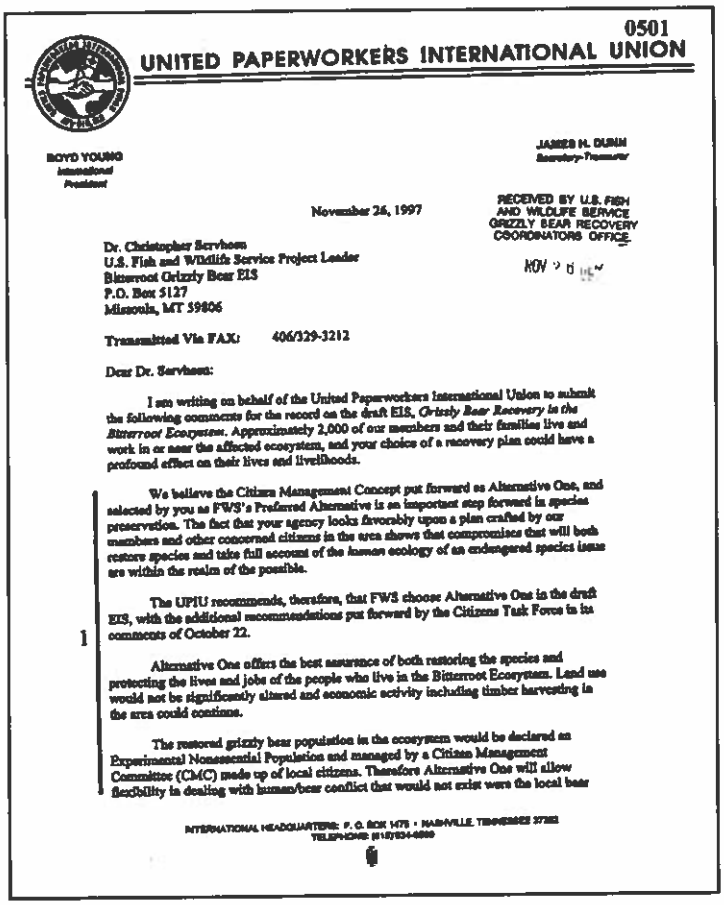
We believe that the grizzly is an important native species in the Bitterroot ecosystem. We will support and assist in all efforts designed to reestablish a viable population of this species in this area. We are certain that grizzly bears and humans can and should coexist in this area. As researchers and managers of bear populations we know that problems or conflicts that may arise can be managed here as they are elsewhere. The Bitterroot represents the best area south of Canada where grizzly bears could be successfully reintroduced. Our organization will be pleased to advise and assist the process of accomplishing this worthwhile objective.

Thank you for this opportunity to comment.

Sincerely,

Sterling Miller, President

accommodate grizzly bears on public lands outside the recovery area, such as the North Fork of the Clearwater, and we expect grizzly bears will occupy this area as the population expands.



0501

UNITED PAPERWORKERS INTERNATIONAL UNION

BOYD YOUNG
International
President

JAMES H. DUNN
Secretary-Treasurer

November 26, 1997

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE

NOV 2 8 1997

Dr. Christopher Servheen
U.S. Fish and Wildlife Service Project Leader
Bitterroot Grizzly Bear EIS
P.O. Box 8127
Missoula, MT 59806

Transmitted Via FAX: 406/329-3212

Dear Dr. Servheen:

I am writing on behalf of the United Paperworkers International Union to submit the following comments for the record on the draft EIS, *Grizzly Bear Recovery in the Bitterroot Ecosystem*. Approximately 2,000 of our members and their families live and work in or near the affected ecosystem, and your choice of a recovery plan could have a profound effect on their lives and livelihoods.

We believe the Citizen Management Concept put forward as Alternative One, and selected by you as FWS's Preferred Alternative is an important step forward in species preservation. The fact that your agency looks favorably upon a plan crafted by our members and other concerned citizens in the area shows that compromises that will both restore species and take full account of the human ecology of an endangered species issue are within the realm of the possible.

The UPIU recommends, therefore, that FWS choose Alternative One in the draft EIS, with the additional recommendations put forward by the Citizens Task Force in its comments of October 22.

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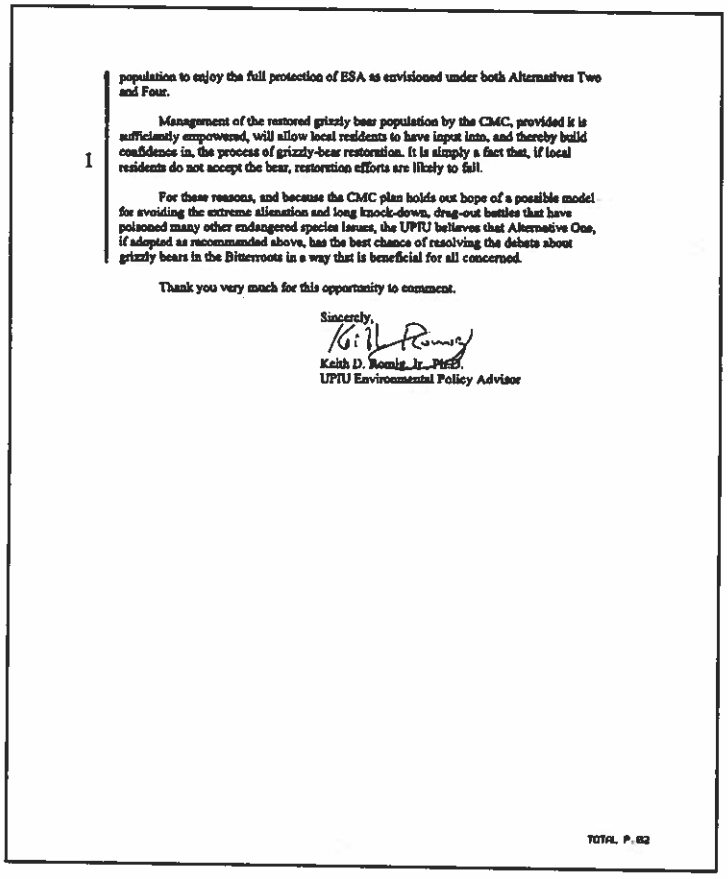
Alternative One offers the best assurance of both restoring the species and protecting the lives and jobs of the people who live in the Bitterroot Ecosystem. Land use would not be significantly altered and economic activity including timber harvesting in the area could continue.

The restored grizzly bear population in the ecosystem would be declared an Experimental Nonessential Population and managed by a Citizen Management Committee (CMC) made up of local citizens. Therefore Alternative One will allow flexibility in dealing with human/bear conflict that would not exist were the local bear

INTERNATIONAL HEADQUARTERS: P. O. BOX 1475 • NASHVILLE, TENNESSEE 37202
TELEPHONE: (615)834-8600

Private Organization, United Paperworkers International Union: #501

1. Thank you for your comments. The USFWS also believes the preferred alternative (Alternative 1) offers the best assurance of both restoring and conserving the grizzly bear, and protecting the lives and jobs of the people who live within and outside of the Bitterroot Ecosystem. We feel strongly that grizzly bear recovery in the Bitterroot Ecosystem can only be accomplished with the support of local residents and users of the BE.



population to enjoy the full protection of ESA as envisioned under both Alternatives Two and Four.

Management of the restored grizzly bear population by the CMC, provided it is sufficiently empowered, will allow local residents to have input into, and thereby build confidence in, the process of grizzly-bear restoration. It is simply a fact that, if local residents do not accept the bear, restoration efforts are likely to fail.

1

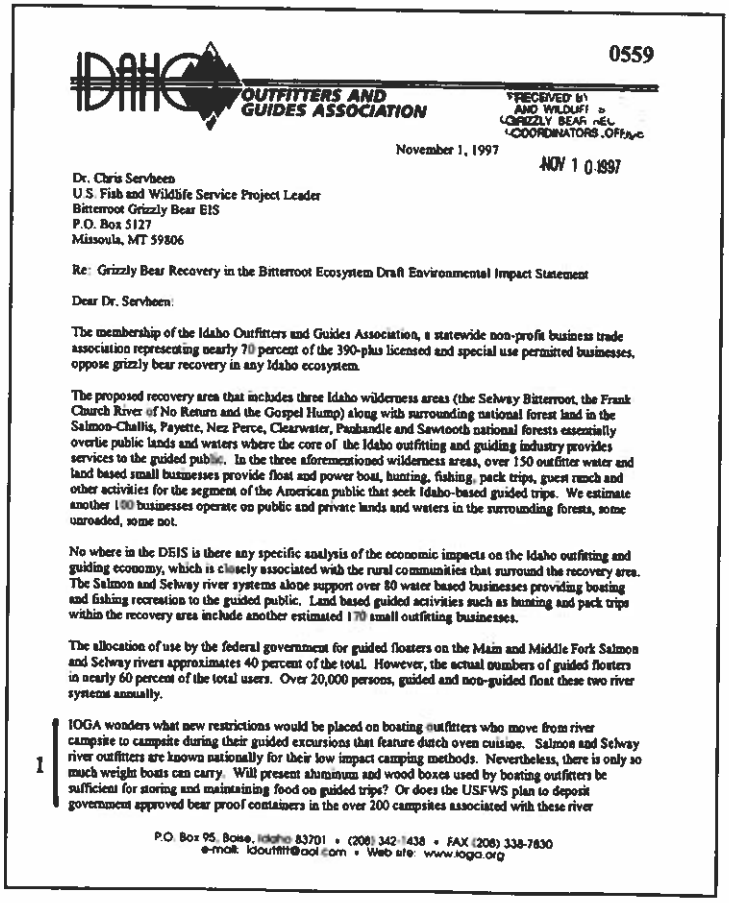
For these reasons, and because the CMC plan holds out hope of a possible model for avoiding the extreme alienation and long knock-down, drag-out battles that have poisoned many other endangered species issues, the UPIU believes that Alternative One, if adopted as recommended above, has the best chance of resolving the debate about grizzly bears in the Bitterroots in a way that is beneficial for all concerned.

Thank you very much for this opportunity to comment.

Sincerely,

Keith D. Romig, Jr., PhD.
UPIU Environmental Policy Advisor

TOTAL P.02



0559

OUTFITTERS AND GUIDES ASSOCIATION

RECEIVED BY AND WILDLIFE GRIZZLY BEAR REC. COORDINATORS OFFICE

November 1, 1997

NOV 1 0 1997

Dr. Chris Servheen
U.S. Fish and Wildlife Service Project Leader
Bitterroot Grizzly Bear EIS
P.O. Box 5127
Missoula, MT 59806

Re: Grizzly Bear Recovery in the Bitterroot Ecosystem Draft Environmental Impact Statement

Dear Dr. Servheen:

The membership of the Idaho Outfitters and Guides Association, a statewide non-profit business trade association representing nearly 70 percent of the 390-plus licensed and special use permitted businesses, oppose grizzly bear recovery in any Idaho ecosystem.

The proposed recovery area that includes three Idaho wilderness areas (the Selway Bitterroot, the Frank Church River of No Return and the Gospel Hump) along with surrounding national forest land in the Salmon-Challis, Payette, Nez Perce, Clearwater, Panhandle and Sawtooth national forests essentially overlie public lands and waters where the core of the Idaho outfitting and guiding industry provides services to the guided public. In the three aforementioned wilderness areas, over 150 outfitter water and land based small businesses provide float and power boat, hunting, fishing, pack trips, guest ranch and other activities for the segment of the American public that seek Idaho-based guided trips. We estimate another 100 businesses operate on public and private lands and waters in the surrounding forests, some unroaded, some not.

No where in the DEIS is there any specific analysis of the economic impacts on the Idaho outfitting and guiding economy, which is closely associated with the rural communities that surround the recovery area. The Salmon and Selway river systems alone support over 80 water based businesses providing boating and fishing recreation to the guided public. Land based guided activities such as hunting and pack trips within the recovery area include another estimated 170 small outfitting businesses.

The allocation of use by the federal government for guided floaters on the Main and Middle Fork Salmon and Selway rivers approximates 40 percent of the total. However, the actual numbers of guided floaters is nearly 60 percent of the total users. Over 20,000 persons, guided and non-guided float these two river systems annually.

IOGA wonders what new restrictions would be placed on boating outfitters who move from river campsite to campsite during their guided excursions that feature dutch oven cuisine. Salmon and Selway river outfitters are known nationally for their low impact camping methods. Nevertheless, there is only so much weight boats can carry. Will present aluminum and wood boxes used by boating outfitters be sufficient for storing and maintaining food on guided trips? Or does the USFWS plan to deposit government approved bear proof containers in the over 200 campsites associated with these river

1

P.O. Box 95, Boise, Idaho 83701 • (208) 342-1438 • FAX (208) 338-7830
e-mail: idoutfitt@aol.com • Web site: www.ioga.org

Private Organization, Idaho Outfitters and Guides Association: #559

1. Management of water based recreation would be guided by the Cooperative Grizzly Management Committee. Recreationists in areas occupied by grizzly bears do use bear resistant containers for storing bear attractants such as food. River recreation outfitting successfully takes place in other grizzly occupied habitat such as on the Flathead River in the Glacier National Park vicinity. Although a rare event, sometimes a trail or use area is closed to human use when occupied by a female grizzly with her cubs.

2. The possible additional costs to packers and hikers of reintroduction are discussed in general on page 4-22 of the FEIS.

3. The FEIS states that no changes in black bear hunting are anticipated, but that the CMC could recommend changes if the CMC believes that such changes are necessary to achieve recovery. The Fish and Game Departments in both Idaho and Montana would

1 systems? I doubt it. Will river corridors be closed to river recreationists because of potential problem bears or because sow and cubs inhabit portions of the river corridors?

The guided and non-guided river recreation associated with the proposed Bitterroot Ecosystem recovery area stand out in contrast to recreation use in the other grizzly recovery areas mentioned in the DEIS (Glacier, Northern Rockies and Yellowstone). This fact is not discussed in the DEIS.

2 No doubt there will be additional costs associated with operating a hunting or pack trip business within the recovery area due to the necessity to obtain bear proof containers and other associated changes in operations. Where in the DEIS is this economic impact measured?

3 What will happen to traditional Idaho black bear hunting methods used by both the guided and unguided hunting publics in the recovery area? Potential trail closures, while noted in the DEIS as rare in other recovery ecosystems, would make it difficult to "get there" to conduct guided hunting or pack trips and would restrict use by guided hosting guests.

4 Some outfitters are very concerned about human safety, both for employees and the guided public. We are charged by state law to provide for the "health, safety and welfare" of those who use our services. Some are very concerned that families that make up a substantial number of the guests who take guided hosting and pack trips will choose other vacations in non-grizzly bear recreation areas.

5 I suspect that the answers to the aforementioned questions will be determined by the Citizen Management Committee mentioned in the preferred alternative. IOGA wonders why Idaho would receive only 7 of the 15 slots on the CMA when nearly 80 percent of the 28.4 million acres recovery area lie within Idaho? IOGA recommends that the ratio of make-up of the CMA be changed substantially between Idaho and Montana residents to reflect the affected recovery area. Furthermore, should the preferred alternative be implemented, IOGA recommends that the make-up of the CMA be tilted heavily toward current users of the wilderness areas. We recommend at least two outfitters for the CMA—one water and one land-based.

The Idaho outfitting and guiding industry is already heavily regulated by both state and federal governments. We are not interested in additional costs that will be associated with Bitterroot Ecosystem grizzly bear recovery due to more government regulation. Idaho industry studies indicate that the average net profit for a small outfitting business in 4.5 percent after all the bills are paid.

While it is laudable that some diverse interest groups have come together to support the preferred alternative, our industry is the one that stands to be affected the most in the core grizzly bear recovery wilderness areas.

Sincerely,

Grant Simonds

Grant Simonds
Executive Director

make decisions and implement any changes. This allows the CMC to be responsive to threats to grizzly bear recovery such as excessive grizzly bear mortality by black bear hunters. We do not believe it is desirable nor necessary to so proscribe CMC management direction by stating they cannot make such a recommendation should they think it necessary.

4. Comment noted. Hundreds of guided and unguided families use occupied grizzly bear habitat in the Northern Rockies and Yellowstone Ecosystem. Special safety procedures enhance a safe and enjoyable wilderness experience. Guide and outfitters in the above areas have considerable experience safely guiding the public in bear country.

5. Thank you for your comments. Committee members would be recommended by respective state governors. We would expect IOGA to work through your governor to assure your industry is adequately represented.

0611

BLUE RIBBON COALITION INC.

"Preserving our natural resources FOR the public instead of FROM the public"
P.O. BOX 1487 • IDAHO FALLS, IDAHO 83403-1487

RECEIVED FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE

NOV 06 1997

October 31, 1997

Dr. Christopher Servheen, Grizzly Bear Recovery Coordinator
Bitterroot Grizzly Bear EIS
P.O. Box 5127
Missoula, MT 59806

Dear Dr. Servheen:

The BlueRibbon Coalition is a nationwide organization representing 500,000 motorized recreationists, equestrians, and resource users. We work with land managers to provide recreation opportunities, preserve resources, and promote cooperation with other public land users. We have many members and member organizations concerned about the reintroduction of the grizzly bear in the Bitterroot Ecosystem. Following are our comments on the Draft Environmental Impact Statement (DEIS) for that reintroduction.

GENERAL COMMENTS

Alternative 1, Reintroduction of a non-essential experimental population, also appears as a proposed rule published in the Federal Register on July 2, 1997. Although selecting an alternative as preferred in a DEIS does not violate NEPA, publishing that alternative to the exclusion of others in the Federal Register gives it a special favored status. This action gives the distinct impression that a decision in favor of Alt. 1 has already been made.

The DEIS is written with the assumption that the public favors re-introduction, which is not the case. Suspect economic data is displayed that favors Alt. 1 and 4 (states a $40-$60 million in economic benefit), and none or a loss is displayed for the other alternatives.

ALTERNATIVE 1 - REINTRODUCTION, NON-ESSENTIAL, EXPERIMENTAL

1 Alt. 1 sets up a Citizens Management Committee (CMC) with 15 members, 5 from Montana and 7 from Idaho, with the remainder from federal agencies. Idaho has 74 percent of the recovery area, and Montana has less than 24 percent. This allocation proportionally favors Montana. The allocation should be changed to give Idaho more representation.

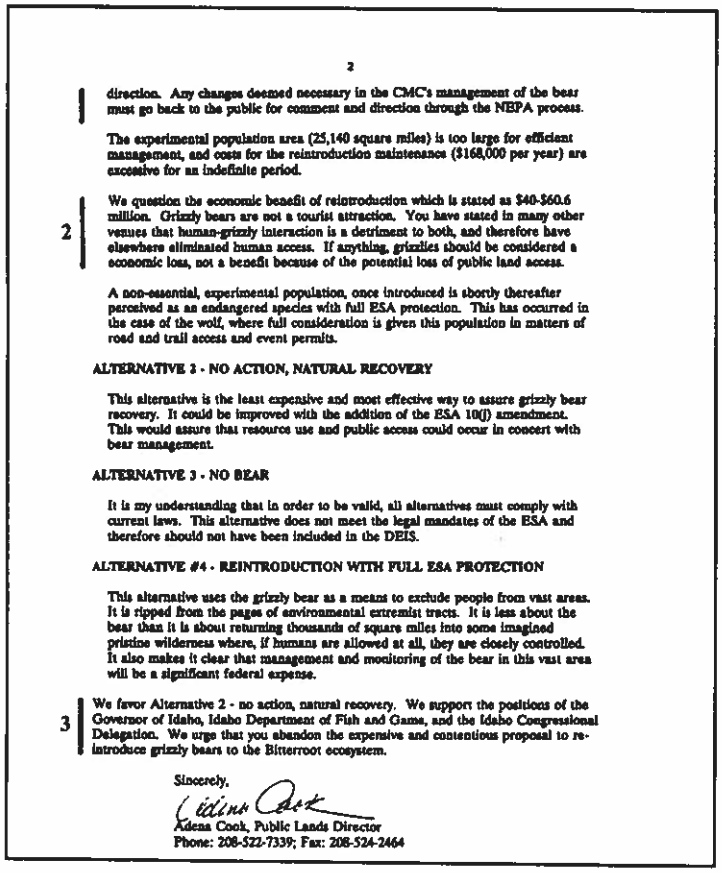
The Secretary of the Interior has sole authority. The CMC can be disbanded at any time by the Secretary if, in his opinion, the CMC is not meeting the recovery requirements of the grizzly bear. This makes the CMC merely a tool for Interior's

Private Organization, Blue Ribbon Coalition: #611

1. The CMC would develop recommendations on existing management plans and policies of land and game management agencies, as necessary, for the management of grizzly bears in the Experimental Area. The CMC could make recommendations to these management agencies regarding changes to plans/policies, but the final decision on implementation of those recommendations would be made by those agencies. If the CMC recommendations require significant changes to existing plans and policy, and the agencies tentatively agree to accept those recommendations, then the requirements of NEPA could apply.

2. The discussion of the estimation of existence values has been expanded and reorganized in the Final EIS to address the concerns of the relationship between the estimated existence values and money spent in the local communities, and the questions of the validity and usefulness of the value estimates.

Additionally, the survey instrument used



2

direction. Any changes deemed necessary in the CMC's management of the bear must go back to the public for comment and direction through the NEPA process.

The experimental population area (25,140 square miles) is too large for efficient management, and costs for the reintroduction maintenance ($168,000 per year) are excessive for an indefinite period.

2 We question the economic benefit of reintroduction which is stated as $40-$60.6 million. Grizzly bears are not a tourist attraction. You have stated in many other venues that human-grizzly interaction is a detriment to both, and therefore have elsewhere eliminated human access. If anything, grizzlies should be considered a economic loss, not a benefit because of the potential loss of public land access.

A non-essential, experimental population, once introduced is shortly thereafter perceived as an endangered species with full ESA protection. This has occurred in the case of the wolf, where full consideration is given this population in matters of road and trail access and event permits.

ALTERNATIVE 2 - NO ACTION, NATURAL RECOVERY

This alternative is the least expensive and most effective way to assure grizzly bear recovery. It could be improved with the addition of the ESA 10(j) amendment. This would assure that resource use and public access could occur in concert with bear management.

ALTERNATIVE 3 - NO BEAR

It is my understanding that in order to be valid, all alternatives must comply with current laws. This alternative does not meet the legal mandates of the ESA and therefore should not have been included in the DEIS.

ALTERNATIVE #4 - REINTRODUCTION WITH FULL ESA PROTECTION

This alternative uses the grizzly bear as a means to exclude people from vast areas. It is ripped from the pages of environmental extremist tracts. It is less about the bear than it is about returning thousands of square miles into some imagined pristine wilderness where, if humans are allowed at all, they are closely controlled. It also makes it clear that management and monitoring of the bear in this vast area will be a significant federal expense.

3 We favor Alternative 2 - no action, natural recovery. We support the positions of the Governor of Idaho, Idaho Department of Fish and Game, and the Idaho Congressional Delegation. We urge that you abandon the expensive and contentious proposal to re-introduce grizzly bears to the Bitterroot ecosystem.

Sincerely,

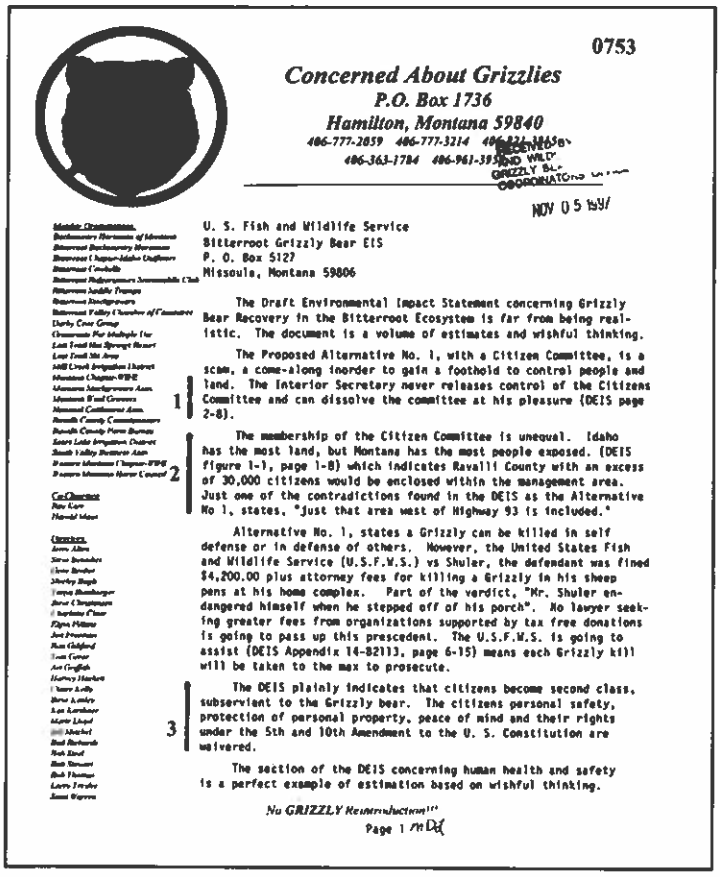
Adena Cook, Public Lands Director
Phone: 208-522-7339; Fax: 208-524-2464

in the analysis of existence values is attached as an appendix to the final document (Appendix 17A). In addition to these changes in the Final EIS the following comments are offered to address concerns raised about the existence value estimates. Impacts associated with grizzly reintroduction in the BE can be measured using different accounting frameworks. The one which perhaps most people are familiar with relates to expenditures; how much more or less money is spent in an area as a result of a management change. Expenditure changes are rightfully of concern to local areas impacted by management actions. Changes in local expenditures impact local workers, businesses, and governments. From a national perspective, however, expenditure gains in one area tend to be offset by expenditure losses in another. Expenditure impacts (particularly from tourism) are largely distributional impacts, benefitting one area at the expense of another.

A second accounting framework, a benefit-cost framework, measures not expenditures, but societal benefits and costs. Benefits and costs can be closely, or loosely tied to actual market transactions. In the case of grizzly reintroduction, livestock losses are closely tied to market transactions while existence values are less obviously tied to the market. It is important not to confuse these two accounting frameworks. The estimated annual existence value associated with grizzly reintroduction as reported in the DEIS would NOT be characterized by increased expenditures in the recovery area. Rather, these estimates represent aggregate increases in value to people in the U.S. accruing as a result of grizzly reintroduction. A portion (but only a very small portion) of this non-market value would accrue to residents of the local area surrounding the recovery area.

Some DEIS respondents also questioned the validity and usefulness of the existence value estimates. While the use of contingent valuation methods to estimate passive use values associated with proposed management changes is not a perfect tool, it is the only accepted tool currently available to economists to measure these types of non-use values.

3. Thank you for your comments.



0753

Concerned About Grizzlies
P.O. Box 1736
Hamilton, Montana 59840
406-777-2859 406-777-3214 406-821-1655
406-363-1784 406-961-3591

RECEIVED
GRIZZLY BE
COORDINATOR'S OFFICE

NOV 05 1991

U. S. Fish and Wildlife Service
Bitterroot Grizzly Bear EIS
P. O. Box 5127
Missoula, Montana 59806

The Draft Environmental Impact Statement concerning Grizzly Bear Recovery in the Bitterroot Ecosystem is far from being realistic. The document is a volume of estimates and wishful thinking.

The Proposed Alternative No. 1, with a Citizen Committee, is a scam, a come-along inorder to gain a foothold to control people and land. The Interior Secretary never releases control of the Citizens Committee and can dissolve the committee at his pleasure (DEIS page 2-8). 1

The membership of the Citizen Committee is unequal. Idaho has the most land, but Montana has the most people exposed. (DEIS figure 1-1, page 1-8) which indicates Ravalli County with an excess of 30,000 citizens would be enclosed within the management area. Just one of the contradictions found in the DEIS as the Alternative No 1, states, "just that area west of Highway 93 is included." 2

Alternative No. 1, states a Grizzly can be killed in self defense or in defense of others. However, the United States Fish and Wildlife Service (U.S.F.W.S.) vs Shuler, the defendant was fined $4,200.00 plus attorney fees for killing a Grizzly in his sheep pens at his home complex. Part of the verdict, "Mr. Shuler endangered himself when he stepped off of his porch". No lawyer seeking greater fees from organizations supported by tax free donations is going to pass up this prescedent. The U.S.F.W.S. is going to assist (DEIS Appendix 14-B2113, page 6-15) means each Grizzly kill will be taken to the max to prosecute.

The DEIS plainly indicates that citizens become second class, subservient to the Grizzly bear. The citizens personal safety, protection of personal property, peace of mind and their rights under the 5th and 10th Amendment to the U. S. Constitution are waivered. 3

The section of the DEIS concerning human health and safety is a perfect example of estimation based on wishful thinking.

No GRIZZLY Reintroduction!!!

Page 1 of 2

Grizzly bear have made greater use of river bottoms (DEIS 4-14 Jonkel 1984). Grizzly bears crossing the divide of the Bitterroot Mountains will find numerous canyons representing the gateway into the Bitterroot Valley, at the mouth of some canyons are cattle and horse ranches, at others are developments with many residents. The DEIS does not discuss these canyons nor the fact the most vegetation is found in the canyon floor, that the canyon walls in many cases are solid rock or long talus slides. There are only steep foothills on the Bitterroot Mountain east slope with much decomposed granite soil with low fertility. These canyons are the site for trails leading into the Wilderness area, many are perilous at best and are heavily used by day hikers, rock climbers, picnicers, fisherman and irrigators servicing their water storage.

In the fall hunters and guides use these trails. One lonesome Grizzly could create a disaster to a train of pack stock as there is no easy retreat for the bear or humans and their stock.

The intersection of Highway 93 and Main Street of Hamilton, MT is six air miles from the Wilderness border. The elevation difference is approximately 4,000 feet. Snow is present at that elevation in late fall and early spring, so the Grizzly food source is downhill, where the people are. The forest boundary is four miles from the above mentioned intersection with residencies to the forest border. No mention of these conditions can be found in the DEIS. 4

Human/bear conflict is just a minor statistic in the DEIS. However a mauling can mean a lifetime of scars, pain and medical expenditures. Death may be a statistic to the U.S.F.W.S. but is a senseless tragedy to the relatives and friendsof the victim.

Whole communities are placed within the suggested management area which includes schools. Does the U.S.F.W.S. expect mothers to be present with pepper spray during all recesses? Public buildings and other gathering places are included. The risk is just too great to allow. 5

The efforts in the DEIS to lead the citizens to consider the Selway-Bitterroot Wilderness as prime Grizzly bear habitat is misleading. (DEIS Thwaites 1959, page 1-5) Lewis and Clark killed 7 Grizzly bear near present day Kamiah, Idaho. The DEIS fails to show elevation differential between the Wilderness and Kamiah which is more than 3,000 feet. Early spring in the higher wilderness area has 5 to 11 feet of snow with the grass green in Kamiah. 6

The Selway Bitterroot Wilderness with it's deep canyons, long dry ridges and miles of solid rock has an Eco-System of it's own. Introduction of Grizzly bear is not Eco-System management, but is Eco-System manipulation. This area was long primitive area prior to becoming Wilderness in 1964. Therefore, it seems realistic that Grizzly would inhabit the area if it was prime habitat.

How wise is it to change the Eco-System which exists. Grizzlies are the acme of the food chain and it's desires will happen. They like elk, moose and deer young. 7

page 2 of 2

Private Organization, Concerned About Grizzlies: #753

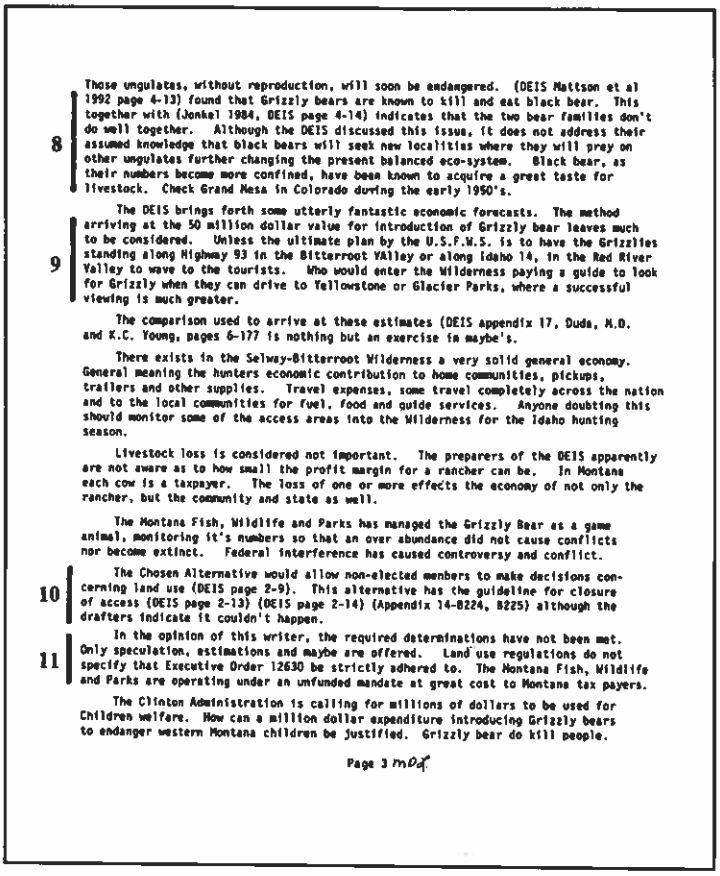
1. Under the Endangered Species Act, the Secretary of Interior must retain final authority and responsibility for implementation of the Act. Based on public comment, Alternative 1 has been modified to include provisions to further facilitate the functioning of the CMC, and allow for citizen management to proceed without undue influence from the Secretary of Interior.

If the USFWS representative on the CMC has concerns that CMC actions are not leading to recovery and are not in compliance with the Special Rule, he/she would provide the CMC corrective actions and a 6-month time-frame to accomplish those actions, and would consider CMC input before making a determination that CMC actions are not leading to recovery. If that determination is made, the USFWS representative would convene a Scientific Review Panel to review CMC actions and decisions and make recommendations to the CMC as to whether CMC actions, decisions, or processes are in compliance with the Special Rule and are leading to recovery. This panel of 3 would be appointed by the Secretary, Governor of Idaho, and Governor of Montana. If the CMC rejects the recommendations, and the USFWS representative determines CMC actions are not leading to recovery, he/she would notify the Secretary of Interior. The Secretary would use these recommendations to determine whether to resume lead management responsibility. Further, if the Secretary decides to resume lead management responsibility, he/she would first consult with the Governors of Idaho and Montana to attempt to resolve discrepancies between his/her alternatives and the actions of the CMC. See Chapter 2, Alternative 1 for more information.

2. Figure 1-1, page 1-8 of the FEIS is a Regional Perspective showing the Bitterroot Grizzly Bear Primary Analysis Area. There is not an area known as the management area. On page 2-9 of the FEIS, Figure 2-1 is the Bitterroot Grizzly Bear Experimental Population Area and Recovery Area for Alternative 1. Part of Ravalli County would be within the Experimental Population Area.

3. The DEIS in no way indicates that citizens are second to the grizzly bear. Under the Endangered Species Act, humans that act in self defense or defense of others would be allowed to kill a grizzly bear. Under Interagency Grizzly Bear Committee guidelines (IGBC 1986), grizzly bears posing problems to camps, cabins, individuals and stock may be relocated or removed.

4. Unless the CMC determines otherwise, private



Those ungulates, without reproduction, will soon be endangered. (DEIS Mattson et al 1992 page 4-13) found that Grizzly bears are known to kill and eat black bear. This together with (Jonkel 1984, DEIS page 4-14) indicates that the two bear families don't do well together. Although the DEIS discussed this issue, it does not address their 8 assumed knowledge that black bears will seek new localities where they will prey on other ungulates further changing the present balanced eco-system. Black bear, as their numbers become more confined, have been known to acquire a great taste for livestock. Check Grand Mesa in Colorado during the early 1950's.

The DEIS brings forth some utterly fantastic economic forecasts. The method arriving at the 50 million dollar value for introduction of Grizzly bear leaves much to be considered. Unless the ultimate plan by the U.S.F.W.S. is to have the Grizzlies 9 standing along Highway 93 in the Bitterroot VAlley or along Idaho 14, in the Red River Valley to wave to the tourists. Who would enter the Wilderness paying a guide to look for Grizzly when they can drive to Yellowstone or Glacier Parks, where a successful viewing is much greater.

The comparison used to arrive at these estimates (DEIS appendix 17, Duda, M.D. and K.C. Young, pages 6-177 is nothing but an exercise in maybe's.

There exists in the Selway-Bitterroot Wilderness a very solid general economy. General meaning the hunters economic contribution to home communities, pickups, trailers and other supplies. Travel expenses, some travel completely across the nation and to the local communities for fuel, food and guide services. Anyone doubting this should monitor some of the access areas into the Wilderness for the Idaho hunting season.

Livestock loss is considered not important. The preparers of the DEIS apparently are not aware as to how small the profit margin for a rancher can be. In Montana each cow is a taxpayer. The loss of one or more effects the economy of not only the rancher, but the community and state as well.

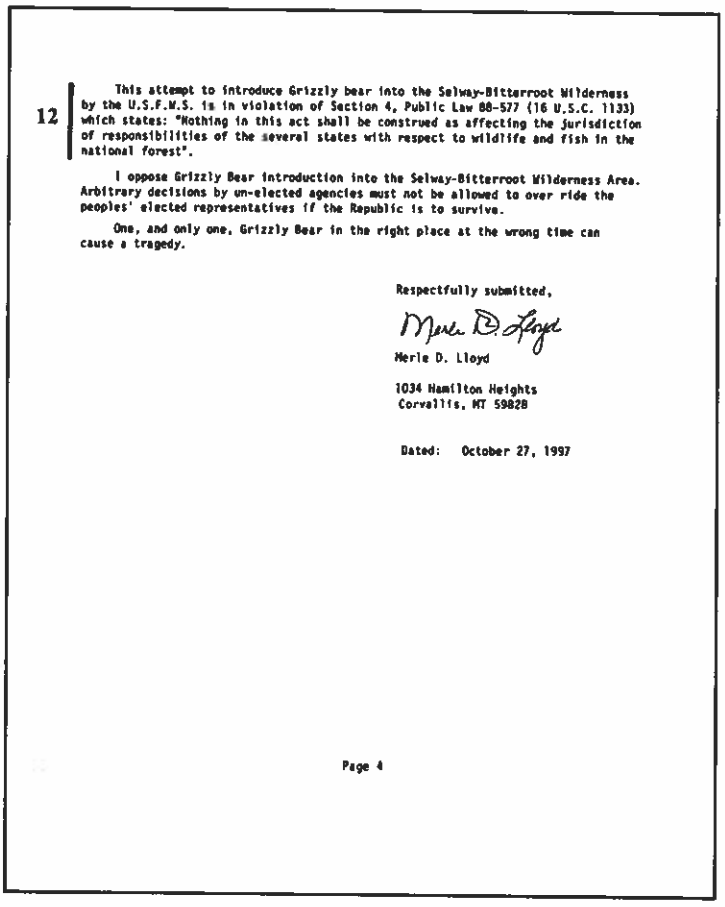
The Montana Fish, Wildlife and Parks has managed the Grizzly Bear as a game animal, monitoring it's numbers so that an over abundance did not cause conflicts nor become extinct. Federal interference has caused controversy and conflict.

The Chosen Alternative would allow non-elected members to make decisions con- 10 cerning land use (DEIS page 2-9). This alternative has the guideline for closure of access (DEIS page 2-13) (DEIS page 2-14) (Appendix 14-B224, B225) although the drafters indicate it couldn't happen.

In the opinion of this writer, the required determinations have not been met. 11 Only speculation, estimations and maybe are offered. Land use regulations do not specify that Executive Order 12630 be strictly adhered to. The Montana Fish, Wildlife and Parks are operating under an unfunded mandate at great cost to Montana tax payers.

The Clinton Administration is calling for millions of dollars to be used for Children welfare. How can a million dollar expenditure introducing Grizzly bears to endanger western Montana children be justified. Grizzly bear do kill people.

Page 3 mDf



12 This attempt to introduce Grizzly bear into the Selway-Bitterroot Wilderness by the U.S.F.W.S. is in violation of Section 4, Public Law 88-577 (16 U.S.C. 1133) which states: "Nothing in this act shall be construed as affecting the jurisdiction of responsibilities of the several states with respect to wildlife and fish in the national forest".

I oppose Grizzly Bear introduction into the Selway-Bitterroot Wilderness Area. Arbitrary decisions by un-elected agencies must not be allowed to over ride the peoples' elected representatives if the Republic is to survive.

One, and only one, Grizzly Bear in the right place at the wrong time can cause a tragedy.

Respectfully submitted,

Merle D. Lloyd

Merle D. Lloyd

1034 Hamilton Heights
Corvallis, MT 59828

Dated: October 27, 1997

Page 4

lands outside the National Forest boundary in the Bitterroot Valley (private lands lying within the experimental population area and outside the Bitterroot Forest boundary south of US highway 12 to Lost Trail Pass) would be an area where any human/grizzly bear conflicts would be considered significant. Grizzly bear occupancy would be discouraged in these areas and grizzly bears would be captured, destroyed, or returned to the recovery area. If a grizzly bear enters the exclusion area, State and Federal wildlife management agencies would attempt to capture it immediately and notify the public of its presence as soon as possible. The public would be updated until the bear is caught. The purpose of this is to ensure that grizzly bears do not move onto the private lands in the Bitterroot Valley, Montana, where human conflict potential would be high.

5. There is no area identified in the FEIS as a suggested management area. There is an area entitled the Bitterroot Grizzly Bear Experimental Population Area which is bounded on the east by Highway 93. Grizzly bear occupancy outside the Bitterroot National Forest Boundary south of Highway 12 to Lost Trail Pass would be discouraged in these areas and grizzly bears would be captured, destroyed or returned to the recovery area.

6. Three different habitat studies were conducted in the Bitterroot Ecosystem from 1979 through 1991 (Scaggs 1979, Butterfield and Almack 1985, Davis and Butterfield 1991). See Appendix 3. The authors suggested, using an established set of criteria (Craighead et al. 1982), that habitat in the Bitterroot Evaluation Area (BEA) was sufficient to support grizzly bears. An interagency group of grizzly bear scientists reviewed the information and concurred, suggesting that the BEA could support between 200 and 400 bears (Servheen et al. 1991). Further research indicates habitats in the BE are capable of supporting a viable population of grizzly bears (Appendix 21).

Elevations in the center of the Selway-Bitterroot Wilderness are much lower than elevations in the Bitterroot Valley. Moose Creek Ranger Station is 2400 feet opposed to Hamilton, Montana which is at 3200 feet. Where Lewis and Clark encountered and killed grizzly bears in 1806 was near present day Kamiah, Idaho, which is at an elevation of 1100 feet.

The grizzly bear inhabited the Bitterroot Ecosystem in healthy numbers until a major influx of hunters, trappers and settlers at the turn of the century, and later sheepherders, were responsible for direct mortality and elimination of grizzly bears in the BE.

7. Grizzly bears would be at the top of the food

chain in the BE. Elk, moose and deer have co-existed with grizzly bears for thousands of years and grizzly bears have little effect on ungulate reproduction.

8. The grizzly bear's absence from the BE has created an ecosystem that is not naturally balanced. Return of the grizzly bear to the BE would result in a more balanced ecosystem. Black bears will not become more confined, but likely more dispersed as a result of a grizzly bear population in the BE.

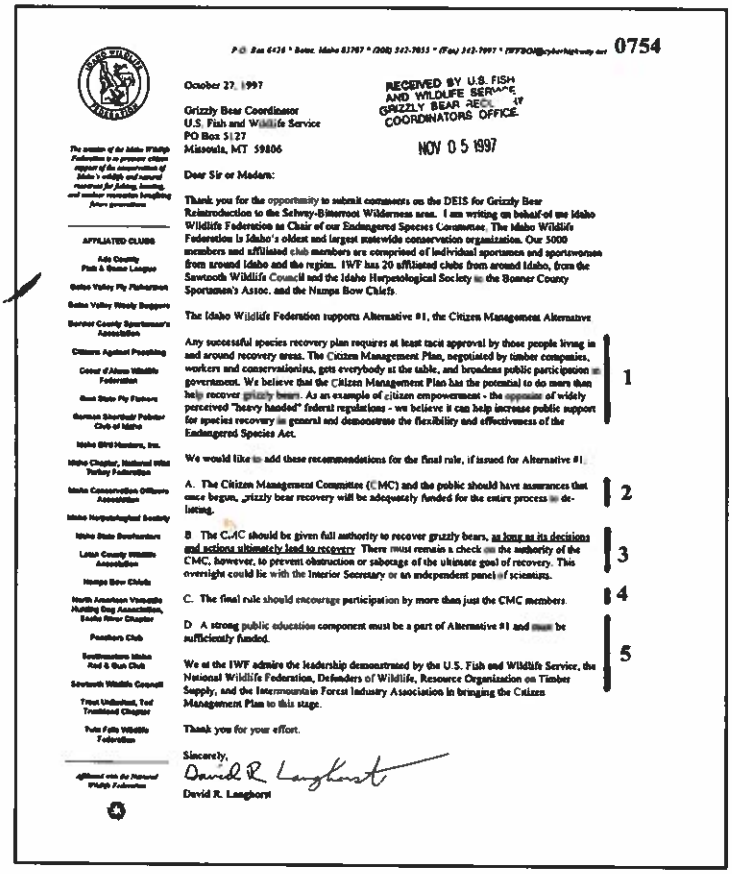
9. The annual net economic value of recovery listed in Table 4-7 of the FEIS are the values that potential visitors place on grizzly bears. There are two components to this value. There is a value associated with seeing grizzly bears in the wild. The other value is called a "passive use value" or "existence value." Existence value is the value a person associates with the knowledge that a resource exists, even if that person has no plans or expectations of ever directly using that resource (Krutilla 1967). See response to Blue Ribbon Coalition letter # 611, issue #2 for more information on the results and methodology of the economic analysis.

10. The CMC "would be responsible for recommending changes in land use standards and guidelines," not making decisions (FEIS Chapter 2). Recreation impacts in the form of permanent trail closures within the wilderness would likely not occur. Temporary closure of trails may occur in response to a dangerous situation that might result in human injury or bear mortality. Some roads that are open and presently exceeding densities recommended for fish and wildlife management purposes outside the wilderness could also be closed, but not solely for the grizzly bear.

11. Executive order 12630 of March 15, 1988 entitled "Governmental Action and Interference with Constitutionally Protected Property Rights," Section 1(b) states, "Responsible fiscal management and fundamental principles of good government require that government decision-makers evaluate carefully the effect of their administrative, regulatory and legislative actions on constitutionally protected property rights." Section 2 states, "Policies that have taking implications does not include: (4) Studies or similar efforts or planning activities."

12. Section 4 of Public Law 88-577 is a provision of the Wilderness Act of 1964. This FEIS does not affect jurisdiction of any state. This FEIS is being carried out under the authority of the ESA of 1973.

13. Grizzly bears would be released in areas of central Idaho that have low densities of livestock. The analysis on pages 4-9 to 4-11 results in an estimated loss of 4-8 cattle and 5-44 sheep annually when the grizzly bear population numbers 280.



0754

October 27, 1997

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE

NOV 0 5 1997

Grizzly Bear Coordinator
U.S. Fish and Wildlife Service
PO Box 5127
Missoula, MT 59806

Dear Sir or Madam:

Thank you for the opportunity to submit comments on the DEIS for Grizzly Bear Reintroduction to the Selway-Bitterroot Wilderness area. I am writing on behalf of the Idaho Wildlife Federation as Chair of our Endangered Species Committee. The Idaho Wildlife Federation is Idaho's oldest and largest statewide conservation organization. Our 5000 members and affiliated club members are comprised of individual sportsmen and sportswomen from around Idaho and the region. IWF has 20 affiliated clubs from around Idaho, from the Sawtooth Wildlife Council and the Idaho Herpetological Society in the Bonner County Sportsmen's Assoc. and the Nampa Bow Chiefs.

The Idaho Wildlife Federation supports Alternative #1, the Citizen Management Alternative

Any successful species recovery plan requires at least tacit approval by those people living in and around recovery areas. The Citizen Management Plan, negotiated by timber companies, workers and conservationists, gets everybody at the table, and broadens public participation in government. We believe that the Citizen Management Plan has the potential to do more than help recover grizzly bears. As an example of citizen empowerment - the opposite of widely perceived "heavy handed" federal regulations - we believe it can help increase public support for species recovery in general and demonstrate the flexibility and effectiveness of the Endangered Species Act. 1

We would like to add these recommendations for the final rule, if issued for Alternative #1.

A. The Citizen Management Committee (CMC) and the public should have assurances that once begun, grizzly bear recovery will be adequately funded for the entire process to de-listing. 2

B. The CMC should be given full authority to recover grizzly bears, as long as its decisions and actions ultimately lead to recovery. There must remain a check on the authority of the CMC, however, to prevent obstruction or sabotage of the ultimate goal of recovery. This oversight could be with the Interior Secretary or an independent panel of scientists. 3

C. The final rule should encourage participation by more than just the CMC members. 4

D. A strong public education component must be a part of Alternative #1 and must be sufficiently funded. 5

We at the IWF admire the leadership demonstrated by the U.S. Fish and Wildlife Service, the National Wildlife Federation, Defenders of Wildlife, Resource Organization on Timber Supply, and the Intermountain Forest Industry Association in bringing the Citizen Management Plan to this stage.

Thank you for your effort.

Sincerely,

David R. Langhorst

David R. Langhorst

Private Organization, Idaho Wildlife Federation: #754

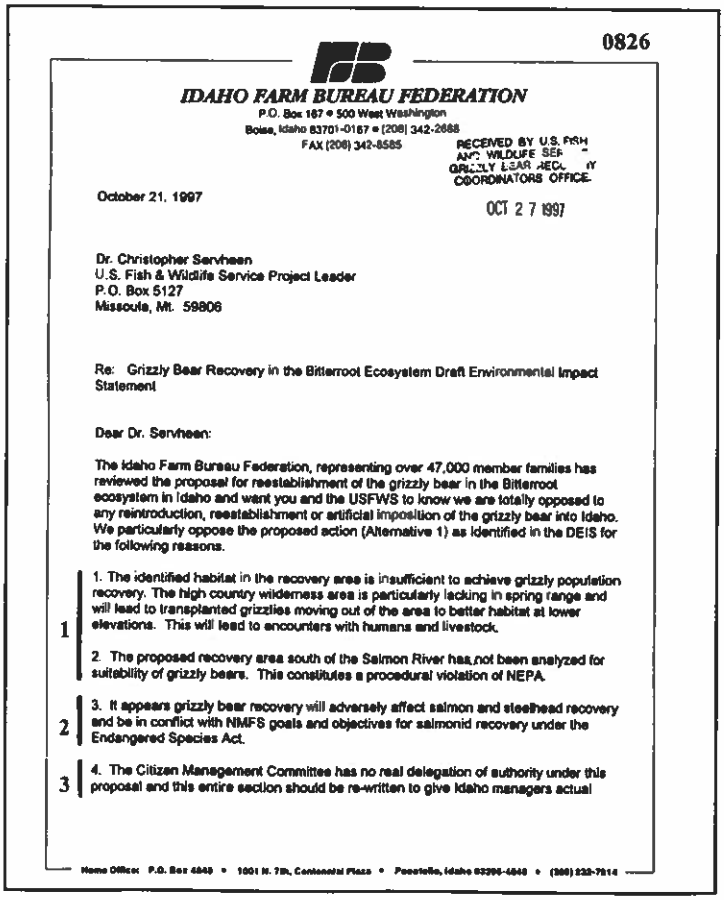
1. Thank you for your comments.

2. Point noted and we agree that adequate funding is necessary and should be supplied to the states so that can participate in the recovery effort. See USDA Forest Service, letter #763, #4, 5-76.

3. The CMC has been modified in this final proposal and incorporates your concern. A Scientific Review Panel has been added for oversight. See Concerned about Grizzlies, letter #753, #1, page 5-153; and Chapter 2, page 2-5 for details.

4. The USFWS expects the CMC to operate openly and with public involvement. The FEIS has been modified to include an increased level of public involvement in CMC processes. See Custer County Commissioners, letter #2167, #1, page 5-61.

5. Thank you for your comments.



0826

IDAHO FARM BUREAU FEDERATION
P.O. Box 167 • 500 West Washington
Boise, Idaho 83701-0167 • (208) 342-2688
FAX (208) 342-8585

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE

OCT 2 7 1997

October 21, 1997

Dr. Christopher Servheen
U.S. Fish & Wildlife Service Project Leader
P.O. Box 5127
Missoula, Mt. 59806

Re: Grizzly Bear Recovery in the Bitterroot Ecosystem Draft Environmental Impact Statement

Dear Dr. Servheen:

The Idaho Farm Bureau Federation, representing over 47,000 member families has reviewed the proposal for reestablishment of the grizzly bear in the Bitterroot ecosystem in Idaho and want you and the USFWS to know we are totally opposed to any reintroduction, reestablishment or artificial imposition of the grizzly bear into Idaho. We particularly oppose the proposed action (Alternative 1) as identified in the DEIS for the following reasons.

1. The identified habitat in the recovery area is insufficient to achieve grizzly population recovery. The high country wilderness area is particularly lacking in spring range and will lead to transplanted grizzlies moving out of the area to better habitat at lower elevations. This will lead to encounters with humans and livestock. 1

2. The proposed recovery area south of the Salmon River has not been analyzed for suitability of grizzly bears. This constitutes a procedural violation of NEPA.

3. It appears grizzly bear recovery will adversely affect salmon and steelhead recovery and be in conflict with NMFS goals and objectives for salmonid recovery under the Endangered Species Act. 2

4. The Citizen Management Committee has no real delegation of authority under this proposal and this entire section should be re-written to give Idaho managers actual 3

Home Office: P.O. Box 4848 • 1001 N. 7th, Centennial Plaza • Pocatello, Idaho 83205-4848 • (208) 232-7814

Private Organization, Idaho Farm Bureau Federation: #826

1. Further reviews of habitat capability in the Bitterroot Ecosystem have been made and are included in the FEIS. See Appendix 21.

2. See NMFS Biological Opinion, Appendix 9B. Grizzly Bear Recovery will not conflict with salmon or steelhead recovery.

3. Thank you for your comment.

4. The discussion of the estimation of existence values has been expanded and reorganized in the Final EIS to address the concerns of the relationship between the estimated existence values and money spent in the local communities, and the questions of the validity and usefulness of the value estimates. Additionally, the survey instrument used in the analysis of existence values is attached as an appendix to the final document (Appendix 17A). In addition to these changes in the Final EIS, the following comments are offered to address concerns raised about the existence

management authority.

5. Funding for management/monitoring is not guaranteed and will probably not be available once introductions have occurred. An example of the lack of commitment by USFWS is taking place in the wolf recovery effort in Idaho. The Nez Perce tribe monitoring effort is being withdrawn because of a lack of payment to the tribe for the service. We envision grizzly monitoring would fall under the same circumstance if bears were ever introduced.

4 6. We strongly object to the pie in the sky estimate that grizzly bear recovery would somehow net 40 to 60 million dollars per year to the state and only cost $393,632 per year. We believe the estimates to be flawed and biased to show the public that grizzlies promote economic growth which is totally imaginary and demonstrates USFWS should confine their comments to the field they are trained in, namely wildlife management.

7. We strongly object to the impact findings that grizzly bears will pose a minimal risk to humans. We read these fine projections by grizzly enthusiasts and listen intently to college students testifying to their willingness to share their world with the grizzly, but the fact is that the grizzly bear is a vicious, unpredictable, very large and mean critter that will attack without provocation. Livestock loses, and human attacks will occur and projections of one injury per year do not even add up for this year. 2 rangers had to use pepper spray to ward off two different bears in Yellowstone park, a mauling occurred in Montana of a bowhunter, 2 Idaho hunters were mauled in Alaska and not one of these occurrences were provoked by humans. Grizzlies and humans do not mix well and yet the USFWS is insisting that they will make sure such encounters will occur by bringing this vicious animal to Idaho.

5 8. We strongly object to closures of roads, hunting restrictions, mining restrictions, logging restrictions and access restrictions that grizzly bears will bring to the state of Idaho. USFWS and a few grizzly enthusiast talk about bringing our heritage back to the state so that we can experience the past. Our heritage is also built upon unrestricted access to our back country and multiple uses of our public lands. Grizzlies might reintroduce us to the concept of fear for our lives on camping trips, but they will rob from us a greater heritage and that is multiple use of our public lands and unrestricted access to our back country and wild areas.

In closing the Idaho Farm Bureau Federation would like the USFWS to know that we firmly and completely back our Governor and Congressional Delegation in opposing any reintroduction of Grizzly Bears into the state of Idaho. We further recommend that the DEIS be withdrawn and this absurd idea of imposing a vicious killer on the citizens of Idaho be terminated. This proposal is not necessary, for the grizzly is alive and well in North America and need not be imposed upon the citizens of Idaho.

Thank you for the opportunity to comment on this most distressing proposal.

Sincerely,

Tom Geary

Tom Geary, President
Idaho Farm Bureau Federation

cc: Governor Phil Batt
Senator Larry Craig
Senator Dirk Kempthorne
Congressman Helen Chenoweth
Congressman Mike Crapo
IFBF Officers, Directors and Staff
IFBF County Presidents

value estimates.

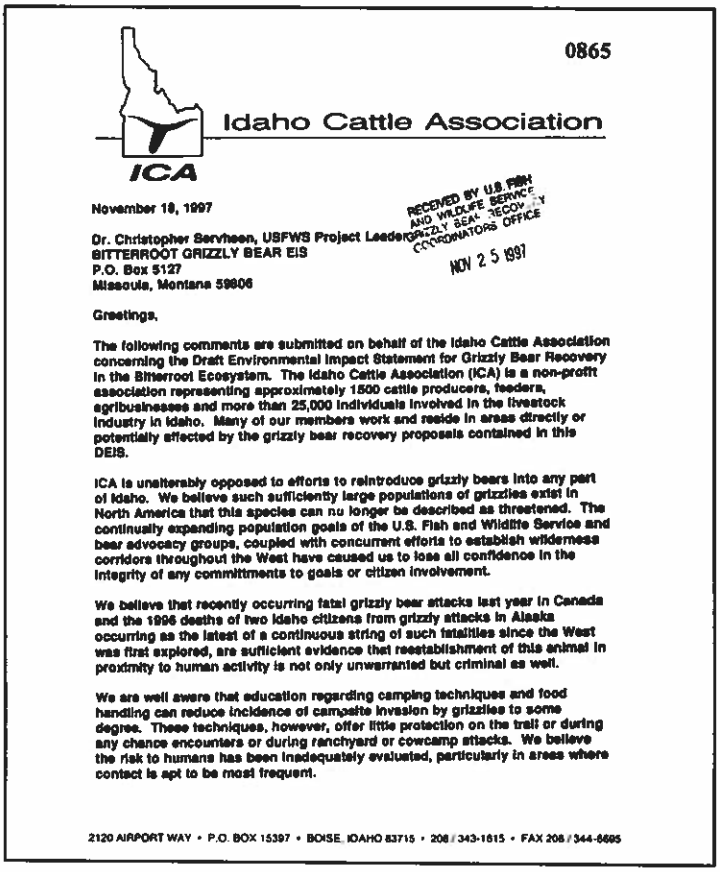
Impacts associated with grizzly reintroduction in the BE can be measured using different accounting frameworks. The one which perhaps most people are familiar with relates to expenditures; how much more or less money is spent in an area as a result of a management change. Expenditure changes are rightfully of concern to local areas impacted by management actions. Changes in local expenditures impact local workers, businesses, and governments. From a national perspective, however, expenditure gains in one area tend to be offset by expenditure losses in another. Expenditure impacts (particularly from tourism) are largely distributional impacts, benefitting one area at the expense of another.

A second accounting framework, a benefit-cost framework, measures not expenditures, but societal benefits and costs. Benefits and costs can be closely, or loosely tied to actual market transactions. In the case of grizzly reintroduction, livestock losses are closely tied to market transactions while existence values are less obviously tied to the market.

It is important not to confuse these two accounting frameworks. The estimated annual existence value associated with grizzly reintroduction as reported in the DEIS would NOT be characterized by increased expenditures in the recovery area. Rather, these estimates represent aggregate increases in value to people in the U.S. accruing as a result of grizzly reintroduction. A portion (but only a very small portion) of this non-market value would accrue to residents of the local area surrounding the recovery area.

Some DEIS respondents also questioned the validity and usefulness of the existence value estimates. While the use of contingent valuation methods to estimate passive use values associated with proposed management changes is not a perfect tool, it is the only accepted tool currently available to economists to measure these types of non-use values.

5. Any proposals for land use restriction would be considered by the Citizen Management Committee, and undergo public involvement.



0865

Idaho Cattle Association

ICA

November 18, 1997

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE
NOV 25 1997

Dr. Christopher Servheen, USFWS Project Leader
BITTERROOT GRIZZLY BEAR EIS
P.O. Box 5127
Missoula, Montana 59806

Greetings,

The following comments are submitted on behalf of the Idaho Cattle Association concerning the Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem. The Idaho Cattle Association (ICA) is a non-profit association representing approximately 1500 cattle producers, feeders, agribusinesses and more than 25,000 individuals involved in the livestock industry in Idaho. Many of our members work and reside in areas directly or potentially effected by the grizzly bear recovery proposals contained in this DEIS.

ICA is unalterably opposed to efforts to reintroduce grizzly bears into any part of Idaho. We believe such sufficiently large populations of grizzlies exist in North America that this species can no longer be described as threatened. The continually expanding population goals of the U.S. Fish and Wildlife Service and bear advocacy groups, coupled with concurrent efforts to establish wilderness corridors throughout the West have caused us to lose all confidence in the integrity of any committments to goals or citizen involvement.

We believe that recently occurring fatal grizzly bear attacks last year in Canada and the 1996 deaths of two Idaho citizens from grizzly attacks in Alaska occurring as the latest of a continuous string of such fatalities since the West was first explored, are sufficient evidence that reestablishment of this animal in proximity to human activity is not only unwarranted but criminal as well.

We are well aware that education regarding camping techniques and food handling can reduce incidence of campsite invasion by grizzlies to some degree. These techniques, however, offer little protection on the trail or during any chance encounters or during ranchyard or cowcamp attacks. We believe the risk to humans has been inadequately evaluated, particularly in areas where contact is apt to be most frequent.

2120 AIRPORT WAY • P.O. BOX 15397 • BOISE, IDAHO 83715 • 208 / 343-1615 • FAX 208 / 344-8695

Insufficient data exists to justify the low level of livestock losses estimated in the DEIS. To illustrate, in 1997 the more innocuous black bear, in only one incident caused the loss of over 325 sheep through panic. This was, at that time, only the latest in a series of similar incidents. It is important to be aware that the reduced grizzly numbers have been arrived at, in Idaho, as the result of real life experience, not estimates.

This DEIS is characterized throughout by the use of "best case" scenarios and statistics or studies. For example, the average loss of livestock in the Yellowstone Ecosystem is cited as being 29 (for 1994-1995). This is then extrapolated by formula to the Bitterroot Ecosystem, claiming low livestock losses to be expected from grizzly bear recovery. If, however, 1996-1997 (to date) were to be used the average jumps to 37. Since bear depredations tend to be localized, this would represent significant financial loss to a very few ranchers.

This association views with concern the repeated reference to linkage zone analysis and management contained in this DEIS. It appears that this portion of the plan is not to be subject to the public comment process. We are unable to determine congressional authority or agency regulations which would authorize the creation of "Corridor Special Managment Areas" even if established within the NEPA process.

1 The Idaho Cattle Association supports alternative three and remains adamantly opposed to any intervention by out of state entities concerning grizzly populations.

Sincerely,

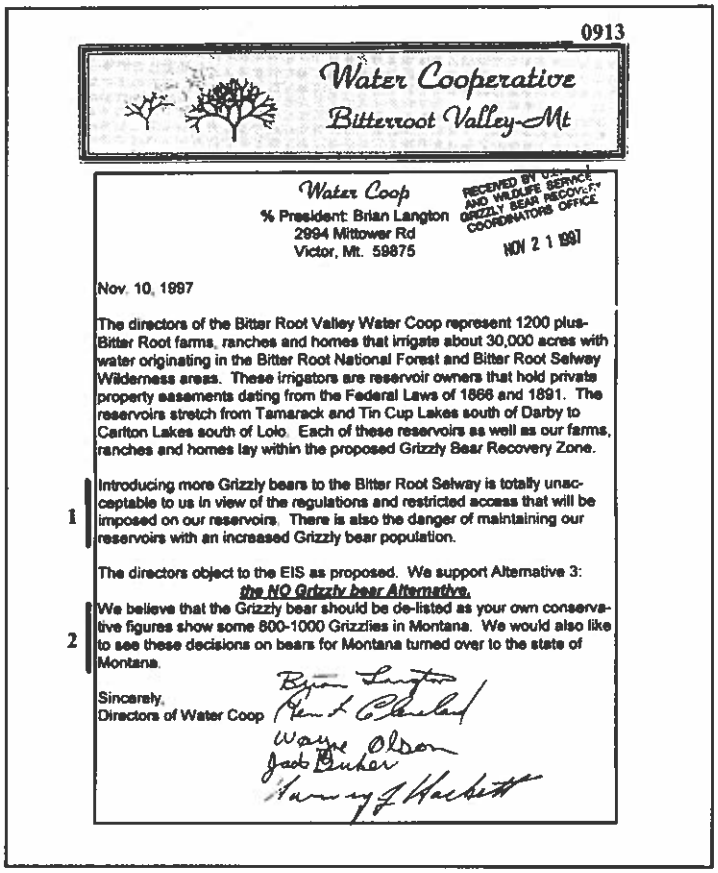
Judy Woodie

Judy Woodie
President

cc: Congressional Delegation
Governor Phil Batt

Private Organization, Idaho Cattle Association: #865

1. Thank you for your comments.



0913

Water Cooperative
Bitterroot Valley-Mt

Water Coop
% President: Brian Langton
2994 Mittower Rd
Victor, Mt. 59875

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE
NOV 2 1 1997

Nov. 10, 1997

The directors of the Bitter Root Valley Water Coop represent 1200 plus-Bitter Root farms, ranches and homes that irrigate about 30,000 acres with water originating in the Bitter Root National Forest and Bitter Root Selway Wilderness areas. These irrigators are reservoir owners that hold private property easements dating from the Federal Laws of 1866 and 1891. The reservoirs stretch from Tamarack and Tin Cup Lakes south of Darby to Carlton Lakes south of Lolo. Each of these reservoirs as well as our farms, ranches and homes lay within the proposed Grizzly Bear Recovery Zone.

1 Introducing more Grizzly bears to the Bitter Root Selway is totally unacceptable to us in view of the regulations and restricted access that will be imposed on our reservoirs. There is also the danger of maintaining our reservoirs with an increased Grizzly bear population.

The directors object to the EIS as proposed. We support Alternative 3: ***the NO Grizzly bear Alternative.***

2 We believe that the Grizzly bear should be de-listed as your own conservative figures show some 800-1000 Grizzlies in Montana. We would also like to see these decisions on bears for Montana turned over to the state of Montana.

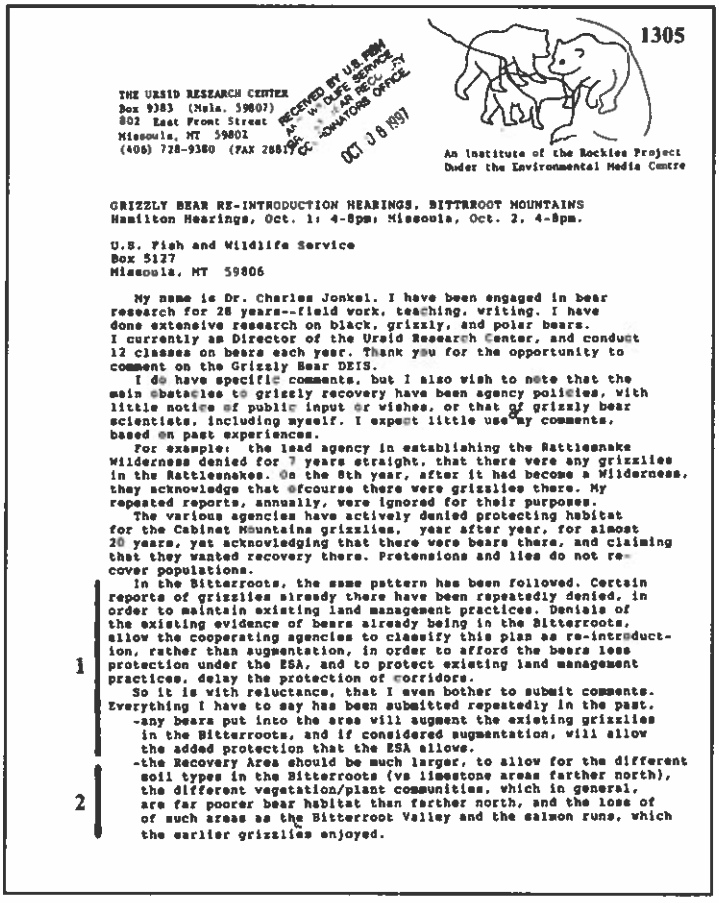
Sincerely,
Directors of Water Coop

Brian Langton
Kent L Cleveland
Wayne Olson
Jack Buker
Harvey J Hackett

Private Organization, Water Cooperative Bitterroot Valley, MT: #913

1. Thank you for your comment. The preferred alternative would not place any additional restrictions on access to the National Forest because of grizzly bear reintroduction. Risk of injury related to grizzly bears would increase with reintroduction, but rates of injury would be extremely low possibly in the range of 1:100 million visitor days. See Appendix 11 for more information on Risks to Human Safety.

2. Thank you for your comment. Grizzly bears can be delisted by grizzly bear recovery ecosystem. The Yellowstone ecosystem is closest to meeting recovery goals set by the grizzly bear recovery plan and this will likely be the first area proposed for delisting. When that process is completed, grizzly bear management will reside with the individual states.



1305

THE URSID RESEARCH CENTER
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Missoula, MT 59802
(406) 728-9380 (FAX 2881)

RECEIVED BY U.S. FISH AND WILDLIFE SERVICE GRIZZLY BEAR RECOVERY COORDINATORS OFFICE
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An Institute of the Rockies Project
Under the Environmental Media Centre

GRIZZLY BEAR RE-INTRODUCTION HEARINGS, BITTERROOT MOUNTAINS
Hamilton Hearings, Oct. 1: 4-8pm; Missoula, Oct. 2, 4-8pm.

U.S. Fish and Wildlife Service
Box 5127
Missoula, MT 59806

My name is Dr. Charles Jonkel. I have been engaged in bear research for 28 years--field work, teaching, writing. I have done extensive research on black, grizzly, and polar bears. I currently am Director of the Ursid Research Center, and conduct 12 classes on bears each year. Thank you for the opportunity to comment on the Grizzly Bear DEIS.

I do have specific comments, but I also wish to note that the main obstacles to grizzly recovery have been agency policies, with little notice of public input or wishes, or that of grizzly bear scientists, including myself. I expect little use of my comments, based on past experiences.

For example: the lead agency in establishing the Rattlesnake Wilderness denied for 7 years straight, that there were any grizzlies in the Rattlesnakes. On the 8th year, after it had become a Wilderness, they acknowledge that ofcourse there were grizzlies there. My repeated reports, annually, were ignored for their purposes.

The various agencies have actively denied protecting habitat for the Cabinet Mountains grizzlies, year after year, for almost 20 years, yet acknowledging that there were bears there, and claiming that they wanted recovery there. Pretensions and lies do not recover populations.

1 In the Bitterroots, the same pattern has been followed. Certain reports of grizzlies already there have been repeatedly denied, in order to maintain existing land management practices. Denials of the existing evidence of bears already being in the Bitterroots, allow the cooperating agencies to classify this plan as re-introduction, rather than augmentation, in order to afford the bears less protection under the ESA, and to protect existing land management practices, delay the protection of corridors.

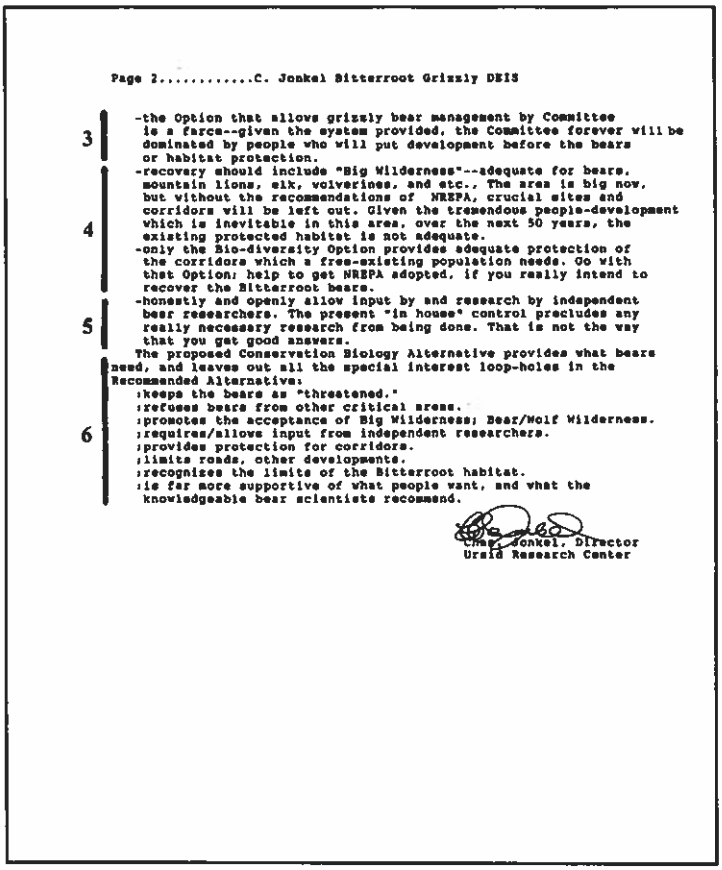
So it is with reluctance, that I even bother to submit comments. Everything I have to say has been submitted repeatedly in the past.

2 -any bears put into the area will augment the existing grizzlies in the Bitterroots, and if considered augmentation, will allow the added protection that the ESA allows.
-the Recovery Area should be much larger, to allow for the different soil types in the Bitterroots (vs limestone areas farther north), the different vegetation/plant communities, which in general, are far poorer bear habitat than farther north, and the loss of of such areas as the Bitterroot Valley and the salmon runs, which the earlier grizzlies enjoyed.

Private Organization, The Ursid Research Center: #1305

1. The USFWS has reviewed all of the available data on grizzly bear sightings in the Bitterroot Ecosystem. The last verified death of a grizzly bear in the Bitterroot Ecosystem occurred in 1932 and the last tracks were observed in 1946. Although occasional unverified reports of grizzly bear sightings persist in the BE, no verified tracks or sightings have been documented in more than 50 years. Based on the best scientific evidence available, and the lack of verified evidence for more than 50 years, there appears to be no grizzly bears in the BE at this time.

The USFWS, with the assistance of its agency partners, continues to review reports of grizzly sightings in the BE. A few public comments on the DEIS questioned the USFWS interpretation of some sighting reports, and the conclusion there are currently no grizzly bears in the BE. The EIS Team reviewed the historical sighting records and all literature pertaining to grizzly bear presence in the BE. Based on this review, follow-up inquiries made to individuals who reported sightings, and



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3 -the Option that allows grizzly bear management by Committee is a farce--given the system provided, the Committee forever will be dominated by people who will put development before the bears or habitat protection.

4 -recovery should include "Big Wilderness"--adequate for bears, mountain lions, elk, wolverines, and etc., The area is big now, but without the recommendations of NREPA, crucial sites and corridors will be left out. Given the tremendous people-development which is inevitable in this area, over the next 50 years, the existing protected habitat is not adequate.
-only the Bio-diversity Option provides adequate protection of the corridors which a free-existing population needs. Go with that Option; help to get NREPA adopted, if you really intend to recover the Bitterroot bears.

5 -honestly and openly allow input by and research by independent bear researchers. The present "in house" control precludes any really necessary research from being done. That is not the way that you get good answers.

The proposed Conservation Biology Alternative provides what bears need, and leaves out all the special interest loop-holes in the Recommended Alternative:

6 ;keeps the bears as "threatened."
;refuses bears from other critical areas.
;promotes the acceptance of Big Wilderness; Bear/Wolf Wilderness.
;requires/allows input from independent researchers.
;provides protection for corridors.
;limits roads, other developments.
;recognizes the limits of the Bitterroot habitat.
;is far more supportive of what people want, and what the knowledgeable bear scientists recommend.

Chas. Jonkel, Director
Wild Research Center

inquiries made to those respondents who indicated they had knowledge of grizzly bear presence in the BE (including yourself), the EIS Team retained its conclusion there is no verified evidence of grizzly bears in the BE at this time. If the USFWS receives verified evidence of grizzly bear presence in the BE, we will review/revise management plans at that time.

2. The DEIS and FEIS recognize there is a gradient of habitat quality in the BE from the drier southern habitats south of the Salmon River to the more mesic maritime climate-influenced habitats north of the Selway-Bitterroot Wilderness. The entire ecosystem provides suitable grizzly bear habitat, and the varying habitat quality will simply manifest itself is varying densities of grizzly bears. Under Alternative 1, the 25,140 square-mile Experimental Area surrounding the Recovery Area includes the richer northern habitats in the BE, and will be managed to accommodate grizzly bears.

The issues of recovery area size and habitat adequacy for grizzly bear recovery were listed as concerns in many comment letters received on the DEIS. Due to these concerns, the USFWS contracted a Habitat Capability Analysis for the Bitterroot Ecosystem. The results of this analysis have been incorporated in the FEIS, and are located in Appendix 21.

3. Alternative 1 establishes a rigorous procedure for selection of members for the Citizen Management Committee. The members must represent a cross-section of interests reflecting a balance of viewpoints, and be committed to collaborative decision making. The CMC is charged with making decisions based upon the best scientific and commercial data available. And all decisions of the CMC including components of its management plans must lead toward recovery of the grizzly bear. Based on public comment on the DEIS, the FEIS has been modified to include a review process by an independent Scientific Review Panel to monitor progress and functioning of the CMC for the Secretary of Interior. See Concerned about Grizzlies, letter #753, #1, page 5-153; and Chapter 2, page 2-5 for details.

4. Regarding linkage zone habitat protection,

even if Alternative 1 is selected and implemented, the USFWS is not forbidden from fostering connections from other grizzly bear populations to the Bitterroot nonessential experimental population in the future. A linkage zone analysis is currently ongoing and will determine the opportunities for connections from other ecosystems to the Bitterroot Ecosystem. The Grizzly Bear Recovery Plan describes this analysis of linkage areas that may potentially connect some or all of the recovery zones. This Geographic Information System-based analysis will evaluate various types of information on land use, human activity, topography, vegetation, and other factors that may influence linkage. Completion of this assessment is expected in 2000. This analysis is independent of the NEPA process for the Bitterroot EIS.

5. The USFWS is open to and encourages the input of independent bear researchers. Much of the information in this EIS is derived from such research. Based on similar comments received on the DEIS, the FEIS adds 2 scientists appointed by the Idaho and Montana Chapters of The Wildlife Society as advisors to the CMC.

6. Thank you for your comment.

List of Preparers

The Draft and Final Environmental Impact Statements were prepared under the supervision of the United States Department of Interior, Fish and Wildlife Service (USFWS).

Important Notice

The USFWS has sole responsibility for the content and direction of the EIS. Participation or review by technical representatives of other agencies does not imply concurrence, endorsement, or agreement to any recommendations, conclusions, or statements in the EIS. Official agency positions on the FEIS will be provided by those agencies that wish to provide comment during a public review period for the FEIS, which will occur during the spring of 2000.

Persons who contributed to the preparation of the statement or were formally requested to be involved in its review are listed below.

Bitterroot Ecosystem Grizzly Bear Recovery EIS Team

Core Team: This team bears the primary responsibility for preparing the EIS. The members are:

Dr. Chris Servheen, U.S. Fish & Wildlife Service (USFWS), Grizzly Bear Recovery Coordinator
Johnna Roy, USFWS, Wildlife Biologist
Jay Gore, USFS, Region One, National Grizzly Bear Habitat Coordinator
Wayne Kasworm, USFWS, Research Wildlife Biologist
Curt Mack, Nez Perce Tribe, Wildlife Biologist
Steve Nadeau, Idaho Department of Fish and Game (IDFG), Regional Wildlife Biologist
Tom Puchlerz, USDA Forest Service (USFS), Tongass Forest, Forest Supervisor
Laird Robinson, USFS, Region One, Public Affairs Specialist

Dr. Christopher Servheen. - U. S. Fish and Wildlife Service, Grizzly Bear Recovery Coordinator, Bitterroot Ecosystem Grizzly Bear EIS Project Leader. Responsible for the development, direction, and content of the EIS.

Education- B.A./B.S. (1973) in Zoology/Wildlife Biology from the University of Montana. M.S. (1975) in Wildlife Biology from the University of Washington. Master's thesis on winter ecology of bald eagles on the Skagit River, Washington. Ph.D. (1981) in Forestry from the University of Montana. Ph.D. dissertation on ecology and management of grizzly bears in the Mission Mountains, Montana. Experience- 1981-present: Grizzly Bear Recovery Coordinator, U. S. Fish and Wildlife Service, responsible for coordination of all research and management on grizzly bears in the lower 48 states; 1989-present, co-chair of Bear Specialist Group of the International Union for the Conservation of Nature (IUCN); adjunct professor, Wildlife Biology Program, University of Montana; adjunct associate professor, School of Forestry, University of Montana.

Johnna Roy.- U. S. Fish and Wildlife Service, Wildlife Biologist. Responsible for writing and editing the EIS and wildlife biology expertise.

Education- B.S. (1984) in Wildlife and Fisheries Biology, University of Vermont. M.S. (1992) in Fish and Wildlife Management, Montana State University. Master's thesis on reintroduction of bighorn sheep in southwest Montana. Experience- 1984-88, worked for USFS, USFWS, IDFG, and MDFWP on a variety of wildlife and fisheries research and management projects. 1990-95, Wildlife Biologist, North Fork Ranger District, Clearwater National Forest. December 1995-1997, detailed to the USFS Northern Region as writer-editor/wildlife biologist for the BE Grizzly Bear DEIS. May 1997-present, USFWS Wildlife Biologist in central Idaho. Current duties include continuation of grizzly bear recovery efforts for the Bitterroot Ecosystem and other recovery areas.

Jay Gore.- USDA Forest Service, Northern Region, National Grizzly Bear Habitat Coordinator. Participated on the EIS Team while at the Northern Region. Responsible for Forest Service representation and grizzly bear habitat expertise.

Education- B.S. (1963) in Wildlife Management, South Dakota State University. M.S. (1965) in Wildlife Management, University of Maine. Certified Wildlife Biologist (The Wildlife Society). Experience- 1965-present, 34 years professional experience. The past 21 years of experience have been with the U.S. Fish and Wildlife Service (13 years) and the Forest Service (8 years) as an endangered species biologist addressing recovery actions for many northwestern U.S. listed species, including the grizzly bear. 1996-1999, National Grizzly Bear Habitat coordinator, Northern Region. Duties include USFS grizzly bear habitat program direction, and interagency coordination in all aspects of grizzly bear management.

Wayne Kasworm. - U. S. Fish and Wildlife Service, Research Wildlife Biologist. Responsible for preparation of the EIS, and grizzly bear science expertise.

Education-B.S. (1977) in Fish and Wildlife Resources at University of Idaho. M.S. (1981) in Fish and Wildlife Management at Montana State University. Master's thesis on mule deer on the Rocky Mountain Front. Experience - 1982-83, worked in grizzly bear research for MDFWP on the Rocky Mountain Front. 1983-89, MDFWP Project Wildlife Biologist for grizzly bear research in the Cabinet-Yaak. 1989-present, USFWS Wildlife Biologist in the Cabinet-Yaak. Current duties include grizzly bear research and management, and population augmentation of grizzly bears into the Cabinet Mountains.

Curt Mack.- Nez Perce Tribe, Wildlife Biologist. Responsible for Nez Perce Tribe representation, and for writing a portion of the EIS.

Education- B.S. (1977) in Wildlife Management, University of Idaho. M.S. (1985) in Wildlife Management, Colorado State University. Master's thesis on the reintroduction of river otters in Rocky Mountain National Park. Experience- 1985-90, Research Wildlife Biologist through Univ. of Montana. Assessed impacts to semi-aquatic furbearers for hydroelectric mitigation project on the Flathead Indian Reservation, Montana. 1990-present,

Wildlife Biologist for the Nez Perce Tribe. Main duties include developing wildlife management guidelines for the Reservation and coordination of the endangered species program.

Steve Nadeau.- Idaho Department of Fish and Game, Regional Wildlife Biologist. Responsible for Idaho Fish and Game representation for the DEIS, grizzly bear science expertise, and preparation of the DEIS.

Education- B.S. (1980) in Wildlife Management, University of Maine, Orono. M.S. (1987) in Wildlife Biology, University of Montana. Experience- 1978-79, black bear research in Maine. 1980-83, bear management in Glacier National Park. 1983-87, researched grizzly bear-human conflicts in Glacier National Park (M.S.), grizzly bear research in British Columbia, wolf surveys in Central Idaho, and spotted owl research in Oregon. 1988-present, Idaho Dept. of Fish and Game as a Conservation Officer in the Bitterroot Mountains and Wildlife Biologist stationed at McCall and Lewiston. Assisted in preparation of BE Recovery Plan Chapter and other BE recovery efforts for 8 years. Responsible for predator management in Clearwater Region of north-central Idaho.

Tom Puchlerz.- USDA Forest Service, Tongass Forest, Forest Supervisor. Participated on the EIS team while at the Northern Region, as National Grizzly Bear Habitat Coordinator. Responsible for Forest Service representation and grizzly bear habitat expertise.

Education- B.S. (1971) in Wildlife Management, Colorado State University. Experience- 1972-present, 24 years professional experience with USFS as Wildlife Biologist, Resource Assistant, and District Ranger working with grizzly bear management in all occupied recovery zones to include; Cabinet/Yaak, Selkirk, NCDE, and Yellowstone. 1992-96, National Grizzly Bear Habitat Coordinator, Northern Region. Duties include USFS grizzly bear habitat program direction, and interagency coordination in all aspects of grizzly bear management.

Laird Robinson.- USDA Forest Service, Northern Region, Public Affairs Specialist. Responsible for Forest Service representation and public participation expertise.

Education- B.A. (1966) University of Montana. Experience- 1981-1988, Northern Region Forest Service, Public Involvement Specialist. 1988-1990, Regional Fire Recovery Coordinator. 1991, Regional Centennial Coordinator. 1992-1994, Gray Wolf EIS Public Affairs Specialist. 1994-present, Public Affairs Specialist for Northern Region and BE Grizzly Bear EIS.

Expanded Team and Disciplinary Specialists: These specialists provided input, and prepared portions of the EIS:

Steve Arno, USFS, Intermountain Fire Sciences Laboratory, Research Forester
Jody Brostrom, IDFG, Regional Fisheries Biologist
Dan Davis, USFS, Clearwater National Forest, Forest Wildlife Biologist
Dana Dolson, MDFWP, Department Sociologist
Jack Hogg, Craighead Wildlife-Wildlands Institute, Principal Research Biologist
Robert Keane, USFS, Intermountain Research Station, Research Ecologist
John Firebaugh, MDFWP, Regional Wildlife Manager
Rick Mace, MDFWP, Research Wildlife Biologist
Leaf Magnuson, USFS, Lolo National Forest, Information Assistant
Herb Pollard, IDFG, Clearwater Region, Regional Supervisor
Tom Radandt, USFWS, Wildlife Biologist
Timothy Thier, USFWS, Wildlife Biologist
Sarah Walker, USFS, Clearwater National Forest, Wilderness Technician
John Waller, USFWS, Wildlife Research Biologist
Margot Zallen, USDI, Regional Solicitor Office, Attorney
Chris Neher, Bioeconomics Incorporated, Economist
John Duffield, Bioeconomics Incorporated, Economist
Mark Boyce, College of Natural Resources, University of Wisconsin, Stevens Point, Professor

Steve Arno. - USFS, Intermountain Fire Sciences Laboratory, Research Forester. Provided report on whitebark pine status in the Selway-Bitterroot Wilderness Complex.

Education- B.S. in Forestry, Washington State University. M.S. and Ph.D. from University of Montana. Experience - Current position as a Research Forester in the Prescribed Fire and Fire Effects research work unit at the Intermountain Fire Sciences Lab in Missoula, Montana. He has studied various aspects of forest ecology since 1963, including ecological site classifications, forest succession, fire history, fire effects, and the development of strategies for prescribed fire.

Jody Brostrom. - IDFG, Clearwater Region, Fisheries Biologist. Provided report on anadromous and resident fisheries status in the BE.

Education - B.S. in Fisheries Resources, B.S. in Wildlife Resources, University of Idaho. Graduate work in Fisheries Management, Montana State University. Experience - 1987-1996, Regional Fishery Biologist for IDFG. Research on life histories of rainbow trout, brown trout and cutthroat trout in the Henrys Fork and Teton River drainages, Idaho. Riparian/grazing and fisheries interactions in Teton River Basin. Steelhead trout, chinook salmon, cutthroat trout and bull trout population and habitat monitoring and management in Lochsa, Salmon, and Clearwater River drainages, Idaho.

Dan Davis.- USFS, Clearwater National Forest, Forest Wildlife Biologist. Provided grizzly bear habitat suitability information for the Clearwater Forest.

Education - B.S. (1974) in Wildlife Management, University of Idaho. Experience - Worked for USFS Clearwater National Forest for 22 years. Held current position as Forest Wildlife Biologist since 1982 (14 years). Duties include Wildlife and Botany Program coordination for Clearwater Forest. Involved with the grizzly bear recovery effort for the Bitterroot Ecosystem for 10 years.

Dana Dolson.- MDFWP, Department Sociologist. Responsible for preparation of reports on social and cultural aspects of grizzly bear reintroduction.

Education - B.S. (1975) Acadia University, Nova Scotia. M.S. (1986) University of Alberta, Edmonton. Experience - Previously worked for Nova Scotia Lands and Forests, Alberta Fish and Wildlife, Alberta Natural Areas, and the National Park Service's Cooperative Park Studies Unit at the University of Idaho. Current duties with MDFWP include coordinating citizen participation processes, designing public involvement programs, strategic planning, program assessment/outcome evaluation, facilitation, and employee training.

Jack Hogg. - Craighead Wildlife-Wildlands Institute (CWWI), Principal Research Biologist. Provided coordination with EIS Team on CWWI research project entitled, *"Abundance and Spatial Distribution of Grizzly Food-Plant Groups in the Salmon-Selway Ecosystem: A Preliminary Analysis and Report"* (Hogg, Weaver, Craighead et al. 1999). Provided portions of the report and GIS figures for Appendix 21D, and reviewed USFWS summaries of the report's results for technical accuracy.

Robert Keane.- USFS, Intermountain Fire Sciences Laboratory, Research Ecologist. Provided report on whitebark pine status in the Selway-Bitterroot Wilderness Complex.

Education - B.S. (1978) in Forest Engineering, University of Maine, Orono. M.S. (1985) in Forest Ecology, University of Montana. Ph.D. (1994) in Forest Ecology, University of Idaho. Dissertation on whitebark pine in the Bob Marshall Wilderness. Experience - Worked with the USFS 1981-present as an ecological modeler and quantitative ecologist. Worked on whitebark pine since 1985. In present position as Research Ecologist with the Intermountain Fire Sciences Lab for 5 years.

John Firebaugh.- MDFWP, Regional Wildlife Manager. Provided report on Montana game populations within the BE.

Education - B.S. (1967) and M.S. (1969) in Fish and Wildlife Management, Montana State University. Experience - With MDFWP for 27 years. Field Wildlife Biologist, 1 year in Libby and 9 years in Hamilton. Regional Wildlife Manager in Missoula since 1979.

Rick Mace.- MDFWP, Research Wildlife Biologist. Responsible for preparation of report on biology of grizzly bears.

Education - B.S. and M.S. in Wildlife Management, University of Montana. Experience -

Conducted research on grizzly bears for Univ. of Montana and MDFWP since 1976. Current position as Principle Investigator for the South Fork Flathead River grizzly study, which is a 10 year effort investigating habitat and demography of grizzly bears.

Leaf Magnuson. - USFS, Lolo National Forest, Information Assistant. Detailed to Northern Region Public Affairs Office to assist with portions of document preparation.

Education- B.S. (1993) in Recreation Management, University of Northern Colorado. Experience- Worked in private industry; ranching, logging, and construction. 1991-1996, Information Assistant for Lolo National Forest.

Herb Pollard. - IDFG, Regional Supervisor, Clearwater Region. Selway-Bitterroot Ecosystem Subcommittee Chairman (through 1996). Provided guidance and acted as liaison between SBES of the Interagency Grizzly Bear Committee and BE EIS team.

Education - B.S. (1967) in Fishery Science, Oregon State University. M.S. (1969) in Fishery Management, University of Idaho. Experience - 1969-1996 employed by IDFG: 1969-1972, Fishery Research Biologist; 1972-1975, Regional Fishery Manager; 1975-1981, State Fishery Manager; 1981-1985, Anadromous Fishery Coordinator; 1985-1992, Regional Supervisor, Upper Snake River Region; 1992-1996, Regional Supervisor, Clearwater Region. Member of Yellowstone Ecosystem Grizzly Bear Subcommittee, 1985-1992. Chairman of Bitterroot Ecosystem Grizzly Bear Subcommittee, 1992-present.

Tom Radandt. - USFWS, Wildlife Biologist, Grizzly Bear Recovery Office. Assisted with Content Analysis of public comments on the DEIS, and provided data collection for FEIS.

Education - B.S. (1989) in Wildlife Biology, University of Montana. Experience - 1986-1987, worked as Wildlife Technician for Beaverhead National Forest. 1988-1991, assisted with grizzly bear research in British Columbia for University of Montana. 1992-present, USFWS Wildlife Biologist for Grizzly Bear Recovery Office. Presently serves as lead biologist for field operations conducted by the Grizzly Bear Recovery Coordinator. Duties include capturing and handling grizzly bears in four different ecosystems and coordinating activities with other management agencies.

Bob Ruesink. - USFWS, Regional Supervisor, Upper Snake River Basin Region, Boise. Selway-Bitterroot Ecosystem Subcommittee Chairman (1997-present). Provided guidance and acted as liaison between SBES of the Interagency Grizzly Bear Committee and BE EIS team. Attended EIS Team meetings and reviewed portions of the FEIS. Acted as liason to USFWS Region 1.

Timothy Thier. - MDFWP, Wildlife Biologist. Worked for USFWS during early stages of BE Grizzly Bear DEIS.

Education- B.S. (1978) Forestry, University of Montana. M.S. (1990) Wildlife Management, University of Montana. M.S. Thesis on black bears in the Yaak. Worked for USFWS and assisted with the Recovery Plan Chapter for the BE, and early public meetings regarding grizzly bear recovery in the BE.

Sarah Walker.- USFS, Clearwater National Forest, Wilderness Ranger, Selway-Bitterroot Wilderness. Gathered data for Chapter 3, Existing Condition.

Education- B.A. (1969) in History, Wheaton College. Experience – 15 years with the USFS, mostly in Wilderness management. 1985-1996, Clearwater National Forest, worked as a Wildlife and Botany Technician, and as Wilderness Technician for the Selway-Bitterroot Wilderness.

John Waller.- USFWS, Grizzly Bear Recovery Office, Wildlife Research Biologist. Provided GIS and computer modeling support for population viability and habitat analyses for FEIS.

Education.- B.S. (1987) in Wildlife Biology, University of Montana. M.S. (1992) in Fish and Wildlife Management, Montana State University. 1993-1998, Wildlife Biologist for Montana Department of Fish, Wildlife and Parks. 1998-present, research biologist for USFWS and doctoral student at University of Montana studying the effects of highways on grizzly bear movement.

Margot Zallen.- U. S. Department of the Interior, Regional Solicitor Office, Attorney. Provided legal guidance for the EIS.

Chris Neher.- Bioeconomics, Inc., Economist. Contracted by USFWS to provide economic analysis for the EIS.

Education- B.S. (1979) in Business, University of Idaho. M.A. (1989) in Economics, University of Montana. 1989-present, Research Economist with Bioeconomics, Inc. and University of Montana. Contracted to provide economic analysis for the Reintroduction of Gray Wolves into Yellowstone National Park and Central Idaho EIS.

John Duffield.- University of Montana, Economics Professor, and President of Bioeconomics, Inc.. Contracted by USFWS to direct and oversee the economic analysis for the EIS.

Currently a Research Professor in Economics at University of Montana, and President of Bioeconomics, Inc. Contracted to oversee the economic analysis for the Reintroduction of Gray Wolves into Yellowstone National Park and Central Idaho EIS.

Mark Boyce.- University of Wisconsin, Stevens Point. Professor and Vallier Chair of Ecology, College of Natural Resources. Contracted by USFWS to complete congressionally funded population and habitat viability analysis for FEIS.

Primary Technical Review and Coordination Team

This group helped gather information and assisted in the development and review of concepts, ideas, and strategies used in the Grizzly Bear EIS. However, they did not have control over program recommendations or contents which are solely those of the USFWS.

Resource Organization on Timber Supply
Intermountain Forest Industry Association
Potlatch Corporation
National Wildlife Federation
Defenders of Wildlife
Craighead Wildlife-Wildlands Institute
University of Montana Spatial Analysis Lab
Interagency Grizzly Bear Committee
USDI Fish & Wildlife Service
USDA Forest Service
Idaho Department of Fish and Game
Montana Department of Fish, Wildlife and Parks
Nez Perce Tribe
Alliance for the Wild Rockies
Citizen's Involvement Group

Issue and Alternative Scoping Content Analysis Team

Team that analyzed public comment during issue and alternative scoping (September, 1995):

Team Leaders	Sherry Munther	USDA Forest Service Region 1, Missoula, MT
	Laird Robinson	USDA Forest Service Region 1, Missoula, MT
Team Members	Wells Worley	Lolo National Forest, Superior Ranger District
	Linda King	Bitterroot National Forest, West Fork Ranger District
	Carol Tenney	U.S. Fish & Wildlife Service, Helena, MT
	Margie Brousseau	Helena National Forest, Lincoln Ranger District
	Mikal Reese	Beaverhead National Forest, Wisdom Ranger District
	Dianne Daley-Laursen	U.S. Fish & Wildlife Service, Missoula, MT
	Carol Ippisch	Lolo National Forest, Superior Ranger District
	Marge Hacke	Kootenai National Forest, Libby, MT
Computer Support	Dave Browder	Lolo National Forest, Missoula, MT
	Marge Rains	Lolo National Forest, Missoula, MT

Sherry Munther.- USFS, Northern Region, Appeals Specialist in Ecosystem Assessment and Planning. Team co-leader for the Issue and Alternative Scoping Content Analysis Team (September, 1995).

Education - B.S. (1972) in Business and English Education, Utah State University. M.S. (1973) in

Secondary Education, Utah State University. Experience - Worked with the USFS since 1972. Worked at the Northern Region as a Writer-Editor, Public Affairs Specialist, and in current position as Appeals Specialist in Ecosystem Assessment and Planning since 4/96. (Currently retired and leader of Munther Resources, Missoula, Montana).

Laird Robinson.- USFS, Northern Region, Public Affairs Specialist. Team co-leader for the Issue and Alternative Scoping Content Analysis Team (September, 1995). Also member of the Core EIS Team.

Draft EIS Public Comments Content Analysis Team

Team that analyzed public comment on the Draft EIS for Grizzly Bear Recovery in the Bitterroot Ecosystem (December - March 1997/8). Report entitled, *"Summary of Public Comments on the Draft EIS for Grizzly Bear Recovery in the Bitterroot Ecosystem"* released to the public in April 1998.

Team Leader	Sherry Munther	Munther Resources, Missoula, MT
Coding Team/Writers	Johnna Roy	U.S. Fish and Wildlife Service, Ahsahka, Idaho
	Tom Radandt	U.S. Fish and Wildlife Service, Libby, Montana
	Deanna Riebe	U.S. Forest Service, Orofino, Idaho
	Elayne Murphy	U.S. Forest Service, Grangeville, Idaho
Coding Team	Wells Worley	Lolo National Forest, Superior, Montana
	Diane Petroni	Beaverhead National Forest, Ennis, Montana
	Jeff Trejo	Beaverhead National Forest, Wise River, Montana
	Leaf Magnuson	Lolo National Forest, Missoula, Montana
	Connie Young	U.S. Fish and Wildlife Service, Denver, Colorado
	Patricia Worthing	U.S. Fish and Wildlife Service, Denver, Colorado
	Mike Donahoo	U.S. Fish and Wildlife Service, Pocatello, Idaho
	Miguel Gomez	U.S. Forest Service, Missoula, Montana
Computer Support	Kimberly Landl	U.S. Forest Service, Missoula, MT
	Kathy Thompson	Clearwater National Forest , Orofino, ID
	Tim Gray	U.S. Forest Service, Missoula, MT
	Sandy Rebo	U.S. Forest Service, Troy, MT
	Zuma Martin	U.S. Forest Service, Missoula, MT

Sherry Munther.- Munther Resources, Missoula, MT. Contracted as team leader for the DEIS Public Comment Content Analysis Team (December 1997 - March 1998).

Education - B.S. (1972) in Business and English Education, Utah State University. M.S. (1973) in Secondary Education, Utah State University. Experience - Worked with the USFS since 1972. Worked at the Northern Region as a Writer-Editor, Public Affairs Specialist, and as Appeals Specialist in Ecosystem Assessment and Planning.

EIS Technical Review and Coordination Team

This group was formally requested to review and provide oversight on the draft Grizzly Bear EIS. They were kept informed of EIS progress, but were not asked to provide specific comments before the EIS was released for public review. They represent unique grizzly bear management and recovery or EIS expertise, or represented agencies that were potentially affected by a decision on grizzly bear recovery in the BE.

Suzanne Audet.--USFWS, Wildlife Biologist. Spokane, Washington.
Dale Becker.--Flathead Tribe, Wildlife Program Director. Ronan, Montana.
Steve Blair.--USFS, Nez Perce National Forest, Forest Wildlife Biologist. Grangeville, Idaho.
Jim Claar.--USFS, Northern Region, Wildlife and Fisheries, Staff Specialist. Missoula, MT.
Jerry Conley.--Missouri Department of Fish and Game. Former: IDFG, Director of IDFG. Boise, Idaho.
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CHAPTER VI

GLOSSARY, BIBLIOGRAPHY AND APPENDICES

GLOSSARY OF TERMS

Abbreviations used in this document.-

ADC - Animal Damage Control Agency
ASQ - Allowable Sale Quantity of Timber
BE - Bitterroot Ecosystem
BEA - Bitterroot Evaluation Area
BLM - Bureau of Land Management
CMC - Citizen Management Committee
CYE - Cabinet-Yaak Grizzly Bear Ecosystem
DEIS - Draft Environmental Impact Statement
FEIS - Final Environmental Impact Statement
ESA - Endangered Species Act
EPA - Environmental Protection Agency
IDFG - Idaho Department of Fish and Game
IGBC - Interagency Grizzly Bear Committee
MDFWP - Montana Department of Fish, Wildlife, and Parks
MMBF - Million Board Feet of Timber
NCDE - Northern Continental Divide Grizzly Bear Ecosystem
PAA - Bitterroot Grizzly Bear Primary Analysis Area
RVD - Recreation Visitor Day
SE - Selkirk Grizzly Bear Ecosystem
USDA - United States Department of Agriculture
USFS - USDA Forest Service
USFWS - United States Fish and Wildlife Service
YE - Yellowstone Grizzly Bear Ecosystem

Alternatives.- Different ways that grizzly bears could be reintroduced to, or managed in the Bitterroot Ecosystem. Four alternatives were developed and considered in depth in this final EIS.

Allowable Sale Quantity.- A measure used in USFS Forest Plans. The quantity of timber that may be sold from the area of suitable land covered by the Forest Plan. This quantity is usually expressed on an annual basis as the "average annual allowable sale quantity."

Biodiversity (biological diversity).- The variety of life and its processes at genetic, individual, population, and species scales.

Bitterroot Ecosystem (BE).- A grizzly bear ecosystem (USFWS 1993) that is centered in the Selway-Bitterroot Wilderness Area. Historic grizzly bear range includes National Forest lands surrounding this wilderness and the Frank Church-River of No Return Wilderness Areas on both sides of the Salmon River. The BE is one of the largest blocks of Federal land remaining in the lower 48 United States, with the Selway-Bitterroot and Frank Church-River of No Return Wilderness Areas as its core.

Bitterroot Evaluation Area (BEA).- A 5,500 square mile area within the BE (see Figure 3-6) that was delineated as a result of the Grizzly Bear Recovery Plan (1982) direction to evaluate and ascertain the suitability of the Bitterroot Ecosystem as a grizzly bear recovery area. The BEA includes the Selway-Bitterroot Wilderness Area, the Frank Church-River of No Return Wilderness and roadless areas south of the Selway-Bitterroot and north of the Salmon River. The BEA extends north of the Selway-Bitterroot Wilderness and includes mainly roadless areas to the crest of the Mallard Larkins Mountains in the North Fork of the Clearwater River drainage. The eastern boundary is formed by the eastern edge of the Selway-Bitterroot Wilderness and the Fish Creek Road on the Lolo National Forest. The western boundary is drawn along the transition of roaded to roadless areas on the Clearwater and Nez Perce National Forests (Davis and Butterfield 1991). This area is the core of grizzly bear habitat in the BE.

Bitterroot Valley Exclusion Area. - Includes private lands lying within the experimental population area in the Bitterroot Valley, Montana, and outside the Bitterroot Forest boundary south of U.S. Highway 12 to Lost Trail pass.

Chronic Problem Grizzly Bears. - Grizzly bears that have been confirmed to have depredated on domestic animals at least once after an initial depredation and relocation because of depredations on domestic animals.

Citizen Management Committee (CMC).- The proposed Special Rule for the preferred alternative (Alternative 1- Restoration of Grizzly Bears as a Nonessential Experimental Population With Citizen Management) would authorize a 15 member Citizen Management Committee to be appointed by the Secretary of Interior in consultation with the governors of Idaho and Montana, and the Nez Perce Tribe. This committee would be authorized management implementation responsibility by the Secretary of Interior, in consultation with the governors of Idaho and Montana for the Bitterroot grizzly bear experimental population. The Committee shall be composed of 15 members serving 6-year terms. Appointments may initially be of lesser terms to ensure staggered replacement. Membership shall consist of seven individuals appointed by the Secretary of the Interior based upon the recommendations of the Governor of Idaho, five members appointed by the Secretary of the Interior based upon the recommendations of the Governor of Montana, one member representing the U.S. Forest Service appointed by the Secretary of Agriculture or his/her designee, and one member representing the U.S. Fish and Wildlife Service (Service representative) appointed by the Secretary of the Interior or his/her designee, and one member representing the Nez Perce Tribe appointed by the Secretary based on the recommendation of the Nez Perce Tribe. Members recommended by the Governors of Idaho and Montana shall be based on the recommendations of the interested parties and shall include at least one representative each from the appropriate State fish and wildlife agencies. If either Governor fails to make recommendations, the Secretary (or his/her designee) shall accept recommendations from interested parties. The CMC would consist of a cross-section of interests reflecting a balance of viewpoints, be selected for their diversity of knowledge and experience in natural resource issues, and for their commitment to collaborative decision making.

The CMC would be selected from communities within and adjacent to the recovery and experimental population areas. The CMC would continue until the recovery objectives were met and the Secretary of Interior completed delisting. The specific duties and responsibilities of the CMC are listed in Appendix 13, the Special Rule.

Compensation. – Payment to owners of livestock that had livestock killed or maimed by grizzly bears to compensate for the lost monetary value of the livestock. There would be no federal compensation program, but compensation from private funding sources could occur.

Conservation. – As defined by the Endangered Species Act: to use, and the use of all methods and procedures which are necessary to bring any endangered or threatened species to the point at which the measures provided pursuant to (the Act) are no longer necessary.

Consultation (interagency). – A process required by Section 7 of the Endangered Species Act whereby federal agencies proposing activities in a listed species habitat confer with the U. S. Fish and Wildlife Service (or National Marine Fisheries Service) about the impacts of the activity on the species. Consultation may be informal, and thus advisory, or formal, and thus binding.

Critical Habitat. – As defined by the Endangered Species Act: the specific areas within or outside the geographical areas occupied by a species, at the time it is listed, on which are found the physical or biological features essential to the conservation of the species, and which may require special management considerations or protection. Critical habitat can not be designated for nonessential experimental populations.

Cumulative Effects / Impacts. – The impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Delist. – To remove a species, subspecies, or population from the federal list of threatened species and endangered species and subsequent protection of the Endangered Species Act. This action, in effect, places the species, subspecies, or population under management authority of the states or tribes. Species can be delisted if they have gone extinct, recovered, or the original listing was in error.

Depredation. – The confirmed killing or maiming of lawfully present domestic livestock on federal, state, tribal, or other public lands, or private lands by one or more grizzly bears, accompanied by the likelihood that additional livestock will be killed or maimed by grizzly bears. The USFWS, ADC, or USFWS-authorized state or tribal agencies will confirm killing or maiming of domestic livestock.

Dispersal. - The act of leaving a birth area or home range and moving to a new area for an extended period of time.

Domestic Animals. - Any animal purposely raised (fed, cared for, and sheltered) by humans and usually dependent upon humans for its survival. This would include livestock, food/fiber animals, captive game animals, fowl, working animals, guarding animals, and pets.

Ecosystem. - An interacting set of organisms and their environment that persist, sustain life, and are bounded (at various scales), naturally of for study and management purposes.

Ecosystems (grizzly bear). - Large areas (several hundred square miles) that currently harbor a population of grizzly bears, or are thought to be suitable for reintroducing and recovery of grizzly bears.

Effects / Impacts. - Effects (or impacts) may be direct, which are caused by the action and occur at the same time and place, or indirect, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the agency believes that the effect will be beneficial.

Endangered Species. - Any species which is in danger of extinction throughout all or a significant portion of its range and which is formally listed as endangered under the Endangered Species Act.

Endangered Species Act of 1973, as amended. 16 U.S. C. 1531 et. seq. *(ESA)* - Congressional Act which provides for the listing and protection of endangered and threatened fish, wildlife, and plants.

Environmental Impact Statement (EIS). - A document prepared by a federal agency proposing a major action, as mandated by the National Environmental Policy Act, that describes the environmental impacts of the action, alternative actions, the preferred alternative, a listing (summary) of public comments, and a Record of Decision.

Experimental Population. - A 1982 amendment to the Endangered Species Act established the experimental population designation [Section 10(j)] and defined an experimental population as: "... any population (including any offspring arising solely therefrom) authorized by the Secretary for release under paragraph (2), but only when, and at such times as, the population is wholly separate geographically from nonexperimental populations of the same species." The experimental

population designation denotes more flexible management for introduced endangered species or threatened species.

Experimental Population Area.- Designation of an experimental population must include a description of the area in which such population will be found and where it will be identified as experimental. This establishes, in effect, the experimental population area, in which the experimental population rules apply. Outside those boundaries the grizzly bear in the lower 48 states is protected as a threatened species. The experimental population area must be geographically separate from areas containing existing grizzly bear populations. The boundaries of the Bitterroot Grizzly Bear Experimental Population Area are described in Chapter 2 under Alternative 1.

Experimental Population Rule (Special Rule, 10(j) Rule).- Designation of an experimental population includes the development of special rules to identify geographically the location of the experimental population and identify, where appropriate, procedures to be utilized in its management. The special rule for each experimental population is developed on a case by case basis. Development of the special rule includes publication of the proposed regulation in the *Federal Register*, public comment on the proposed regulations, and publication of the final regulations prior to reintroduction of an experimental population.

Extirpate.- The local disappearance of a species, as opposed to extinction, which is global disappearance.

Federal Lands.- Areas under the administration of a federal agency such as the USDA Forest Service, U. S. Fish and Wildlife Service, Bureau of Land Management, and National Park Service.

Federal Register.- A United States government publication where all major federal actions, rules, and regulations are announced.

Food-Conditioned (bear).- A bear that has learned to associate the presence of people and their activities or developments with food and may routinely seek food from these areas.

Forest Plan.- A document prepared under the National Forest Management Act by each national forest that generally describes how the resources in the forest will be managed for a 10-15 year period. The plans are subject to the National Environmental Policy Act and are accompanied by Draft and Final Environmental Impact Statements and a Record of Decision.

Fragmentation (of habitat).- The dividing of large continuous areas of habitat by disturbances (usually man-made) in such a manner that the disturbed areas dominate that landscape and remnants of undisturbed habitat are surrounded by modified habitat.

Grizzly Bear Recovery Plan.- A document prepared by a team of individuals with expertise regarding the biological and habitat requirements of the grizzly bear, outlining the tasks and actions necessary to recover the species within parts of its former range in the lower 48 United States. The original plan was completed in 1982. The revised Recovery Plan was approved September 10, 1993. The Bitterroot Ecosystem Recovery Plan Chapter - Supplement to the Grizzly Bear Recovery Plan was finalized and signed on September 11, 1996.

Habituated (bear).- A bear that has little fear of humans, their activities, or developments, and largely ignores people if they do not get too close.

Harass.- According to the Endangered Species Act Regulations, harass is defined as "intentional or negligent act or omission which creates the likelihood of injury to the wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to breeding, feeding, or sheltering" (50 CFR 17.3).

Harassment Permitted under the Special Rule 10(j) (See Appendix 13).- For the purposes of this FEIS, permitted harassment and pursuing will be limited to pursuing adult grizzly bears (>6 months old) on foot, horseback, or nonmotorized or motorized vehicle (without approaching closer than 20 feet); discharging firearms or other projectile launching devices in proximity to but not in the direction of grizzly bears; throwing objects in the general direction of but not at grizzly bears; or making any loud noise in proximity to grizzly bears. The basic intent is to allow grizzly bears to be scared or chased from the immediate area without causing any physical injuries. The experimental population rule for the preferred alternative in this FEIS indicates that any livestock owner may be issued a permit by the U.S. Fish and Wildlife Service, the Idaho Department of Fish and Game, or the Montana Department of Fish, Wildlife and Parks and appropriate Tribal authorities to harass grizzly bears found in the area defined as the Bitterroot Grizzly Bear Experimental Population Area that are actually harming or killing livestock, provided that all such harassment is by methods that are not lethal or physically injurious to the grizzly bear and such harassment is reported to proper authorities within 24 hours as to date, exact location, and circumstances.

Home Range.- An area where an animal spends about 90% or more of its time during a specific time, such as winter, summer, or year-round.

Incidental Take.- *(see* below for full definition of "take" for this FEIS). The taking (killing, wounding, maiming, injuring, or physically harming) of grizzly bears, that which results from an otherwise lawful action but was not the purpose of the action. Within an experimental population area all grizzly bears incidentally taken under the conditions permitted by the experimental population rule by agencies or the public will not be considered take under the Endangered Species Act. Any and all grizzly bears taken outside the provisions of the experimental population rule would be considered take under the Endangered Species Act.

Interagency Grizzly Bear Committee (IGBC). – A group of high-level administrators that represent the federal and state agencies involved in grizzly bear recovery. The IGBC coordinates the agencies efforts in implementing the Grizzly Bear Recovery Plan.

Land-Use Restrictions. – Restrictions on human activities on public lands. A wide variety of such restrictions are used for a wide variety of purposes. Relatively few such restrictions are required to successfully recover grizzly bear populations unless human-caused mortality of grizzly bears is unusually high. Examples of the types of restrictions that have been used by natural resource managers to assist in grizzly bear population management are seasonal road-trail closures to reduce human access to critical occupied grizzly bear habitat and prohibition on certain types of motorized access. Land-use restrictions also include restrictions on certain human activities in the habitat of an endangered or threatened species in order to comply with Section 7 of the Endangered Species Act of 1973.

Linkage (habitat or ecosystem). – A land classification scheme in which large, core protected areas (such as wilderness or national parks) are connected to each other by areas with similar or slightly lower protection standards. Linkage zones are combinations of landscape structural factors that allow wildlife to move through, and live within, areas influenced by human actions.

Listed species. – A species that has been classified as threatened or endangered by the USFWS under the Endangered Species Act.

Livestock. – Cattle, sheep, horses, and mules.

Metapopulation. – As originally developed, a population composed of smaller distinct local populations that occasionally went extinct but were re-established by members dispersing from the other local populations. Modern connotations embrace the more general idea of populations that are separated from one another with varying degrees of connectivity and chance of extinction. Wells and Richmond (1995) define it as, "a set of spatially disjunct populations, among which there is some immigration."

Minimum Viable Population. – A MVP for any given species is the smallest isolated population having a given probability of survival for a given period of time despite the foreseeable effects of demographic, environmental, and genetic stochasticity, and natural catastrophes.

National Environmental Policy Act (NEPA). – An Act passed by Congress in 1969 which is the basic national charter for protection of the environment. NEPA established a process that requires consideration of environmental consequences for federal actions. Procedures ensure that high quality environmental information is available to public officials and citizens before federal decisions are made and actions are taken. Specifically, the responsible federal official must submit a detailed

report on "major federal actions significantly affecting the quality of the human environment" prior to taking major federal actions. The EIS is a primary means of meeting NEPA requirements.

Nonessential. - Under the provisions of the 1982 amendment of the ESA [Section 10(j)] which authorizes reintroduction of experimental populations, experimental populations must be designated either "essential" or "nonessential." "Nonessential" refers to an experimental population whose loss would not be likely to appreciably reduce the likelihood of the survival of the species in the wild.

Nonexperimental Grizzly Bears. - Grizzly bears receiving all protections of the Endangered Species Act, as amended, as distinguished from grizzly bears that are members of an experimental population.

Nuisance Bear Guidelines. - Interagency Grizzly Bear Committee Nuisance Grizzly Bear Management Guidelines (IGBC 1986). Guidelines endorsed by the IGBC that address management options to deal with nuisance grizzly bears (see Appendix 15).

Omnivorous. - Eating both animals and plants.

Open Road. - A road with no motorized access restrictions.

Open Road Density. - Length of two-wheel drive accessible roads with unrestricted public access per given amount of area (i.e., miles of open road/square mile).

Primary Analysis Area (PAA). - The geographic area considered affected by a major federal action and thus receiving detailed evaluation of the potential effects of the action in this FEIS. The Bitterroot Grizzly Bear PAA is the area potentially affected by grizzly bear recovery in the BE, and the area in which a grizzly bear population is expected to have a measurable environmental impact. The approximately 16,686,596 acre (26,072 mi^2) PAA is shown in Figure 3-1.

Private Land. - Areas owned by entities other than local, county, state, and federal governments, including individual home sites, farms, ranches, and industrial timberlands.

Preferred Alternative. - The "agency's preferred alternative" is the alternative which the agency believes would fulfill its statutory mission and responsibilities, giving consideration to economic, environmental, technical and other factors, and which meets the purpose and need of the NEPA document.

Proposed Action (Proposal). - The proposed action or proposal exists at that stage in the development of an action when an agency subject to the Act (NEPA) has a goal and is actively preparing to make a decision on one or more alternative means of accomplishing that goal and the effects can be meaningfully evaluated.

Public Land. - Lands under administration of federal agencies including but not limited to the National Park Service, USDI Fish and Wildlife Service, USDA Forest Service, USDI Bureau of Land Management, U.S. Department of Energy, and U.S. Armed Forces.

Recovery Goals. - A specific set of targets identified in a recovery plan such that when a listed species reaches those targets they will be considered recovered. These targets include both population variables and regulatory mechanisms to assure a sustained recovery. The recovery goals for the BE are outlined in the BE Recovery Plan Chapter (USFWS 1996).

Recovery Plan. - A document prepared by the USFWS for listed species describing why they were listed, their present status, the need for recovery, steps to be taken to achieve recovery, monitoring methods to assess recovery, and the point at which the monitoring indicates the species has recovered.

Recovery Zone. - The area in which recovery parameters are monitored. Alternatives 2 and 4 have recovery zones identified. For these two alternatives, this term carries a list of restrictions affiliated with fully threatened status.

Recovery Area. - The Special Rule for reintroduction of an experimental population (Alternative 1) identifies the BE Recovery Area (instead of a recovery zone) as the area where recovery would be emphasized. This term carries a list of restrictions as defined in the special rule for the experimental population.

Reintroduction. - The release of animals into an area that was part of their original geographic range, but from which they have declined or disappeared, for the purpose of establishing a new wild population.

Restricted Road. - A road in which the use of motorized vehicles is restricted seasonally or yearlong.

Roadless Areas. - Areas of western national forests greater than 5,000 acres that do not contain any roads and have been inventoried by the USFS in relation to their suitability as wilderness.

Rule (proposed, final). - Regulations developed by a federal agency which are published in the *Federal Register* for public comment, or as adopted.

Scientific Committee. - Under Alternative 4 (Reintroduction of a Threatened Population with Full Protection of the ESA) a ten member Scientific Committee would be appointed by the Secretary of the Interior in cooperation with the National Academy of Sciences to define needs for additional research, develop strategies for reintroduction of bears, implement reintroduction of bears, and monitor results of the program.

Section 7(a)(2) of the ESA. - This ESA section requires that; "Each Federal agency shall, in consultation with and with the assistance of the Secretary, insure that any action authorized, funded, or carried out by such agency (herein after in this section referred to as an "agency action") is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with affected States, to be critical, unless such agency has been granted an exemption for such action..." In nonessential experimental population areas, the Section 7(a)(2) requirements of ESA only apply inside National Parks and National Wildlife Refuges. Any potential land-use restrictions necessary for species recovery in other areas must be established as part of the experimental population rule.

Take. - The ESA defines "take" as: To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct. See above definition of Harass. The experimental population rule (Special Rule) defines "take" as it would be applied under Alternative 1, the preferred alternative (see Appendix 13).

Threatened Species. - A threatened species is defined in the ESA as one that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

Toxicants. - A poison or poisonous substance.

Ungulate. - A hoofed animal such as deer and elk.

Viable Population of Grizzly Bears. - The number, distribution, and persistence of grizzly bears considered necessary for a grizzly bear population to have a reasonable likelihood of survival for the foreseeable future. Grizzly bears in the BE will be viable when monitoring efforts indicate that recruitment and mortality are at levels supporting a stable or increasing number of bears, and reproducing females are distributed throughout the recovery area. See the BE Chapter of the Recovery Plan (USFWS 1996) for specific recovery goals (Appendix 14).

Wilderness Areas. - Areas in the National Wilderness Preservation System that were established by the U. S. Congress and are managed under the provisions of the Wilderness Act.

BIBLIOGRAPHY

Aoki, H. 1973. Titwaatit (Nez Perce stories). National Bilingual Materials Development Center. University of Alaska, Anchorage, AK. 64pp.

_____, and D. E. Walker, Jr. 1989. Nez Perce oral narratives. University of California Publications in Linguistics, Volume 104. University of California Press. University of California, Berkeley, Calif. 631pp.

Banci, V. 1991. The status of the grizzly bear in Canada in 1990. Committee on the Status of Endangered Wildlife in Canada, Ottawa, ON, Canada. 171 pp.

Beecham, J., ed. 1995. Idaho Department of Fish and Game statewide surveys and inventory: black bear. Project W-170-R-19, Study I, Job 9. Sept. 1995, IDFG, Boise. 104 pp.

British Columbia Min. Environment, Lands, and Parks. 1995. Conservation of grizzly bears in British Columbia - Background Report. Min. Envir., Lands, and Parks, Victoria, B.C. 70pp.

Brostrom, J. 1996. Anadromous and resident fisheries status in the Bitterroot grizzly bear ecosystem, Idaho. Idaho Department of Fish and Game unpubl. report. Lewiston, Ida. 5pp.

Bureau, M. J. 1992. Mortality and seasonal distribution of elk in an area recently recolonized by wolves. M.S. Thesis, Univ. of Mont., Missoula. 109 pp.

Burroughs, R. D. 1961. The natural history of the Lewis and Clark expedition. Michigan State University Press, East Lansing. 961pp.

Butterfield, B. R. and J. Almack. 1985. Evaluation of grizzly bear habitat in the Selway-Bitterroot Wilderness Area. Idaho Department of Fish and Game Project No. 04-78-719. Cooperative Fish and Wildlife Research Unit, Univ. of Idaho, Moscow. 66pp.

Christensen, A. G., L. J. Lyon, and J. W. Unsworth. 1993. Elk management in the Northern Region: considerations in forest plan updates or revisions. USDA Forest Service, Intermountain Res. Station, General Technical Report INT-303. Ogden, Utah. 10 pp.

Clark, E. 1966. Indian legends from the northern Rockies. University of Oklahoma Press. University of Oklahoma. 350pp.

Craighead, J. J., J. R. Varney, and F. C. Craighead. 1974. A population analysis of the Yellowstone grizzly bears. Mont. For. and Conserv. Exp. Sta. Bull. 40. Univ. of Mont., Missoula, Mont. 20 pp.

Craighead, J. J., J. S. Sumner, and G. B. Scaggs. 1982. A definite system for analysis of grizzly bear habitat and other wilderness resources. Wildlife-Wildlands Institute Monograph No. 1. University of Montana Foundation. University of Montana, Missoula, Mont. 279pp.

Davis, D. and B. Butterfield. 1991. The Bitterroot grizzly bear evaluation area: a report to the Bitterroot Technical Review Team. Interagency Grizzly Bear Committee, Denver, Colo. 56 pp.

DiSilvestro, R. 1996. No longer top dog. National Wildl. Magazine (Oct-Nov). Vol. 34 (6): 14-22.

Dood, A. R. and H. I. Pac. 1993. The grizzly bear in northwestern Montana, 1986-1990. Montana Department of Fish, Wildlife, and Parks, Helena. 228 pp.

Duda, M. D. and K. C. Young. 1995. The public and grizzly bear reintroduction in the Bitterroot Mountains of Central Idaho. Responsive Management, Harrisonburg, Virginia. 141 pp.

Duffield, J. and D. Patterson. 1991. Inference and optimal design for a welfare measure in dichotomous choice contingent valuation. Land Econ. 67:225-239.

Duffield, J. 1992. An economic analysis of wolf recovery in Yellowstone: Park visitor attitudes and values. Pages 2-35 to 2-87 *in* J.D. Varley and W. G. Brewster, eds. Wolves for Yellowstone? A Report To The United States Congress, Volume 4, Research and Analysis. NPS, Yellowstone National Park, Wyo.

Duffield, J. and D. Patterson. 1992. Field testing existence values: an instream flow trust fund for Montana rivers . Paper presented at annual meeting, Association of Environmental and Resource Economists, New Orleans, January 4, 1992.

Duffield, J., C. Neher, and D. Patterson. 1993. Wolves and people in Yellowstone: a case study in the new resource economics. Report to the Liz Claiborn and Art Ortenberg Foundation.

Eberhardt, L. L., B. M. Blanchard, and R. R. Knight. 1994. Population trend of the Yellowstone grizzly bear as estimated from reproductive and survival rates. Can. J. Zool. 72:360-363.

Eberhardt, L. L. and R. R. Knight. 1996. How many grizzlies in Yellowstone? J. Wildl. Manage. 60(2): 417-421.

French, S. P. and M. G. French. 1990. Predatory behavior of grizzly bears feeding on elk calves in Yellowstone National Park 1986-1988. Proc. Eighth Int. Conf. on Bear Res. and Manage., Victoria, B. C.. 8: 335-341.

Garrity, M. 1996. Economic analysis of the conservation biology alternative for grizzly bear restoration in the greater Salmon-Selway region. Pages 19-26 *in* Bader, M., and T. Bechtold. The conservation biology alternative for grizzly bear population restoration in the greater Salmon-Selway region of central Idaho and western Montana. Alliance for the Wild Rockies Special Report #8, Missoula, Mont. 32pp.

Gratson, M. W. and P. Zager. 1999. Elk ecology. Idaho Department of Fish and Game, Job Progress Report. Project W-160-R-25. Subproject 31. Study IV, Job 1-3. Boise, Idaho. 78pp.

Green, G. I. and D. J. Mattson. 1988. Dynamics of ungulate carcass availability and use by bears on the Northern Range and Firehole and Gibbon drainages: 1987 progress report. Pages 32-50 *in* Yellowstone grizzly bear investigations: annual report of the Interagency Study Team, 1987. U.S.D.I. Natl. Park Serv.

Groves, C. 1987. A compilation of grizzly bear reports for central and northern Idaho. Endangered Species Projects E-III, E-IV. Idaho Dept. of Fish and Game, Boise, Ida. 85pp.

Gunther, K. A. and R. A. Renkin. 1990. Grizzly bear predation on elk calves and other fauna of Yellowstone National Park. Pages 329-334 *in* L. M. Darling and W. R. Archibald, eds. Bears: their biology and management: a selection of papers from the eighth international confederation on bear research and management, Victoria, B.C., February 1989. International Association for Bear Research and Management, Madison, WI.

Gunther, K. A., M. Bruscino, S. Cain, T. Chu, K. Frey, R. R. Knight. 1995. Grizzly bear - human conflicts, confrontations, and management actions in the Yellowstone Ecosystem 1994. Interagency Grizzly Bear Committee, Yellowstone Ecosystem Subcommittee Report. Yellowstone National Park, Wyoming. 37pp.

Gunther, K. A., M. Bruscino, S. Cain, T. Chu, K. Frey, R. R. Knight. 1996. Grizzly bear - human conflicts, confrontations, and management actions in the Yellowstone Ecosystem 1995. Interagency Grizzly Bear Committee, Yellowstone Ecosystem Subcommittee Report. Yellowstone National Park, Wyoming. 39pp.

Gunther, K. A., M. Bruscino, S. Cain, T. Chu, K. Frey, R. R. Knight. 1997. Grizzly bear - human conflicts, confrontations, and management actions in the Yellowstone Ecosystem 1996. Interagency Grizzly Bear Committee, Yellowstone Ecosystem Subcommittee Report. Yellowstone National Park, Wyoming. 42pp.

Gunther, K. A., M. Bruscino, S. Cain, T. Chu, K. Frey, R. R. Knight. 1998. Grizzly bear - human conflicts, confrontations, and management actions in the Yellowstone Ecosystem 1997. Interagency Grizzly Bear Committee, Yellowstone Ecosystem Subcommittee Report. Yellowstone National Park, Wyoming. 45pp.

Gunther, K. A. and M. A. Haroldson. In Press. Influence of ungulate abundance on grizzly bear population trends in the Yellowstone Ecosystem. Ursus. 11:000-000.

Hanneman, W. M. 1984. Welfare evaluation in contingent valuation experiments with discrete responses. American Journal of Agricultural Economics. 66: 332-341.

Hanneman, W. M. 1989. Welfare evaluation in contingent valuation experiments with discrete responses. American Journal of Agricultural Economics. 70: 1057-1061.

Hilderbrand, G. V., S. D. Farley, C. T. Robbins, T. A. Hanley, K. Titus, and C. Servheen. 1996. Use of stable isotopes to determine diets of living and extinct bears. Can. J. Zool. 74:2080-2088.

Hogg, J., N. Weaver, J. Craighead, M. Mahr, M. Pokorny, B. Steele, and R. Redmond. 1999. Abundance and spatial distribution of grizzly bear plant-food groups in the Salmon-Selway Ecosystem: a preliminary analysis and report. Craighead Institute, Missoula, Mont.

Holm, G. W., F. G. Lindzey, and D. S. Moody. In Press. Habitat use, spatial distribution, and activity patterns of sympatric black and grizzly bears in northwest Wyoming. Ursus. 11:000-000.

Hovey, F.W., and B.N. McLellan. 1996. Estimating population growth of grizzly bears from the Flathead River drainage using computer simulations of reproductive and survival rates. Can. J. Zool. 74:1409-1416.

Idaho Department of Fish and Game. 1991. Unpublished data: Number of big game tags provided by outfitters and guides within the Primary Analysis Area for 1991 license year. Idaho Dep. Fish and Game, Boise.

Idaho Department of Parks and Recreation. 1997. Idaho statewide comprehensive outdoor recreation and tourism planning: assessment and policy plan. Boise, ID. 215pp.

Idaho Department of Parks and Recreation. 1989. 1990 Centennial edition, Idaho Outdoor Recreation Plan. Boise, ID. 88pp.

Interagency Grizzly Bear Committee. 1986. Interagency grizzly bear guidelines. U.S. For. Serv., Washington, D.C. 100pp.

_____. 1987. Grizzly bear compendium. USFWS, Missoula, Mont. 540pp.

_____. 1994. Interagency Grizzly Bear Committee task force report. Grizzly bear/motorized access management, Final draft. IGBC, Denver, Colo. 6pp.

Jonkel, C. 1984. Grizzlies and black bear interrelationships. Border Grizzly Project. Univ. of Mont, Missoula. Spec. Rep. No. 70. 6pp.

Kasworm, W. F. and T. Manley. 1988. Grizzly bear and black bear ecology in the Cabinet Mountains of northwest Montana. Mont. Dep. of Fish, Wildlife, and Parks, Helena. 122pp.

Kasworm, W. F., T. J. Thier, and C. Servheen. 1993. Cabinet Mountains grizzly bear population augmentation 1992 progress report. U. S. Fish and Wildl. Serv., Missoula, Mont. 18pp.

Kasworm, W. F. and C. Servheen. 1995. Cabinet-Yaak ecosystem grizzly bear and black bear research 1994 progress report. U. S. Fish and Wildl. Serv., Missoula, Mont. 57pp.

_____, T. J. Their, and C. Servheen. In Press. Grizzly bear recovery efforts in the Cabinet/Yaak ecosystem. Int. Conf. Bear Res. And Manage. 10:000-000.

Keane, E. R., and S. F. Arno. 1996. Whitebark Pine (*Pinus albicaulis*) in the Selway-Bitterroot Wilderness Complex: ecology, distribution and health. USDA Forest Service unpubl. report. Intermountain Research Station, Missoula, MT. 7pp.

Knight, R.R. and B.M. Blanchard. 1995. Yellowstone grizzly bear investigations, 1994. U.S. Dep. Int., Nat. Biol. Surv., Bozeman, Mont. 27pp.

Knight, R. R., D. Mattson, and B. Blanchard. 1984. Movements and habitat use of the Yellowstone grizzly bear. U. S. Dep. Int. Interagency Grizzly Bear Study Team. Bozeman, Mont. 177pp.

Krutilla, J. 1967. Conservation reconsidered. American Economic Review. 57(4):77-86.

Kuck, L., ed. 1995. Idaho Department of Fish and Game statewide surveys and inventory: elk. Project W-170-R-19. Prog. Rep. Study I, Job 1. Boise, Idaho. 318pp.

Kunkel, K., W. Clark, and G. Servheen. 1991. A remote camera survey for grizzly bears in low human use areas of the Bitterroot grizzly bear evaluation area. Idaho Department of Fish and Game unpubl. report. Boise, ID. 12pp.

Kunkel, K. E. and D. H. Pletscher. 1994. Cervid-wolf relationships in the North Fork of the Flathead River. Progress Report. School of Forestry. Univ. of Mont., Missoula. 41 pp.

Madel, M. 1996. Rocky Mountain front grizzly bear management program, 4 year progress report 1991-1994. Montana Department of Fish, Wildlife, and Parks. Helena, Mont. 80pp.

Maguire, L. A. and C. Servheen. 1992. Integrating biological and sociological concerns in endangered species management: augmentation of grizzly bear populations. Conservation Biology 6(3): 426-434.

Martinka, C. J. 1974. Population characteristics of grizzly bears in Glacier National Park, Montana. J. Mamm. 55(1): 21-29.

Mattson, D. J., B. M. Blanchard, and R. R. Knight. 1991. Food habitats of Yellowstone grizzly bears, 1977-1987. Can. J. Zool. 69: 1619-1629.

Mattson, D. J., R. R. Knight, and B. M. Blanchard. 1992. Cannibalism and predation on black bears by grizzly bears in the Yellowstone ecosystem, 1975-1990. J. Mamm. 73(2): 422-425.

Mattson, D. J., and D. P. Reinhart. 1994. Bear use of whitebark pine seeds in North America. Pages 212-220 *in* Proceedings - International workshop on subalpine stone pines and their environment: status of our knowledge. USDA Forest Service Tech. Rep. INT-GTR-309.

Mattson, D. J. 1997. Use of ungulates by Yellowstone grizzly bears *Ursus arctos*. Biological Conservation 81: 161-177.

McLellan, B. N. 1989. Dynamics of a grizzly bear population during a period of industrial resource development, II. Mortality rates and causes. Can. J. Zool. 67:1861-1864.

Melquist, W. 1985. A preliminary survey to determine the status of grizzly bears (*Ursus arctos horribilis*) in the Clearwater National Forest of Idaho. Idaho Coop. Fish and Wildlife Research Unit. University of Idaho, Moscow, ID. 54pp.

Merriam, C. H. 1922. Distribution of grizzly bear. U. S. Outdoor Life (December): 405-406.

Merrill, T., D. J. Mattson, R. G. Wright, and H. B. Quigley. 1999. Defining landscapes suitable for restoration of grizzly bears *Ursus arctos* in Idaho. Biological Conservation 86: 231-248.

Moore, W. R. 1984. Last of the Bitterroot grizzly. Montana Magazine (November-December) : 8-12.

Moore, W. R. 1996. The Lochsa story. Mountain Publishing Co., Missoula, Mont. 461pp.

Power, Thomas M. 1991. Ecosystem preservation and the economy in the greater Yellowstone area. Conservation Biology. 5 (3): 395-404.

Power, T. M. 1992. The timber employment impact of the Northern Rockies Ecosystem Protection Act in Idaho. Univ. of Mont., Missoula.

Rachael, J. S. 1992. Mortality and seasonal distribution of white-tailed deer in an area recently recolonized by wolves. M. S. Thesis, Univ. of Mont., Missoula. 115 pp.

Scaggs, G. B. 1979. Vegetation description of potential grizzly bear habitat in the Selway-Bitterroot Wilderness Area, Montana and Idaho. M.S. Thesis. Univ. of Montana, Missoula. 148pp.

Schlegal, M. 1976. Factors affecting calf elk survival in northcentral Idaho - a progress report. Pages 342-355 *in* Proc. 56th Ann. Conf. West. Assoc. State Game Fish Comm.

Schleyer, B. O. 1983. Activity patterns of grizzly bears in the Yellowstone ecosystem and their reproductive behavior, predation, and the use of carrion. M.S. Thesis, Mont. State Univ., Bozeman. 130pp.

Schoen, J. W., J. Lentfer, and L. Beier. 1986. Differential distribution of brown bears on Admiralty Island, southeast Alaska: a preliminary assessment. *In* Int. Conf. Bear Res. and Manage. 6:1-5.

Servheen, C., A. Hamilton, R. Knight, B. McLellan. 1991. Report of the technical review team: Evaluation of the Bitterroot and North Cascades to sustain viable grizzly bear populations. Rep. to the Interagency Grizzly Bear Committee. U. S. Fish and Wildl. Serv., Boise, Ida. 9pp.

_____, W. Kasworm, and T. Their. 1995. Transplanting grizzly bears *Ursus arctos horribilis* as a management tool - results from the Cabinet Mountains, USA. Biol. Conserv. 71:261-268.

Servheen, G., M. S. Nadeau, and C. Queen. 1990. A survey for grizzly bears in the Bitterroot Grizzly Bear Evaluation Area. Idaho Department of Fish and Game unpubl. report. Boise, Ida. 11pp.

Simpson, K., J. Regnier, and L. Andrusiak. 1995. A grizzly bear management strategy for the Kootenay Region. Keystone Wildlife Research, Inc. Unpubl. rpt. submitted to British Columbia Ministry of Environment, Lands, and Parks. 60 pp.

Soule, M.E., editor 1987. Viable populations for conservation. Cambridge University Press, New York.

Space, R. S. 1979. The Clearwater story: A history of the Clearwater National Forest. USDA Forest Service unpubl. report. Northern Region 79-03, Missoula, Mont. 234pp.

Thwaites, G. R., L.L.D. 1959. Original journals of the Lewis and Clark expedition 1804-1806. Antiquarian Press Ltd. NY.

United States Department of Agriculture, Forest Service. 1976. Selway-Bitterroot Wilderness management plan. Nez Perce, Clearwater, Bitterroot, and Lolo National Forests. USDA For. Serv., Missoula, Mont.

_____. 1983a. Forest Plan for the Payette National Forest. USDA For. Serv., Intermountain Region, Payette National Forest, McCall, Ida.

_____. 1983b. Forest Plan for the Salmon National Forest. USDA For. Serv., Intermountain Region, Salmon National Forest, Salmon, Ida.

_____. 1984. Forest Plan for the Challis National Forest. USDA For. Serv., Intermountain Region, Salmon/ Challis National Forest, Salmon, Ida.

_____. 1986. Forest Plan for the Sawtooth National Forest. USDA For. Serv., Intermountain Region, Sawtooth National Forest, Twin Falls, Ida.

_____. 1986b. Forest Plan for the Lolo National Forest. USDA For. Serv., Northern Region, Lolo National Forest, Missoula, Mont.

_____. 1987a. Forest Plan for the Clearwater National Forest. USDA For. Serv., Northern Region, Clearwater National Forest, Orofino, Ida.

_____. 1987b. Forest Plan for the Nez Perce National Forest. USDA For. Serv., Northern Region, Nez Perce National Forest, Grangeville, Ida.

_____. 1987c. Forest Plan for the Idaho Panhandle National Forests. USDA For. Serv., Northern Region, Idaho Panhandle National Forests, Coeur d'Alene, Ida.

_____. 1987d. Forest Plan for the Bitterroot National Forest. USDA For. Serv., Northern Region, Bitterroot National Forest, Hamilton, Mont.

_____. 1990. Forest Plan for the Boise National Forest. USDA For. Serv., Intermountain Region, Boise National Forest, Boise, Ida.

_____. 1992. Selway-Bitterroot Wilderness general management direction: 1992 update. Bitterroot, Clearwater, Lolo, and Nez Perce National Forests. USDA For. Serv., Missoula, Mont.

_____. 1995. Unpublished data: U.S. Forest Service road, trail, recreation visitor days, and livestock grazing data for 10 national forests in the primary analysis area. U.S. Forest Service Regions 1 and 4. Missoula, Mont. and Ogden, Utah.

_____. 1999. Unpublished data: U.S. Forest Service timber harvest data for 10 national forests in the primary analysis area. U.S. Forest Service Regions 1 and 4. Missoula, Mont. and Ogden, Utah.

United States Department of Agriculture, National Agricultural Statistics Service. 1997. Montana and Idaho state census of agriculture data. U.S.D.A., Wash. D.C., Annual.

United States Department of Commerce, Bureau of the Census. 1984. Projections of the population of the United States, by age, sex, and race: 1983 to 2080. Current Population Reports. Series p. 25, 952. Washington, D.C.

_____. 1991. National survey of fishing, hunting, and wildlife associated recreation. U.S. Gov. Printing Office. Wash. D.C.

_____. 1998. USA counties statistics for 1992, 1994, 1995, 1998. Washington, D. C., Annual.

United States Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System. 1998. Population estimates for Idaho, Montana, and 14-county analysis area. Washington, D.C.

United States Department of Interior, Fish and Wildlife Service. 1982. Grizzly bear recovery plan. U.S. Fish and Wildl. Serv., Denver, Colo. 195pp.

_____. 1987. Northern Rocky Mountain wolf recovery plan. U.S. Fish and Wildl. Serv., Denver, Colo. 199pp.

_____. 1993. Grizzly bear recovery plan (revised). U.S. Fish and Wildl. Serv.,Missoula, Mont. 181pp.

_____. 1993a. Unpublished survey data on economic and visitation impacts of wolf reintroduction to the Yellowstone and central Idaho areas. U. S. Fish and Wildl. Serv., Helena, Mont.

_____. 1994. Final environmental impact statement on the reintroduction of gray wolves to Yellowstone National Park and central Idaho. U. S. Fish and Wildl. Serv., Helena, Mont.

_____. 1995. Summary of public comments on the scoping of issues and alternatives for grizzly bear recovery in the Bitterroot Ecosystem. U. S. Fish and Wildl. Serv., Missoula, Mont.

_____. 1996. Bitterroot ecosystem recovery plan chapter - supplement to the Grizzly Bear Recovery Plan. U.S. Fish and Wildl. Serv., Missoula, Mont. 27pp.

_____. 1997. Draft environmental impact statement for grizzly bear recovery in the Bitterroot Ecosystem. U. S. Fish and Wildl. Serv., Missoula, Mont. 464pp.

_____. 1997a. Endangered species act, proposed rule 10(j), establishment of a nonessential experimental population of grizzly bears in the Bitterroot area of Idaho and Montana. Federal Register . U. S. Fish and Wildl. Serv., Missoula, Mont.

_____. 1998. Summary of public comments on the draft environmental impact statement for grizzly bear recovery in the Bitterroot Ecosystem. U. S. Fish and Wildl. Serv., Missoula, Mont.

Walsh, R., D. Johnson, and J. Mckean. 1988. Review of outdoor recreation economic demand studies with nonmarket benefit estimates. Colorado Water Resources Research Institute Technical Report No. 54. Colorado State Univ., Fort Collins.

Wells, J. V. and M. E. Richmond. 1995. Populations, metapopulations, and species populations: what are they and who should care? Wildl. Soc. Bull. 23:458-462.

Wright, W. H. 1909. The grizzly bear. Charles Scribner's Sons, N.Y. 274pp.

PERSONAL COMMUNICATIONS CITED

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APPENDIX 1. CHRONOLOGY OF GRIZZLY BEAR RECOVERY IN THE BITTERROOT ECOSYSTEM

Summary of Grizzly Bear Status and Recovery in the Bitterroot Ecosystem

1806 Grizzly bears were abundant in the Bitterroot Ecosystem (BE). Lewis and Clark killed at least 7 grizzly bears including 1 female and 2 cubs and numerous black bears while camped near present-day Kamiah, Idaho. With the assistance of the Nez Perce Indians, they correctly identified grizzly bears and black bears as 2 separate species.

1850 Extermination of ungulates and large predators began, including bison, wolves, and grizzly bears.

1900 Wild ungulate populations and large predators were decimated by unregulated harvest and settlement.

1920 For several years, as many as 25-40 grizzly bears per year were being killed in the BE by trappers and hunters.

1932 Last verified grizzly bear killed in BE.

1946 Last good evidence of grizzly bear track in the BE indicated by USFS District Ranger at Powell Ranger Station.

1950 Some scattered but unverified reports of potential grizzly bear sightings in the BE.

1975 Grizzly bear listed as threatened under the Endangered Species Act. Bitterroot Ecosystem recognized as one of the 3 recovery areas, along with the Bob Marshall and Yellowstone areas.

1979 Habitat research conducted to identify quantity and quality of grizzly bear foods in one study area in the Selway-Bitterroot Wilderness.

1982 Grizzly Bear Recovery Plan finalized. Bitterroot Ecosystem identified as an Evaluation Area to determine if grizzly bears still existed there, and if the habitat was of good enough quality to provide for grizzly bear population recovery.

1985 Research study to classify observation reports, and conduct ground searches for grizzly bears in the BE was finalized.

1985 Research study that evaluated grizzly bear habitat quality in the Selway-Bitterroot Wilderness was finalized.

1985 Further study initiated using landsat imagery and including all of the Bitterroot Evaluation Area (BEA), to better analyze quantity and quality of grizzly bear habitat.

1988 Continued efforts to verify grizzly bear presence in the BEA through quick response to observation reports and aerial verification efforts.

1990 Remote sensor camera study conducted to attempt to photograph and determine grizzly bear presence in the BEA.

1991 Continued attempts to photograph grizzly bears using remote cameras and to verify observation reports.

1991 Habitat study completed and researchers concluded the BEA was suitable habitat for grizzly bears.

1991 Technical Review Team of independent bear biologists was organized to review available habitat data. The Team determined that the BEA could support between 200-400 grizzly bears.

1992 The Interagency Grizzly Bear Committee (IGBC) reviewed the determination and recommendations of the Technical Review Team and authorized the preparation of a Recovery Plan for the Bitterroot Ecosystem to include as a chapter of the Grizzly Bear Recovery Plan. An interagency team of biologists was organized to develop the plan.

1992 A Citizens Involvement Group (CIG) was organized to help guide the development of the Bitterroot Ecosystem Grizzly Bear Recovery Chapter. The CIG began with 50 people and ended in 1993 with 30 members.

1993 Revised Grizzly Bear Recovery Plan completed.

1993 Bitterroot Ecosystem Subcommittee branched off from Northwest Ecosystem Subcommittee to allow decision makers more involvement in planning and local input.

1993 Several public meetings were held to obtain information for the BE Recovery Chapter.

1993 The Idaho Legislature authorized the formation of a Grizzly Bear Oversight Committee for Idaho, consisting of the chairs of the Idaho Senate and House Resource committees, and representatives each from timber, mining, livestock, recreation, and wildlife. Committee held public meetings in Grangeville and Orofino.

1993 An interagency task force, working with a citizen's involvement group drafted a chapter on grizzly bear recovery in the Bitterroot Ecosystem. In response to public comments from local communities of central Idaho and western Montana, several changes were made in the final chapter. The BE Recovery Plan final draft was appended as a chapter to the Revised Grizzly Bear Recovery Plan, and listed for comment in the Federal Register. It called for an Environmental Impact Statement (EIS) to evaluate a full range of recovery alternatives.

1994 Open houses to provide public information on the draft BE Recovery Plan Chapter were held by the USFWS, CIG, interagency team, and legislative oversight committee in Hamilton and Missoula, MT, Salt Lake City, UT, and Lewiston, Grangeville, and Orofino, ID. USFWS recommended using an "nonessential experimental population" designation as identified in Sec. 10(j) of the ESA and releasing 4-6 bears per year for 5 years.

1994 IGBC authorized development of an Environmental Impact Statement to identify alternatives and issues, recovery area boundaries, and environmental consequences of implementing the BE Recovery Chapter.

1995 The USFWS continued public involvement and assembled an interdisciplinary team to begin the EIS process. Team members include specialists from the USFWS, USFS, IDFG, MDFWP, and the Nez Perce Tribe. Dr. Chris Servheen of the Fish and Wildlife Service is the EIS team leader.

1996 Bitterroot Ecosystem Recovery Plan Chapter - Supplement to the Grizzly Bear Recovery Plan finalized. Chapter signed 9/11/96.

1996 Interagency EIS Team continues to prepare draft EIS, and coordinate with agency partners.

1997 Proposed Special Rule 10(j), Establishment of a Nonessential Experimental Population of Grizzly Bears in the Bitterroot Area of Idaho and Montana, is published in Federal Register for public review and comment.
1997 Draft EIS is released for public review and comment. Public comment period including 7 public hearing extended to 90 days.
1998 Content analysis of public comments on the DEIS, and preparation of Final EIS.
1999 Internal review of draft Final EIS, preparation of Final EIS, final surnaming of FEIS.
2000 Release FEIS and Record of Decision to public. Implement selected alternative.

Chronology of the Bitterroot Ecosystem Grizzly Bear EIS

See Chapter 5 "Consultation and Coordination in Development of the Proposal" for more information on the chronology of the EIS.

7/94 IGBC authorized the development of an EIS to identify issues and alternatives, recovery zone boundaries, environmental consequences, and other information necessary to recover grizzly bears.
1/95 Notice of Intent to prepare an EIS published in the Federal Register (Vol 60, No 5).
1/95 The USFWS assembled an interdisciplinary team to prepare the draft EIS. Team leader selected. Team members include specialists from the USFWS, USFS, IDFG, MDFWP, and the Nez Perce Tribe.
2/95 Core EIS team meeting. Develop initial EIS schedule.
5/95 BES meeting at USFS Powell Ranger District. Received 80 comments on NOI in Federal Register. Decide to contract with Responsive Management for survey of social attitudes regarding grizzly bear recovery in the BE.
5/95 Brochure developed by agencies, industry, and environmental groups reviewing questions and concerns about grizzly bear recovery in the BE.
5/95 Three preliminary alternatives were identified and published in a Scoping of Issues and Alternatives brochure, and mailed to 1100 people.
6/95 Formal scoping for issues and alternatives begins with notice in Federal Register for a 45-day comment period.
6/95 Citizens Involvement Group met to produce input on alternatives and issues.
7/95 Seven public open houses were held to identify issues and alternatives for the EIS, and over 300 people attended. Scoping sessions held in Grangeville, Orofino, Boise, ID, Hamilton, Missoula, Helena, MT, and Salt Lake City, UT.
7/95 Public survey to determine public attitudes toward grizzly bear recovery in the BE was finalized.
7/95 End 45-day public comment period on scoping of issues and alternatives.
7/95 Public comment period extended 30 days to August 21.
8/95 Issue scoping period closed. Written comments on the preliminary issues and alternatives were received from over 3,300 individuals, organizations, and government agencies.
9/95 Content analysis of public comments on scoping of issues and preliminary alternatives completed.

9/95 Scoping results summarized in the document, "Summary of public comments on the scoping of issues and alternatives for grizzly bear recovery in the Bitterroot Ecosystem" (FWS 1995). Document distributed.

11/95 EIS Team meeting to identify contract descriptions and assign remaining writing duties.

11/95 Two new team members added after resignation of team leader.

1-10/96 Preparation of draft EIS. Team meetings held in March, May, July, August, and October to prepare document.

8-12/96 Draft DEIS completed and released to USFWS and then to agency partners (USFS, IDFG, MDFWP, Nez Perce Tribe) for internal review and comment.

1-2/97 Comments from USFWS and agency partners reviewed and incorporated into draft EIS.

2/97 Final draft of DEIS sent to Region 6 and Washington Office, USFWS for final review and comment.

3/97 Comments from USFWS Region 6 and Washington Office incorporated into draft EIS.

7/97 DEIS completed, released, and public review requested during a 90-day public comment period Public comment period begins July 11 and ran through December 1, 1997.

7/97 Endangered Species Act, Proposed Rule 10(j) for Establishment of a Nonessential Experimental Population of Grizzly Bears in the Bitterroot Area of Idaho and Montana published in the Federal Register on July 2. Comment period July 11 through December 1.

9/97 9/30 - Comment period deadline extended from September 30 to November 1, based on numerous requests for more time to prepare comments.

10/97 Public hearings/open houses to gather public comments on the DEIS and Proposed Special Rule held in seven communities on the perimeter of the Bitterroot area. Approximately 1400 people attended these hearings and 293 individuals testified. The dates and locations for the public hearings were as follows: October 1, 1997: Challis, Idaho and Hamilton, Montana; October 2, 1997: Missoula, Montana and Lewiston, Idaho; October 3, 1997: Boise, Idaho and Helena, Montana; October 8, 1997: Salmon, Idaho.

11/97 Comment period deadline extended from November 1 to December 1, following a request from a member of the Idaho Congressional delegation

12/97 December 1 - Public Comment period ended.

12-3/98 Content Analysis of public comments on the Draft EIS and Proposed Special Rule. Report entitled, "Summary of Public Comments on the Draft EIS for Grizzly Bear Recovery in the Bitterroot Ecosystem" and Executive Summary Report released to public in April 1998.

4-12/98 EIS Team prepares draft Final EIS for internal review. EIS Team prepares draft Final EIS for internal review. Private contractor prepares Bitterroot Population Viability/Habitat Analysis for Congressionally-mandated study to be included in FEIS. Numerous EIS Team meetings occurred to write/review FEIS. EIS Team finalizes formal consultation with NMFS and internal review of USFWS Biological Assessment.

2/99 Internal USFWS review of draft Final EIS.

5/99 FWS internal review comments incorporated into FEIS.

6/99 Final internal review of final draft FEIS.

8-9/99 Comments received on final draft. Comments incorporated into final surname copy FEIS.

10/99 Final FEIS sent to Denver Region and Washington, D.C. offices for review and surname.

11/99 Final comments incorporated and FEIS sent to Denver Region and Washington Office for final review and surnaming process.

1-2/00 Final comments incorporated, and FEIS sent to printer.

3/00 Notice of Availability published in Federal Register, and FEIS released to public for 30-day final review period (March 24 through April 24). Comments will be reviewed, and a Record of Decision will be published and released to the public.

APPENDIX 2. TECHNICAL SUMMARY: GRIZZLY BEAR BIOLOGY AND ECOLOGY

Biology

Taxonomy and Evolution. -- The North American brown bears (*Ursus arctos*) include 2 subspecies; the grizzly bear (*Ursus arctos horribilis*) and the Kodiak bear (*Ursus arctos middendorfii*) (Rausch 1963). Recent taxonomic classifications consider the North American Brown Bears and the Eurasian Brown Bear to be the same species.

The evolutionary history of the family *Ursidae* encompasses a 20 million year period. The Etruscan bear (*Ursus etruscus*) which lived in the forests of Asia about 2 million years B.P. was ancestor to present day bears (Herrero 1972). Changes in environment from warm forest to a treeless landscape following repeated glacial periods gave rise to the cave bear (*Ursus spelaeus*) in Europe and the brown bear in Asia. Around 50,000 B.P. brown bears crossed the treeless Bering Land Bridge and spread across North America (Churcher and Morgan 1976). Brown bears occurred in North American south of the ice sheet during the late Wisconsinan (Kurten 1968). Archeological evidence suggests that the brown bear expanded its range into eastern North America by 11,000 B.P., however they were probably never abundant east of the Mississippi River.

A major trend in the early evolution of bears was the development of adaption that allowed a carnivore to feed relatively efficiently on vegetation (Kurten 1968). Bears began as small-bodied carnivores but eventually became large-bodied omnivores (Herrero 1985). The brown bear specifically evolved away from forest adaptations toward characteristics which allowed to bear to utilize a more open habitat. Brown bears developed morphological, physiological, and behavioral adaptations which enabled it to exploit the newly developed tundra-like habitat following glacial periods.

Physical Characteristics. -- Brown bears are large, plantigrade animals. There is considerable variation in size and color of local populations and individuals sometimes leading to problems in classification. Guard hairs are often silver-tipped to varying degree hence the name "grizzly." The muscle structure has developed for strength, quickness, and speed. Grizzly bears are often distinguished from black bears by their humped shoulders, longer and curved claws, smaller ears, and a concave face profile.

Grizzly bears are sexually dimorphic in body size with males considerably larger than females. In addition to variations between sexes, there is considerable variation in body size and weight between geographic regions. Weight data from various studies are available in IGBC (1987). There appears to be a clinal variation in weight with bears in coastal regions being heavier than bears in the more interior regions of the continent (Bunnell and Tait 1981). Rausch (1963) noted that the larger size of coastal bears appeared to be related with the distribution of salmon and the luxuriant coastal vegetation. In all brown bear populations males are heavier than females (Glenn 1980).

The remaining grizzly bears in the lower 48 states are found in the interior regions. Blanchard (1986) analyzing data from Yellowstone National Park found adult (5+ years) male bears weighed an average of 423 lbs. and adult females 298 lbs. In the NCDE adult (5+ years) males averaged 384 lbs. and adult females averaged 243 lbs. (Aune et. al. Unpub data). Whole carcass weights from throughout Montana were 463 lbs. for adult males and 284 lbs. for adult females (Aune et al. Unpub. data).

Grizzly bears undergo an annual cycle in weight, gaining in summer and losing during the winter during denning (Pearson 1975, Kingsley et al. 1983). Grizzly bears can gain weight at the rate of 0.79 to 2.2 lbs./day during the spring to fall season (Blanchard 1983, Bunnell and Hamilton 1983). Blanchard (1986) found that males gained weight faster than female bears during the forage season. Kingsley et al. (1983) reported that male bears loose 22% of their fall weight over winter while females loose 40%. Blanchard (1986) found that males lost a greater percent of body weight over winter than adult females (18% and 8% respectively). Mature females cycle more weight annually than males since they are liable for the energy cost of reproduction (Kingsley et al. 1983).

Reproduction. -- There is clear evidence that the female grizzly bear exhibits delayed implantation (Craighead and Mitchell 1982). Although mating occurs during spring (generally May and June), and estrous may last 30 days, blastocyst do not implant in the uterine wall until autumn. Implantation is affected by the physical condition of the female. Grizzly bears are polygamous; a female may mate with several males during a single breeding period. Female grizzly bears are not sexually mature until age 4 or 5 and exhibit prolonged care of their young. Generally, females attend to their litter for 2 years. Litter size may vary from 1-4 cubs although 2 cubs is most common. Grizzly bears may live to be 40 years old (Storer and Tevis 1955).

Mortality. -- Grizzly bear mortality is categorized as either natural or man-caused. The extent of natural mortality is difficult to document although parasites and disease do not appear to contribute significantly. On occasion, bears do kill each other. Human-caused mortality tends to occur in one of several categories including: (1) Control actions - A grizzly bear legally killed or removed by state or federal government officials to defend against damage to property or potential injury to humans; (2) Illegal - An illegally killed grizzly bear includes marauding bears killed illegally by private individuals, grizzly mistaken for a black bear, poaching, and deliberate vandal killing; (3) Vehicle Collision - A grizzly bear accidentally killed when struck by a train or motorized vehicle; (4) Unknown - A grizzly bear mortality caused by humans where the specific cause of death could not be determined; (5)Legal, Defense of Life - A grizzly bear legally killed by a citizen acting in self-defense or in the defense of others; (6) Legal, Hunting - A grizzly bear legally harvested during a legal grizzly bear hunting season.

In the absence of legal hunting, illegal mortality and control actions are the major sources of mortality in North America (Peek et al. 1987, Brannon et al. 1988). However, natural mortality in some areas may be higher than expected (Mace et al. 1996).

Ecology

General. -- The population sizes and distribution of grizzly bear are a product of historical and current factors. Before human settlement, continental and local populations were influenced solely by natural factors. The historical distribution of brown bears shows that this species was able to exploit a wide variety of niches; from open dry prairie or desert habitats to moist mountain habitats. Human occupation and settlement have added additional factors that limit population growth and have influenced the distribution of grizzly bears. Post human settlement, human-induced mortality coupled with conversion of habitat has most directly limited population size and distribution.

The biological needs of the grizzly bear are fairly well understood from historical records and current research activities. Factors that limit population size and distribution of grizzly bears by contributing to elevated natural or human-caused mortality are a consequence of the bears' need for space and habitat conversion.

Space. -- Grizzly bears are a wide-ranging species and mobility is an important aspect of grizzly bear biology (Compendium p. 31). As such grizzly bear populations require large tracts of suitable habitat wherein individuals can move freely and establish home ranges. The grizzly has been termed a "wilderness species", although the species lives in areas not legally designated as wilderness or national park.

Rate of movement per day varies among ecosystems, individuals, and seasons. Grizzly bears are known to make abrupt long-distance movements quickly such as a 33.5 mile foray in 62 hours (Craighead 1976).

The home range size of grizzly bears depends on many factors such as the juxtaposition of seasonal habitats, population density, presence or absence of ecocenters, age and reproductive status, and social relationship with other members of the population (IGBC 1987, Nagy and Haroldson 1989). Home range size may also vary among years in relation to food abundance and may enlarge as the animal ages (Blanchard and Knight 1991). Generally males have larger home ranges than females. It is advantageous for male ranges to include as many female ranges as possible, and it is advantageous for females to rear young in relatively small, areas with maximum security and food resources. Home range size also varies by habitat zone with larger ranges in the drier habitats relative to mesic habitats. The degree of home range overlap is a function of population density, social hierarchies, and distribution of food resources. Although range perimeters often overlap, use of core areas within ranges are often exclusive, especially for females (IGBC 1987, Mace and Waller 1997). Subadult males generally disperse from area of the maternal home range whereas females often establish ranges near their mother (IGBC 1987, Craighead and Mitchell 1982).

Habitat Conversion. -- There is very little overlap between occupied grizzly bear habitat and high human densities primarily because of niche differences and human intolerance (Mattson 1990). Humans have eliminated bears from many areas resulting in unoccupied but suitable habitat.

Grizzly bears are precluded by humans from using habitats in several ways. Large-scale habitat conversion to human settlement, hydroelectric development, and agriculture have reduced bear use of many inter-mountain valleys. Timber harvest and fire control policies have also contributed to a large-scale conversion of habitat by altering successional stages.

Forest roads affect grizzly bears in several ways (McLellan and Shackleton 1987, Mace et al. 1996). Bears may be either temporarily or permanently displaced from habitats near roads. Permanent displacement results in loss of habitat. Grizzly bears are also vulnerable to mortality in areas with roads.

Impacts to grizzly bear in areas where livestock are grazed include direct mortality through control actions and illegal kills, habitat loss or modification, displacement, or direct competition (IGBC 1987). Historically, conflict with livestock was a major cause of population decline or local extirpation throughout the bears former range (Storer and Trevis 1955). Depredation behavior is believed to be a learned process as not all bears in proximity to grazing allotments kill livestock.

Habitat Selection and Food Habits. -- Grizzly bear currently occupy coniferous forest habitats in the Rocky Mountain Cordillera. Aside from National Park and wilderness settings, grizzly bears are generally confined by human settlement to mountain and foothill habitats, and are not common in large inter-mountain valleys.

The grizzly bear is an omnivore, and as such displays great flexibility in its use of habitats and foods. Grizzly bears are opportunistic feeders and will scavenge or prey on most available prey species. Where prey is less abundant, vegetal matter, roots, and bulbs are important during spring (IGBC 1987). Depending on area, fish, fruit, insects, and nuts are important during summer and autumn. Some individual grizzly bears, especially females, may become habituated to human foods (Mattson 1990).

After leaving their dens during spring, bears may utilize relatively low elevation habitats although individual variation occurs. During spring, grizzly bears often forage in riparian areas, avalanche chutes, or winter ranges. As summer progresses, bears often move to higher elevations and shift to fruit or pine nuts.

Grizzly bears hibernate during winter months generally in high-elevation excavated dens. Bears generally enter their dens from late September to early November and remain in dens until early-March to early-May. During the denning period, body temperature is only slightly reduced while heart rate and respiration is more markedly depressed. Several weeks of lethargy occur prior to and subsequent to denning (Nelson 1973).

Literature Cited

Blanchard, B. M. and R. R. Knight. 1991. Movements of Yellowstone grizzly bears. Biol. Conserv. 58:41-67.

Brannon, R. D., R. D. Mace, and A. R. Dood. 1988. Grizzly bear mortality in the northern continental divide ecosystem, Montana. Wildl. Soc. Bull. 16:262-269.

Bunnell, F. L. and D. E. N. Tait. 1981. Population dynamics of bears-implications. Pages 75-98 *in* T. D. Smith and C. Fowler, eds. Dynamics of large mammal populations. John Wiley and Sons. NY.

Churcher, C. S. and A. V. Morgan. 1976. A grizzly bear from the middle Wisconsin of Woodbridge, Ontario. Can. J. Earth Sci. 13:341-347.

Craighead, F. C. 1976. Grizzly bear ranges and movements as determined by radio-tracking. Bears-their biology and management. IUCN Publ. New Series 40.

Craighead, J. J. and J. A. Mitchell. 1982. Grizzly bear (*Ursus arctos*). Pages 515-556 *in* J. A. Chapman and G. A. Feldhamer, eds. Wild mammals of North America: biology, management, economics. John Hopkins Univ. Press, Baltimore, MD. 1147pp.

Glenn, L. P. 1980. Morphometric characteristics of brown bears of the central Alaska Peninsula. Int. Conf. Bear Res. and Manage. 4:313-319.

Herrero, S. M. 1972. Aspects of evolution and adaptation in American black bears (*Ursus americanus* Pallas) and brown and grizzly bears (*U. arctos* Linne) of North America. Int. Conf Bear Res. and Manage. 2:221-231.

Interagency Grizzly Bear Committee. 1987. Grizzly bear compendium. Interagency Grizzly Bear Committee and Natl. Wildl. Fed. Washington, D.C. 540pp.

Kurten, B. 1968. Pleistocene mammals of Europe. World Nat. Series. Weidenfield and Nicholson, London. 317pp.

Kurten, B., and E. Anderson. 1974. Association of *Ursus arectos* and Arctodus Simus (Mammalia:Ursidae) in the late Pleistocene of Wyoming. Breviora 426:1-6.

Mace, R. D., J. S. Waller, T. L. Manley, L. J. Lyon, and H. Zuuring. 1996. Relationships among grizzly bears, roads, and habitat in the Swan Mountains, Montana. J. App. Ecol. 33:1395-1404.

_____, and J. S. Waller. 1997. Spatial and temporal interaction of male and female grizzly bears in northwestern Montana. J. Wildl. Manage. 61: 39-52.

McLellan, B. N. and D. M. Shackleton. 1988. Grizzly bears and resource-extraction industries: effects of roads on behavior, habitat use and demography. Journal of Applied Ecology. 25:451-460.

Mattson, D. J. 1990. Human impacts on bear habitat use. International Conference on Bear Research and Management. 8:33-56.

Nagy, J. A. S. and M. A. Haroldson. 1989. Comparisons of some home range and population parameters among four grizzly bear populations in Canada. Int. Conf. on Bear Res. and Manage. 7:227-235.

Nelson, R. A., G. E. Folk, Jr., E. W. Pfeiffer, J. J. Craighead, C. J. Jonkel, and C. L. Stiger. 1983. Behavior, biochemistry, and hibernation in black, grizzly, and polar bears. Int. Conf. Bear Res. and Manage. 5:284-290.

Pearsón, A. M. 1975. The northern interior grizzly bear *Ursus arctos* L. Can. Wildl. Serv. Rep. Ser. No. 34. Ottawa, 86 pp.

Peek, J. M., M. R. Pelton, H. D. Picton, J. W. Schoen, and P. Zager. 1987. Grizzly conservation and management: a review. Wildl. Soc. Bull. 15:160-169.

Rausch, R. L. 1963. Geographic variation in size in North American brown bears, *Ursus arctos* L., as indicated by condylobasal length. Can. J. Zool. 41:33-45.

Storer, T. I., and L. P. Tevis. 1955. California Grizzly. Univ. Nebraska Press, Lincoln. 335pp.

APPENDIX 3. TECHNICAL SUMMARY: EVALUATION OF HABITAT QUALITY FOR GRIZZLY BEARS IN THE BITTERROOT ECOSYSTEM

A comprehensive review of pertinent literature and studies conducted in the Bitterroot Ecosystem (BE) provide the basis for this summary. Technical reviews of habitat information and research are included, as well as brief summaries of whitebark pine status (Keane and Arno 1996), and anadromous fish status (Brostrom 1996) in the BE.

Habitat Studies

Summary. -- The first study in the BE describing vegetation in relation to grizzly bear habitat was conducted by Scaggs in 1979. His study was conducted on a 40 square mile area within the Selway-Bitterroot Wilderness. Vegetation in ecological land types and forest habitat types of the subalpine and temperate zones were sampled to evaluate grizzly bear habitat. The evaluation was based on the abundance of grizzly bear food plants in relation to land area. The study area was rated as good grizzly bear habitat from the standpoint of vegetation and the vegetation was not a limiting factor affecting bear numbers according to the author. His study area however was small and represented only high elevational range. He indicated that further research was needed to better identify bear foods and relative nutritional values (Scaggs 1979).

Butterfield and Almack (1985) also evaluated grizzly bear habitat in the Selway-Bitterroot Wilderness Area. Their survey consisted of classifying floristically distinct plant communities identified in 5 sub-areas that represented the diversity of vegetation in the Selway-Bitterroot Wilderness Area. By intensive sampling, they described topographical and vegetal characteristics, and identified potential grizzly bear foods in each habitat class. They concluded that the, "area exhibits great environmental diversity", and identified 25 habitat classes that provided a wide range of grizzly bear life requisites including; denning sites, cover, and a rich, consistent supply of seasonally available foods. They felt the BE satisfied the habitat criteria essential to the maintenance of a viable grizzly bear population, and rated the BE as an "ecologically superior area for grizzly bear recovery". Based on the Craighead et al. (1982) essential criteria for grizzly bear habitat which consist of space, isolation, sanitation, denning, safety, vegetation types, and food, the authors stated "the BE more than satisfies these habitat criteria".

Davis and Butterfield (1991) conducted the most comprehensive review of grizzly bear habitat in the BE to date. Their 5-year study was conducted to evaluate habitat quality within the 1.4 million hectare (5,500 square mile) Bitterroot Evaluation Area (BEA) of the Bitterroot Mountains in Idaho and Montana (see Figure 3-6). They constructed a geographic information system (GIS) containing 13 map layers: 1) evaluation area boundaries; 2) USDA Forest Service administrative units; 3) wilderness areas; 4) land ownership; 5) roads; 6) trails; 7) hydrology; 8) elevation; 9) aspect; 10) slope; 11) watershed basins; 12) potential spring habitat; and 13) land cover. Ecodata plots using USDA Forest Service sampling techniques were conducted across the BEA. These plot data were analyzed to classify three major ecological zones and 15 land cover classes, resulting in 37

ecological land cover classes and associated structural and vegetal characteristics. They discussed the suitability of the BEA for grizzly bear habitat using the Craighead et al. (1982) criteria, and concluded that biological factors related to space, isolation, denning, vegetation types, and food were adequate for grizzly bear recovery. The Davis and Butterfield (1991) conclusions are summarized below:

Space and Isolation - Davis and Butterfield concluded that the, "BEA falls well within the space requirements for grizzly bears when compared to other ecosystems with known grizzly bear populations", and affords adequate isolation from human developments and activities from summer through winter. Because both humans and bears tend to use snow free, lower elevations during spring, however, the authors cautioned that spring grizzly bear range could present potential areas of bear-human conflicts. Davis and Butterfield estimated that the BEA contains substantial and adequate amounts (231,960 ha) of spring range mainly along the Selway, Lochsa, and North Fork of the Clearwater River valleys. Although access to the Selway River is restricted during spring, affording good isolation, spring range along the Lochsa River is bisected by U.S. Highway 12 presenting potential bear-human conflicts. The authors also recognized that substantial historic spring range exists adjacent to the BEA and caution that this area (i.e. Bitterroot and Clearwater Valleys) could also become areas of potential bear-human conflict in the future with a recovered grizzly bear population in the BE.

Vegetation types and foods - Davis and Butterfield, Butterfield and Almack, and Scaggs all identified a wide variety of vegetation types comparable to occupied habitat in other grizzly bear ecosystems, well distributed throughout the BEA. The authors concluded these habitats would support adequate sources of known grizzly bear foods including elk and deer, small mammals, herbaceous vegetation and tubers, and fruits and nuts. These studies showed that over 60% of known herbaceous, and nearly 80% of known fruit and nut food items consumed by grizzly bears still occur in the BEA.

Sanitation and safety - Davis and Butterfield identified three sources of artificial food for grizzly bears that would have to be addressed to reduce bear-human interactions: 1) recreational backcountry user camps; 2) hunting and outfitter camps; and 3) human habitations mainly along the Lochsa River.

Davis and Butterfield identified accidental killing of grizzly bears during the spring black bear and fall elk and deer hunting season, and direct poaching as potential mortality factors that could be detrimental to grizzly bear recovery. The authors identified the practice of hunting black bears over bait and chasing black bears with hounds could potentially lead to human-bear interaction, and represent a "major threat to grizzly bear recovery". The authors recommend a committed hunter education effort to gain the cooperation of local hunters and other resource users, and cautioned that changes in some hunting practices may be necessary for successful grizzly bear recovery.

Technical Review of Habitat Studies

In 1991, a Technical Review Team (Servheen et al. 1991) analyzed the Davis and Butterfield (1991) report and other available information. The team was comprised of experienced grizzly bear biologists and habitat specialists with no direct involvement in the evaluation process. They were charged with evaluating habitat and space values of the BEA. It was the opinion of the Technical Team that the BEA contained the physical attributes to sustain a viable grizzly population of between 200-400 bears.

Concerns Related to Habitat Suitability

Salmon. -- Despite the availability of diverse and abundant bear foods, some believe that one reason for the demise of the grizzly bear population in the Bitterroot Ecosystem may have been the elimination of historic salmon runs (Moore 1984, 1996). Based on genetic sampling of 2 samples of grizzly bear material supposedly collected in the north central portion of Idaho between 1840 and 1940, fish apparently constituted 54 and 90 percent of the carbon and nitrogen absorbed in their diet (Hilderbrand et al. 1996). Obviously a larger sample size of bear material collected in Idaho would be necessary to determine the importance of fish to grizzly bears in the BE. Where fish were available they probably supplied a large portion of the bears dietary protein needs. However, based on studies in Alaska, even where salmon are locally abundant along coastal areas, not all bears use the fisheries resource. Schoen et al. (1986) indicated that a large segment of the bears inhabiting upper elevations on Admiralty Island never fished for salmon. Similar resource partitioning was probably apparent in the BE. Moore (1984, 1996) indicated that bears existed in the BE fully 20 years after the salmon had been cut off due to dams on the Clearwater River. Wright (1909) indicated that although he observed grizzly bears in the Selkirk Mountains ravenously consuming a specific plant, they didn't feed on it in the Bitterroot Mountains although it was readily abundant. He noted that bears in different areas fed on different plants. Current research supports these observations, and the theory that feeding on specific items is a learned behavior.

Brostrom (1996) indicated that although salmon are no longer widely available in the BE, other fish species such as cutthroat trout and kokanee salmon may provide some supplemental food for grizzly bears (see attached paper). However, anadromous fish would not be readily available every year, and would only be supplemental at best as spawner carcasses. Many populations of grizzly bears exist today that have never used anadromous fish runs as a dietary supplement. Hilderbrand et al. (1996) found that where fish were not readily available in Montana and Wyoming, plant and animal matter constituted the majority of protein requirements of grizzly bears.

Whitebark Pine. -- Whitebark pine status and distribution has been studied fairly extensively in the last decade. Keane and Arno (1996) summarized the status and distribution of whitebark pine in the Bitterroot Ecosystem (see attached paper). They indicated that historically whitebark pine was a major species across 12-15 percent of the forest landscape and was considered an important nutritional and structural component of wildlife habitat. In the Yellowstone Ecosystem, whitebark pine is a very important food component of the grizzly bear's diet (Mattson and Reinhart 1994).

Whitebark pine has been reduced to about 20-40% of its original abundance in the BE and now is most prevalent in the southern half of the ecosystem. Due to whitebark pine blister rust, the authors felt that the species will probably continue to decline to about 5-10% of its historical abundance before leveling off and then increasing. Whitebark pine would become an increasingly insignificant food source for the grizzly bears in the BE for the next few decades in some areas, but would increase in abundance following proper fire management in other areas. Some researchers indicate that in areas like the BE that are strongly influenced by maritime climates, whitebark pine is not a significant food source for bears, and berry species are probably more valuable (Mattson and Rinehart 1994, Tisch 1961, and others).

Big Game. -- Big game numbers reached their peak through most of the BE during the late 1980's and have recently increased in the southern part of the Primary Analysis Area and decreased in the north (Kuck 1998). Based on historical accounts, elk and deer numbers in Idaho were considerably lower at the turn of the century than they are today. Game numbers have increased as a result of extensive fires, timber harvest, low snow winters, and controlled harvest. Because of the increased availability of game, grizzly bears may use protein provided by game carcasses during the spring and fall to constitute part of the necessary dietary nitrogen that may have been previously provided by anadromous fish during those critical periods. Big game winter range occurs within the boundaries of the wilderness, and early spring game die-offs that usually occur following average snow pack years would be available for bears upon den emergence. Hunter wounding losses during the fall hunting season may also provide some carrion, as would carcasses confiscated from other predators, and occasional animals predated upon by bears.

Other Research

Current habitat research continues and data are being collected and analyzed to more closely evaluate habitat quality in the BE. Merrill et al. (1999) are conducting research to rate habitat based on road densities, distance to population centers, and bear food quality and seasonal availability. Their mapping technique indicates suitable bear habitat exists within portions of the BE. Most of the identified suitable habitat is concentrated in the roadless central mountains. Their research indicates grizzly bears have the greatest chances of surviving and reproducing in western portions of the Bitterroot Evaluation Area (BEA) and in the area stretching from the Sawtooth Mountains Range to the South Fork of the Salmon River. They caution their results are dependent on protection of reintroduced grizzly bears from direct mortality comparable to that provided bears in other recovery areas. Intensive GIS mapping efforts and ground truthing have been conducted throughout the central Idaho area by the University of Montana. These data are available and are being further analyzed by several different scientists for grizzly bear habitat quality in the BE. Appendix 21 contains results of the most current research studies pertaining to habitat quality and suitability for grizzly bear recovery in the Bitterroot Ecosystem.

Summary

Most authors agree that although the habitat appears to provide ample requirements for grizzly bears, the only way to determine true habitat effectiveness is to monitor bears using the habitat. Grizzly bears are remarkably adaptive and occupy a variety of habitats ranging from the high quality habitat available along the Alaska and British Columbia coastal zones, to the Gobi desert of China. Habitats vary considerably even within ecosystems and bears learn to adapt to those foods and their availability. Approximately 12,000 black bears are estimated to live within the BE Primary Analysis Area, and the known diets of black and grizzly bears are not that different. Most authors also agree that successful bear recovery will be determined by the level of human caused mortality. Grizzly bears can live within the boundaries of the BE, but their densities will likely be less than what could have been supported when both salmon and whitebark pine were common.

Literature Cited

Brostrom, J. 1996. Anadromous and resident fisheries status in the Bitterroot Grizzly bear ecosystem, Idaho. Idaho Department of Fish and Game unpubl. report. Lewiston, Ida. 5pp.

Butterfield, B. R. and J. Almack. 1985. Evaluation of grizzly bear habitat in the Selway-Bitterroot Wilderness Area. Idaho Department of Fish and Game Project No. 04-78-719. Cooperative Fish and Wildlife Research Unit, Univ. of Idaho, Moscow. 66pp.

Craighead, J. J., J. S. Sumner, and G. B. Scaggs. 1982. A definite system for analysis of grizzly bear habitat and other wilderness resources. Wildlife-Wildlands Institute Monograph No. 1. University of Montana Foundation. University of Montana, Missoula, Mont. 279pp.

Davis, D. and B. Butterfield. 1991. The Bitterroot grizzly bear evaluation area: a report to the Bitterroot Technical Review Team. Interagency Grizzly Bear Committee, Denver, Colo. 56 pp.

Hilderbrand, G. V., S. D. Farley, C. T. Robbins, T. A. Hanley, K. Titus, and C. Servheen. 1996. Use of stable isotopes to determine diets of living and extinct bears. Can. J. Zool. 74:2080-2088.

Keane, E. R., and S. F. Arno. 1996. Whitebark Pine (*Pinus albicaulis*) in the Selway-Bitterroot Wilderness Complex: ecology, distribution and health. USDA Forest Service unpubl. report. Intermountain Research Station, Missoula, MT. 7pp.

Kuck, L., ed. 1998. Idaho Department of Fish and Game statewide surveys and inventory: elk. Project W-170-R-19. Prog. Rep. Study I, Job 1. Boise, Idaho. 318pp.

Mattson, D. J., and D. P. Reinhart. 1994. Bear use of whitebark pine seeds in North America. Pages 212-220 *in* Proceedings - International workshop on subalpine stone pines and their environment: the status of our knowledge. Sept., 1992, St. Moritz, Switzerland. USDA Forest Service Tech. Rep. INT-GTR-309.

Merrill, T., D. J. Mattson, R. G. Wright, and H. B. Quigley. 1999. Defining landscapes suitable for restoration of grizzly bears *Ursus arctos* in Idaho. Biological Conservation 86: 231-248.

Moore, W. R. 1984. Last of the Bitterroot grizzly. Montana Magazine (November-December): 8-12.

Moore, W. R. 1996. The Lochsa story. Mountain Publishing Co., Missoula, Mont. 461pp.

Scaggs, G. B. 1979. Vegetation description of potential grizzly bear habitat in the Selway-Bitterroot Wilderness Area, Montana and Idaho. MS. Thesis. Univ. of Montana, Missoula. 148pp.

Schoen, J. W., J. Lentfer, and L. Beier. 1986. Differential distribution of brown bears on Admiralty Island, southeast Alaska: a preliminary assessment. *In* Int. Conf. Bear Res. and Manage. 6:1-5.

Servheen, C., A. Hamilton, R. Knight, B. McLellan. 1991. Report of the technical review team: Evaluation of the Bitterroot and North Cascades to sustain viable grizzly bear populations. Rep. to the Interagency Grizzly Bear Committee. U. S. Fish and Wildl. Serv., Boise, Ida. 9pp.

Tisch, E. L. 1961. Seasonal food habits of the black bear in the Whitefish Range of northwest Montana. M.S. Thesis, Univ. of Mont., Missoula. 108pp.

Wright, W. H. 1909. The grizzly bear. Charles Scribner's Sons, N.Y. 274pp.

APPENDIX 3A. Anadromous and resident fisheries status in the Bitterroot Grizzly Bear Ecosystem, Idaho.

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Historical Overview

The two major drainages in the Bitterroot Ecosystem, the Clearwater River and Salmon River, once contained an abundant and diverse community of fish resources. Anadromous species of fish present were three races of chinook salmon (*Oncorhynchus tshawytsha* (Walbaum)), steelhead trout (*O. mykiss*), coho salmon (*O. kisutch)*, sockeye salmon (*O. nerka*) and Pacific lamprey (*Lampetra tridentata*). Resident native fish included cutthroat trout (*O. clarki*), rainbow trout (*O. mykiss*), bull trout (*Salvelinus confluentus*), mountain whitefish (*Prosopium williamsoni*), northern squawfish (*Ptychocheilus oregonensis*), redside shiner (*Richardsonius balteatus*), and several species of sculpin (*Cottus* spp.), dace (*Rhinichthys* spp.), and suckers (*Catostomus* spp.). All species still exist in the ecosystem, but many are at reduced or remnant levels, and chinook salmon, steelhead trout and bull trout have been eliminated from much of their historic range.

Idaho once produced an estimated 39% of the total spring chinook salmon, 45% of the total summer chinook salmon, 5% of the total fall chinook salmon, and 55% of the total summer steelhead in the Columbia River Basin (Mallet 1974). The Clearwater River drainage likely produced over 26% of Idaho's chinook salmon, and 28% of the summer steelhead entering Idaho. Chapman (1981) estimated that the number of adult spring chinook salmon entering the Clearwater River drainage in pristine conditions at 87,433.

The Nez Perce, primary inhabitants of the Clearwater River drainage prior to the arrival of European man, were predominantly a tribe of fisherman, and consequently the anadromous runs of chinook salmon and steelhead trout were able to support a large number of villages along the river corridor (Lane et al. 1981). Fish comprised 36-45% of the Nez Perce diet, and were also an important trade item. Salmon were the predominant species, but steelhead trout, salmon trout (probably large resident rainbow trout), other trout, lamprey and other fish were also used. As the influence of European man spread, the loss of other food sources such as camas root, big and small game occurred and fish became even more important for subsistence of the Nez Perce. Major fishing villages were along the mainstem Clearwater River corridor, but other important fishing sites were in headwater areas of the Selway, Lochsa and North Fork Clearwater rivers and used in conjunction with seasonal hunting and gathering trips (Lane et al. 1981).

The Salmon River drainage was inhabited or used for food gathering by the Nez Perce and the Shoshone tribes and the Bannock band of the Northern Paiute (Jones 1990). A Shoshone band

known as the Sheepeaters were widely dispersed throughout the mountains surrounding the Salmon River. While primarily hunters, they occasionally wintered at the confluence of the Snake and Salmon rivers with the Nez Perce to fish. The Whitebird band of the Nez Perce used the Little Salmon River and the lower Salmon River as their primary fishing grounds. In early summer, Shoshone from the Boise-Weiser country, along with other Idaho tribes, traveled to the Camas Prairie to collect and dry roots and bulbs. Fish were taken in the fall and big game was hunted in the surrounding mountains as far as the headwaters of the Salmon River (Murphy 1960, in Jones 1990).

Settlers and miners arriving in Idaho also took advantage of the abundant fishery resources, and tales of spearing hundreds of fish with pitchforks were not uncommon. Salmon and steelhead provided sustenance for miners from the headwaters of the Salmon River, downstream to the Snake River, and in the South Fork Clearwater drainage.

Recent Impacts and Restoration Efforts

Habitat changes through land use activities, hydropower development, fish passage problems, drought, ocean conditions, commercial fisheries and exotic species introductions have all had a negative effect on the size of salmon and steelhead runs returning to Idaho over at least the last thirty years (Figure 6-1). These impacts have reduced the size of chinook salmon runs in Idaho to a remnant of their historic levels. While steelhead trout numbers have been bolstered by hatchery production, the number of wild steelhead has also severely declined. Fish numbers have remained at low levels since the last two Snake River dams were completed in the late 1960's and early 1970's. Spring and summer chinook salmon in the Snake and Salmon River drainages are listed as threatened under the Endangered Species Act (ESA), as are fall chinook statewide. Sockeye salmon are listed as endangered. All Idaho wild steelhead trout are listed as threatened under the ESA, as are bull trout. Coho salmon were declared extinct in Idaho in 1986. All native trout are considered species of special concern by the State of Idaho.

Sportfishing in streams within the Idaho portion of the Bitterroot Ecosystem are currently managed under a variety of regulations, depending on what species are present and the protection needed to maintain populations. The most liberal limit is 6 trout, no size or gear restrictions, and occurs in waters where hatchery fish are stocked. Most wild steelhead trout waters have a 2 trout limit or are catch and release. There has been no general harvest of chinook salmon allowed Idaho since 1978, and only a few special seasons allowing harvest of hatchery salmon have occurred since then.

Clearwater Drainage -- Dams built at Harpster in 1910 (South Fork Clearwater) and at Lewiston in 1923 (mainstem Clearwater) eliminated the chinook salmon runs into the Clearwater drainage, and severely impacted or eliminated steelhead trout runs during low water years. Dworshak Dam, completed in 1971 on the North Fork Clearwater River, eliminated 627 miles of productive salmon and steelhead trout spawning and rearing habitat (Mallet 1974). After the removal of the Harpster Dam in 1963, and the Lewiston Dam in 1973, efforts were made to restore chinook salmon and

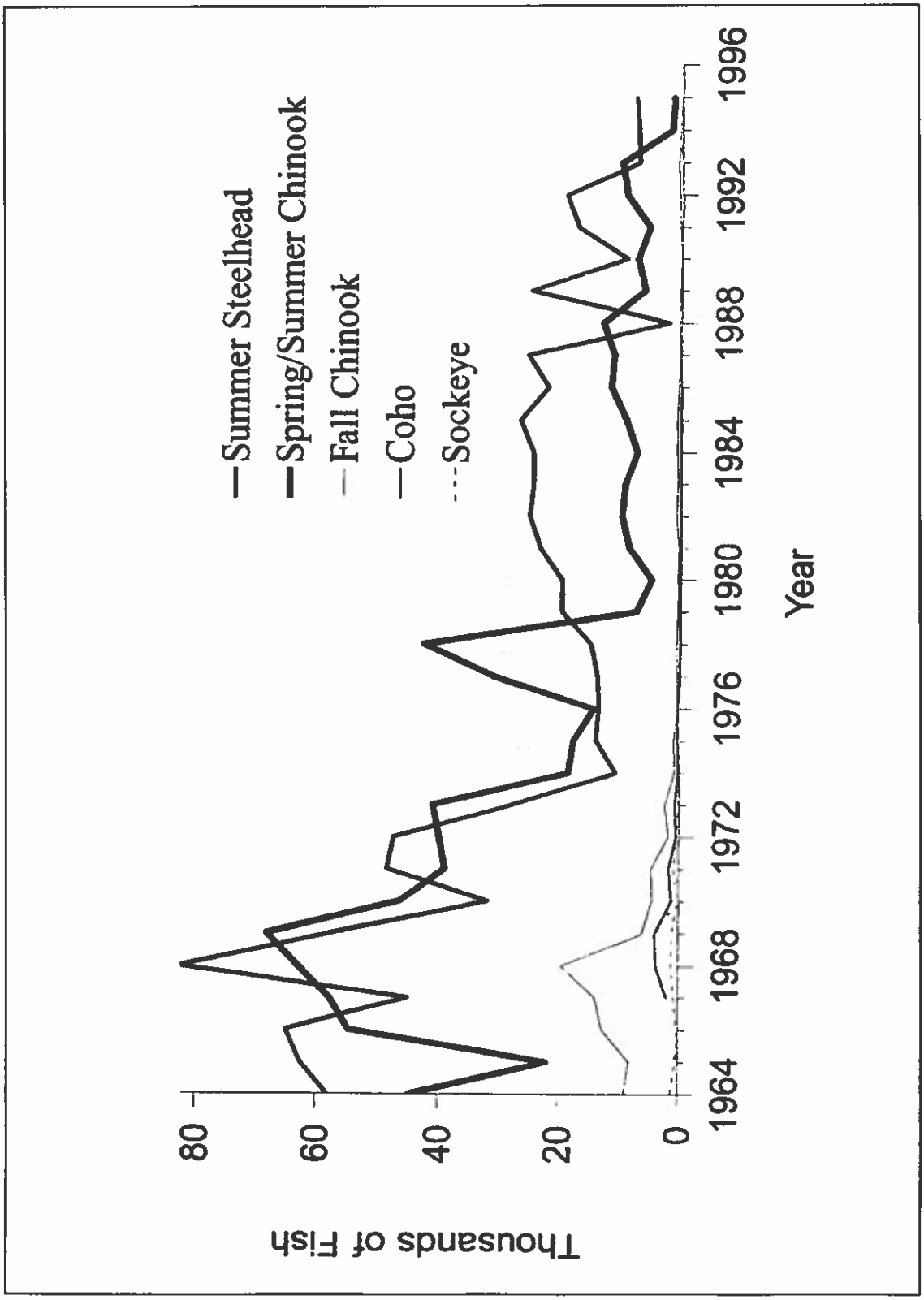


Figure 6-1. Adult returns of wild salmon and steelhead trout to the uppermost dam on the lower Snake River, 1964-1995. Uppermost dam was: Ice Harbor from 1964-68; Lower Monumental during 1969; Little Goose from 1970-74; and Lower Granite from 1975-95.

steelhead trout runs into the Clearwater Basin using hatchery stock. Presently, the Clearwater River drainage has 1,248 miles of stream available to anadromous fish, in various conditions of habitat quality (Mallet 1974). Two federally run hatcheries and one state run hatchery exist on the Clearwater River to help restore chinook salmon and steelhead trout numbers into the Clearwater drainage. The Nez Perce Tribe is actively trying to restore fall chinook and coho salmon into the lower portions of the Clearwater drainage.

After Dworshak Dam was completed, kokanee salmon (*O. nerka*) were stocked from 1971 - 1979 to provide a sport fishery in the reservoir. The population has fluctuated over the years due to changes in nutrient levels and hydroelectric power generation, but in some years spawner counts have totaled over 39,000 fish.

Salmon River Drainage -- The Salmon River drainage is the largest subbasin in the Columbia River drainage, excluding the Snake River, and has the most stream miles of habitat available to anadromous fish (IDFG et al. 1991). The total watershed is just over 14,000 square miles. With the exception of Sunbeam Mine Dam which blocked passage upstream of Yankee Fork from 1913-1934, the Salmon River has not been impacted by dams like the Clearwater River has. Although a majority of the habitat still available is high quality, logging, dredge mining, road building, intensive grazing and irrigation withdrawals have degraded many streams. Federal, state, tribal and private interests have recently come together in many areas to help restore the habitat quality through changes in agricultural practices, and instream and riparian enhancement. Several hatcheries raise both chinook salmon and steelhead trout for release into the Salmon River drainage to bolster natural populations.

Prospectus

Anadromous Fish -- Although habitat needs protection and improvement in localized areas, spawning and rearing habitat for natural production is of ample quantity and quality to allow for increased production. The Clearwater and Salmon drainage subbasin plans (1990) state that high juvenile mortality associated with eight downstream Snake and Columbia hydroelectric projects is a major factor inhibiting increased production of anadromous fish in Idaho. Until downstream migration problems are resolved, it is unlikely Idaho will ever have runs of historic size returning, and will continue to see numbers of fish at current or lower levels.

Resident Fish -- Resident fish populations have been impacted by the same land use activities as anadromous fish, with the exception of dams. State and federal management agencies continue to make efforts to restore and enhance habitat and prevent over harvest of populations. While native fish are not distributed as they once were historically, they are currently holding their own in most cases.

Food Potential For Grizzly Bears

Anadromous fish, particularly chinook salmon, likely once provided an abundant and important food source to grizzly bears in the Bitterroot Ecosystem. Concentrations of salmon adults at migration

impediments and spawner carcasses throughout the ecosystem were ready sources of food during the summer and fall. Steelhead trout runs were probably of lesser values since their migration and spawning times coincided with high water levels. Runs of salmon at current levels would continue to provide a source of food through spawner carcasses, but these would be more on an incidental basis because spawners are widely distributed due to very low numbers. Anadromous fish would not be a readily available resource every year, and would only be supplemental at best.

It is unknown how large a role resident fish played in providing a food source. Bull trout and cutthroat spawners could be utilized by bears in the fall and late spring, respectively during their spawning runs. Distribution of these fish are mostly in the more pristine headwater areas of the ecosystem, and also would only be a supplemental part of the grizzly bear diet. Concentrations of kokanee salmon in the North Fork Clearwater River drainage may provide a more abundant food source if populations remain at current levels.

Literature Cited

Mallet, J. 1974. Inventory of Salmon and Steelhead Resources, Habitat, Use and Demands. Idaho Department of Fish and Game, Job Performance Report Project F-58-R-1.

Chapman, D.W. 1981. Pristine Production of Anadromous Salmonids - Clearwater River. A report prepared for the Bureau of Indian Affairs, Final Report Contract P00C14206449.

Lane and Lane Associates, and D. Nash. 1981. The Clearwater Indian Fisheries and Lewiston Dam. A report prepared for the Bureau of Indian Affairs. USDI, Portland, Oregon.

Jones, M. 1990. Native Americans of the Payette National Forest. Cultural Resource Management Program, Payette National Forest.

Idaho Department of Fish and Game, Nez Perce Tribe of Idaho, and Shoshone-Bannock Tribes of Fort Hall. 1990. Salmon River subbasin salmon and steelhead production plan. Prepared for: Northwest Power Planning Council, Portland, Oregon.

Nez Perce Tribe of Idaho and Idaho Department of Fish and Game. 1990. Clearwater River subbasin salmon and steelhead production plan. Prepared for: Northwest Power Planning Council, Portland, Oregon.

APPENDIX 3B. Whitebark Pine (Pinus albicaulis) in the Selway Bitterroot Wilderness Complex: Ecology, Distribution and Health

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Introduction

Whitebark pine (Pinus albicaulis) is considered to be a keystone species of upper subalpine forests of the northern Rocky Mountains (Schmidt and McDonald 1990). It is an important nutritional and structural component of wildlife habitat (Arno and Hoff 1990; Schmidt and McDonald 1990). Its large, nut-like seeds are a major food source for many birds and mammals (around 105 species) including squirrels, black and grizzly bears, and Clark's nutcrackers (Hutchins and Lanner 1982). Whitebark pine protects watersheds by stabilizing soil and rock on the harshest sites and by catching and retaining snowpack. Historically whitebark pine was a major species on 10-15 percent of the forest landscape in western Montana and central Idaho (Arno 1986). Therefore its perpetuation is of concern for maintaining natural biodiversity and landscape structure. This paper will summarize the ecology, distribution, abundance for historical, present and future whitebark pine forests in the Selway-Bitterroot Wilderness Complex (SBWC) of central Idaho and west-central Montana. This summary will be in the context of reintroducing the grizzly bear into this diverse wilderness.

Ecology

Whitebark pine is typically a major seral species in the SBWC upper subalpine. In the absence of disturbance, whitebark pine is eventually replaced by the more shade-tolerant subalpine fir and Engelmann spruce in most of the area, but it can form nearly pure climax stands on many high, droughty ridgetops, especially above 8,000 feet elevation (Pfister and others 1977). The Clark's nutcracker (Nucifraga columbiana) plays a critical role in the whitebark pine regeneration process because this bird is essentially the only dispersal vector for the heavy, wingless, nut-like seed (Tomback 1982). A single nutcracker can store over 100,000 seeds in 8,000 to 15,000 caches of 1-22 seeds buried about 1-2 cm into the ground for distances up to 15 kilometers (Tomback 1982, Hutchins and Lanner 1982). The bird reclaims much of the seed but a large proportion are left to geminate. These seedlings eventually form the whitebark pine forests that were so prevalent on the landscape prior to 1960.

Large, stand-replacement fires are common in the SBWC. The great seed dispersal distances provided by the nutcracker allow whitebark pine a competitive advantage in colonizing the large areas burned by these fires (Tomback and others 1990). Also, Clark's nutcrackers prefer open, burned areas to cache whitebark pine seeds (Tomback and others 1990). Some whitebark pine stands

in higher and drier areas contain evidence of less severe, more frequent surface fires (Arno 1986). These low intensity fires tend to kill most competing conifer species, especially subalpine fir, thereby favoring the somewhat fire-resistant whitebark pine (Arno 1986). Whitebark pine is able to survive low severity fires better than its competitors because it has thicker bark, deeper roots and a high, open crown providing little fuel on the ground. Whitebark pine may also be more resistant to heat than fir or spruce.

Whitebark pine seeds are an important grizzly bear food where the two species coexist. Mattson and others (1991) found whitebark pine seed accounted for over 40% of the diet of Yellowstone grizzly bears. The size of the whitebark pine cone crop has been positively correlated to post-hibernation survival, number of twins, and pre-hibernation health of grizzly bears. Moreover, large whitebark pine cone crops have enticed the grizzly bear to spend the majority of the late summer in the high elevation areas away from the areas heavily used and occupied by humans. The bears obtain most whitebark pine seed from excavation of middens of whitebark pine cones cached by squirrels on the ground (Kendall 1980).

Distribution

Whitebark pine was the major component on the historical SBWC upper subalpine landscape. It was the principal forest component above 6800 feet elevation on most aspects and slopes. On this basis, it used to dominate 15-20 percent of the pre-1900 SBWC landscape. Today, whitebark pine occurrence has shrunk dramatically. It is rarely a major forest component north of 46°N latitude (north of Grangeville, ID and Darby, MT) in the SBWC. In the southern and eastern portions of the SBWC, blister rust-induced mortality is less severe, but successional replacement by subalpine fir and Engelmann spruce has generally pushed the lower elevational limit of the whitebark pine forest to 800 feet higher than it was in the early 1900's (Arno and others 1993).

Status and Health

Personal observations by the authors indicate whitebark pine is at approximately 20-40% of its pre-1900 abundance in the SBWC. A rapid decline in whitebark pine has occurred during the last 60 years as a result of three interrelated factors: 1) epidemics of mountain pine beetle (Dendroctonus ponderosae); 2) the introduced disease white pine blister rust (Cronartium ribicola); and 3) successional replacement by shade-tolerant conifers, specifically subalpine fir (Abies lasiocarpa) and Engelmann spruce (Picea engelmannii), as a result of fire exclusion policies of the last 60-80 years (Kendall and Arno 1990, Keane and Arno 1993, Ciesla and Furniss 1986).

An extensive beetle epidemic occurred during the late 1920's and early 1930's across the SBWC (Arno 1970, Arno 1976). This epidemic killed most of the mature whitebark pine trees over large areas. The result was accelerated succession to subalpine fir (Keane and Arno 1993). Beetles also seem to play the role of secondary colonizer, attacking and killing already stressed pines, especially those pines being killed by blister rust or other agents.

The exotic white pine blister rust, introduced to the western US around 1910, has killed most of the mature whitebark pine in the northern and western portions of the SBWC (Keane and Arno 1993, Keane et al. 1993, Kendall and Arno 1990). This disease requires an alternate host of gooseberry or currant (Ribes spp.) shrubs to complete its life cycle (Colley 1918, McDonald et al. 1981). Whitebark pine cone production is severely reduced by a rust epidemic because blister rust kills the top-most, cone-bearing branches first before ultimately killing the entire tree after 10-20 years.

The current prescribed natural fire program for the SBWC, covering most of the area since 1979, allows fire to return to a more natural role in maintaining SBWC ecosystem integrity (USDA Forest Service 1990). However, historical fire management policies from the 1930's through 1978 excluded fire from most of the SBWC landscape. Moreover, Brown and others (1994) found that the SBWC prescribed natural fire program has not burned enough area in the whitebark pine forests to mimic historical fire occurrences. Fire is essential for whitebark pine regeneration because nutcrackers do not like to cache seed under a thick forest canopy (Tomback 1982) and whitebark pine is not a shade tolerant species. Therefore, fire is vital to the maintenance of whitebark pine on the SBWC landscape (Keane and others 1990).

Prognosis

Based on field data, personal observations and simulation model results, it can be assumed that the whitebark pine population in the SBWC will continue to decline because of the blister rust to perhaps 5-10% of its original extent (Keane and Arno 1993, Keane and others 1990, Arno 1986, Arno and others 1993). The combination of the three damaging agents (beetles, rust and fire exclusion) has and will continue to accelerate this decline of whitebark pine. High elevation ridgetops, constituting about 5% of SBWC whitebark pine forests, will probably experience slow rates of rust mortality, presumably because the rust has a difficult time completing its life cycle in the most severe microclimates. There seems to be between 1-8% rust resistance in northern Rocky Mountain whitebark pine populations so it is doubtful that whitebark pine will ever be entirely eliminated by blister rust (Hoff and others 1980). However, the removal of whitebark pine as important ecosystem component and wildlife resource has already occurred in much of the northern, western and central SBWC, and this decline appears to be advancing southward and eastward at a perceptible rate (Keane and Arno 1993). The suppression of wildland fire from the SBWC landscape will exacerbate the decline by decreasing the potential for whitebark pine regeneration from rust-resistant trees.

In summary, whitebark pine populations will probably be reduced to approximately 5-10% of their historical numbers. This could be disastrous to subsequent whitebark pine regeneration because nutcrackers will eat much more than they will cache when there are limited cone-bearing individuals (Tomback 1982, Tomback and others 1990). This may mean that whitebark pine will be an increasingly insignificant food source for grizzly bears because squirrels probably will not harvest substantial amounts of cones, and what little that are harvested will be utilized immediately by the squirrels and not stored in middens.

In conclusion, it would seem that a program to restore whitebark pine on the SBWC landscape would be extremely beneficial to a grizzly bear restoration program. Techniques currently being studied for restoring damaged whitebark pine communities include cutting trees that compete with whitebark pine, prescribed burning and planting of rust resistant seedlings. These studies are being conducted in areas near and adjacent to the SBWC (Keane and Arno 1996). However, the single most important action we can do to maintain this species on the landscape is to return fire to the landscape. This will create ideal nutcracker caching habitat thus insuring future whitebark pine regeneration. The ensuing whitebark pine regeneration will most likely come from trees that have some degree of rust resistance. This is especially true when most overstory trees have already been killed by the rust and thus the surviving trees are likely to be rust-resistant.

Literature Cited

Arno, S. 1986. Whitebark pine cone crops--a diminishing source of wildlife food? W. Jour. of Applied Forestry 1:92-94.

_____ and R. Hoff. 1990. Pinus albicaulis Engelm. Whitebark Pine. pp. 268-279. In: Silvics of North America. Vol. I. Conifers. USDA For. Serv., Agr. Handbook 654.

_____, E. Reinhardt, and J. Scott. 1993. Forest structure and landscape patterns in the subalpine lodgepole pine type: A procedure for quantifying past and present conditions. USDA For. Serv., Gen. Tech. Rep. INT-294.

Brown, J. K., S. F. Arno, S. W. Barrett, and J. P. Menakis. 1994. Comparing the prescribed natural fire program with presettlement fires in the Selway-Bitterroot Wilderness. Int. J. Wildland Fire 4(3):157-168.

Ciesla, W. M., and M. M. Furnish. 1986. Idaho's haunted forests. American Forests 81(8):32-35.

Colles, R. H. 1918. Parasitism, morphology and cytology of Cronartium ribicola. Journal of Agricultural Research 15(12):619-660.

Hoff, R., R. Bingham, and G. J. Macdonald. 1980. Relative blister rust resistance of white pines. European Journal of Forest Pathology 10:307-316.

Hutchins, H. E. and R. M. Lanner. 1982. The central role of Clark's nutcrackers in the dispersal and establishment of whitebark pine. Oecologia, 55:192-201.

Keane, R., S. Arno, J. Brown, and D. Tomback. 1990. Modeling disturbances and conifer succession in whitebark pine forests. Pages 274-288 *In* Proceedings, symposium: Whitebark pine ecosystems--ecology and management of a high mountain resource. USDA For. Serv., Gen. Tech. Rep. INT-270.

_____ and S. Arno. 1993. Rapid decline of whitebark pine in western Montana: Evidence from 20-year remeasurements. W. Jour. of Applied Forestry 8(2):44-47.

_____ and S. F. Arno. 1996. Whitebark pine ecosystem restoration in western Montana. *In*: S. Arno and C. Hardy (editors), Proceedings of a conference - Restoring fire to ecosystems. Proceedings of a conference (In press).

Kendall, K. C. 1980. Bear-squirrel-pine nut interaction. *In* Yellowstone grizzly bear investigations. Annual Report 1978-1979. USDI Nat. Park Serv. Pp. 51-60.

_____, and S. F. Arno. 1990. Whitebark pine--an important but endangered wildlife resource. Proceedings of the symposium: Whitebark pine ecosystems: Ecology and management of a high mountain resource, March 29-31, 1989, Bozeman, Montana, USA. USDA For. Serv. Gen. Tech. Rep. INT-270. Pp. 264-274.

Mattson, D. J., B. M. Blanchard, and R. R. Knight. 1991. Food habits of Yellowstone grizzly bears, 1977-1987. Canadian Journal of Zoology 9:1619-1629.

McDonald, G. I., R. J. Hoff, and W. R. Wykoff. 1981. Computer simulation of white pine blister rust epidemics I. Model formulation. USDA Forest Service Research Paper INT-258. 136pp.

Pfister, R. D., B. Kovalchik, S. Arno, and R. Presby. 1977. Forest habitat types of Montana. USDA For. Serv., Gen. Tech. Rep. INT-34. 174 p.

Schmidt, W. and K. McDonald, compilers. 1990. Proceedings -- Symposium on whitebark pine ecosystems: ecology and management of a high-mountain resource. USDA For. Serv., Gen. Tech. Rep. INT-270. 386 p.

Tomback, D. F. 1982. Dispersal of whitebark pine seeds by Clark's nutcracker: a mutualism hypothesis. J. of Animal Ecol. 51:451-467.

_____, L. A. Hoffman, and S. K. Sund. 1990. Coevolution of whitebark pine and nutcrackers: Implications for forest regeneration. In: Proceedings of the symposium: Whitebark pine ecosystems: Ecology and management of a high mountain resource, March 29-31, 1989, Bozeman, MT. Gen. Tech. Rep. INT-270. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Research Station: 118-130.

APPENDIX 4. HISTORICAL EVIDENCE AND CURRENT STATUS OF GRIZZLY BEARS IN THE BITTERROOT ECOSYSTEM

Historical Status. -- Grizzly bears were once common in the Bitterroot Mountains. Historical evidence of their existence and abundance is clear in oral accounts of local Indian tribes including the Nez Perce Indians in the north and Shoban Indians in the southern part of the Primary Analysis Area, as well as numerous written accounts by explorers, hunters, and historians. Nez Perce dictionaries indicate the term for grizzly bear was Xaxat, and the grizzly bear is common in their stories and legends. Merriweather Lewis while traveling through and visiting with Nez Perce Indians wrote that the Indians considered the grizzly bear "tremendious animals to them; they esteem the act of killing a bear equally great with that of an enimy in the field of action". Clark wrote: " The Indians of this country seldom kill the bear they are very much afraid of them and killing of a White or Grizly bear is as great a feet as two of their enimey. The fiew of those animals which they chance to kill is found in the leavel open lands and pursued on horses and killed with their arrows. They are fond of the flesh of this animal and eate imoderately of it when they have a sufficiency to indulge themselves." The local Nez Perce museum in Spalding, Idaho has many artifacts obtained from the local Indians by Reverend Spalding in the late 1800's. Included in these artifacts are necklaces of grizzly bear claws.

Because most versions of the Lewis and Clark Journals are heavily edited for space and content, it is difficult to clearly identify their descriptions of the wildlife encountered. However, the "Original Journals of the Lewis and Clark Expedition, 1804-1806, edited by Reuben Gold Thwaites, LL.D., Antiquarian Press LTD., New York, 1959, were much more complete in their descriptions of wildlife. This version was printed from the original manuscripts and notebooks of Lewis and Clark as well as other members of the expedition. Their journals were for the first time published in full and exactly as written.

While Lewis and Clark were in the "Upper Kooskooske" (Upper Clearwater River) in May and June, 1806, they spent several weeks waiting for the snows to melt before heading back over the Bitterroot Mountains. While camped near present-day Kamiah, Idaho, their hunters spent many days afield attempting to kill game for consumption. The salmon had not yet started their run and game was scarce. The expedition spent many days with the local Indians, and pursued game as far down river as Collins creek (Lolo Creek), and up on the benches above the Clearwater River. During their first few weeks at the camp, they killed many bears, but were confused as to how many different species of bears there were. They attempted to speciate by differentiating the bears by color of the pelage. In exasperation, Lewis indicated on May 15, 1806 that, "...if we were to attempt to distinguish them by their collours and to denominate each colour a distinct species we should soon find at least twenty" (Thwaites 1959). They did however identify the grizzly bear and called it the "grizzly, white, or variagated bear." Their confusion came when trying to identify the black bear and its different color phases common in this part of the west. They felt it different than the common east coast and pacific coast black bear.

On May 31, 1806, their attempts to properly categorize the distinct species made a break through when Lewis recorded the following: "Goodrich and Willard visited the Indian villages this morning and returned in the evening. Willard brought with him the dressed skin of a bear which he had purchased for Capt. C. This skin was an uniform pale redish brown colour, the Indians informed us that it was not the Hoh-host or white bear. That it was the Yack-kah. This distinction of the Indians induced us to make further enquiry relative to their opinions of the several speceis of bear in this country. We produced the several skins of the bear which we had killed at this place and one very nearly white which I had purchased. The white, the deep and pale red grizzle, the dark brown grizzle, and all those which had the extremities of the hair of a white or frosty colour without regard to the colour of the ground of the poil, they designated Hoh-host and assured us that they were the same with the white bear, that they ascosiated together, were very vicisious, never climbed the trees, and had much longer nails than the others. The black skins, those which were black with a number of intire white hairs intermixed, the black with a white breast, the uniform bey, brown and light redish brown, they designated the Yack-kah; said they climbed the trees, had short nails and were not vicious, that they could pursue them and kill them with safety, they also affirmed that they were much smaller than the white bear. I am disposed to adopt the Indian distinction with respect to these bear and consider them two distinct speceis" (Thwaites 1959).

Based on this account and the descriptions of the hides separated by the Indians, and previous and following descriptions in the journals of bears killed, it is apparent that they killed at least 7 grizzly bears while camped near Kamiah, including a female with 2 cubs that Collins killed on May 14. Lewis writes: " the mail bear was large and fat the female was of moderate size and rather meagre. We had the fat bear fleaced in order to reserve the oil for the mountains. Both these bear were of the speceis common tho the upper missouri" (Ed. Note, they identified the grizzly as the only species of bear in the upper Missouri). Clark writes for the same day, May 14: "Collins returned in the evening with the two bears which he had killed in the morning one of them an old hee was in fine order, the other a female with Cubs was meagure" (Thwaites 1959).

Another interesting excerpt on May 15 by Lewis read: "the most striking differences between this species of bear and the common black bear are that the former are larger, have longer tallons and tusks, prey more on other animals, do not lie so long nor so closely in winter quarters, and will not climb a tree tho' ever so heardly pressed. The variagated bear I believe to be the same here with those on the missouri but these are not so ferocious as those perhaps from the circumstance of their being compelled from the scarcity of game in this quarter to live more on roots and of course not so much in the habit of seizing and devouring living animals. The bear here are far from being as passive as the common black bear they have attacked and fought our hunters already but not so fiercely as those of the Missouri. There are also some of the common black bear in this neighbourhood" (Thwaites 1959).

Written accounts of grizzly bears are rare during the late 1800's. However, there are various records of grizzly bear hides being sold at the Lolo Creek Hudson Bay outpost near present-day Lolo,

Montana (Bud Moore, pers. comm.) during the late 1800's. However, it is not clear how many of those bears came from the Idaho side of the Bitterroot Mountains.

William H. Wright, a hunter - naturalist wrote about hunting grizzly bears in the Bitterroot Mountains at the turn of the century in a book entitled "The Grizzly Bear", first published in 1909. During his first excursion he stated, "So one spring, having made up my mind to go after them (grizzly bears) and not return until I had one, I started out in May with a few pack-horses and went to the Bitter Root Mountains, which form the dividing line between Montana and Idaho. ...For nearly three months we cruised about this rugged wilderness and enjoyed life to the utmost. We killed plenty of black bears, but up to September had not bagged a grizzly. We found an abundance of their tracks and saw three bears, but they were so wild that we could not get near enough to them for a shot. ...We therefore left the divide we had been following and struck off to the right to reach a stream of considerable size flowing into the main north fork of the Clearwater River. We had been told by an old miner that there was a large lick on this stream about twenty miles from the trail, and he directed us as to where to leave the ridge, and...find the lick." Wright then explains his encounter with a grizzly at the lick while waiting for an elk, and how he proceeded to kill the grizzly following an exciting few minutes after his gun jammed (Wright 1909).

Wright also wrote of watching and hunting many grizzly bears while they were fishing in the Bitterroot Mountains. "In the streams tributary to the Clearwater River in Idaho there are two or three runs of salmon...between the middle of August and the middle of September, what are known as the dog salmon make their way up all the little streams...and the grizzlies gather to feast." Wright explains how they would catch the fish, and also how during one encounter he killed two grizzlies while they were fishing. Wright also wrote of an encounter in 1891 on the Middle Fork of the Clearwater River at an Indian fishing site, where he killed a grizzly with a hunting knife and help from a couple of dogs. While photographing in the Bitterroot Mountains with a Mr. W. E. Carlin, they spent the most of one summer and early fall on one of the divides between the South and Middle Forks of the Clearwater River. There he explains observing a bear feeding in a brushy meadow, and Carlin shot it with his .30-.40 bullet through the shoulders. The bear was a female and had two cubs that they also killed. They remarked that this was, "the first time that either of us had the opportunity of observing the effect of high-power bullets on living targets" (Wright 1909). Wright's book also contains a photograph of the female with cubs with the caption, "In the Bitter roots-the old grizzly and her two cubs" (Figure 6-2). Wright enjoyed hunting, photographing, and camping in the Bitterroot Mountains and detailed many more of his colorful hunts and numerous encounters with grizzly bears during his travels.

The now well-known Carlin party expedition into the Bitterroot Mountains in the fall of 1893 that resulted in the death of George Colgate has been documented in several publications including Conley (1982). Conley indicated that Carlin's party camped at Jerry Johnson flat on the Lochsa River and hunted a nearby mineral lick (now named for Colgate) for game. "Carlin bagged an elk with rocking chair antlers after half-a-dozen shots, but much game was missed or wounded, including a grizzly bear with two cubs."



IN THE BITTER ROOTS—THE OLD GRIZZLY AND HER TWO CUBS

Figure 6-2. A female and 2 cubs shot by Wright and Carlin on a divide between the Middle and South Forks of the Clearwater River in the late 1800's (from *The Grizzly Bear* by W. Wright, 1909).

During the same time that Wright and Carlin hunted the Bitterroot Mountains, and into the early 1900's a famous taxonomist and zoologist by the name of Dr. C. Hart Merriam was classifying grizzly bears and attempting to speciate them. At that time he also developed a distribution map based on his samples and records of dead and live bear locations. Already by the year 1922, the grizzly bear had been reduced in distribution to the mountainous areas of national parks and remote and rugged wilderness ranges. Grizzly bears still existed in the Bitterroot Mountains and to the south of the Salmon River in Idaho (Figure 6-3).

By the mid 1920's grizzly bears were apparently becoming quite rare in the Bitterroot Mountains. William (Bud) Moore, a longtime resident of the area, wrote a book on the history of the Bitterroot area. Moore was a trapper and hunter, and worked as a sheepherder, and later a USDA Forest Service Ranger in charge of the Powell Ranger Station, nestled in the middle of the Bitterroot area. He lived and worked in the Bitterroot area during the early and mid 1900's and interviewed many trappers, homesteaders, reviewed journals and historical records to obtain information on the Bitterroot grizzly bear. Moore described the typical trapper/hunter routine by describing trapper Wes Fale's routine. "During early March, 1908, Fale lugged his winter's catch marten, lynx, mink, and ermine from his home cabin at Big Sand Lake over Blodgett Pass and out of the mountains to

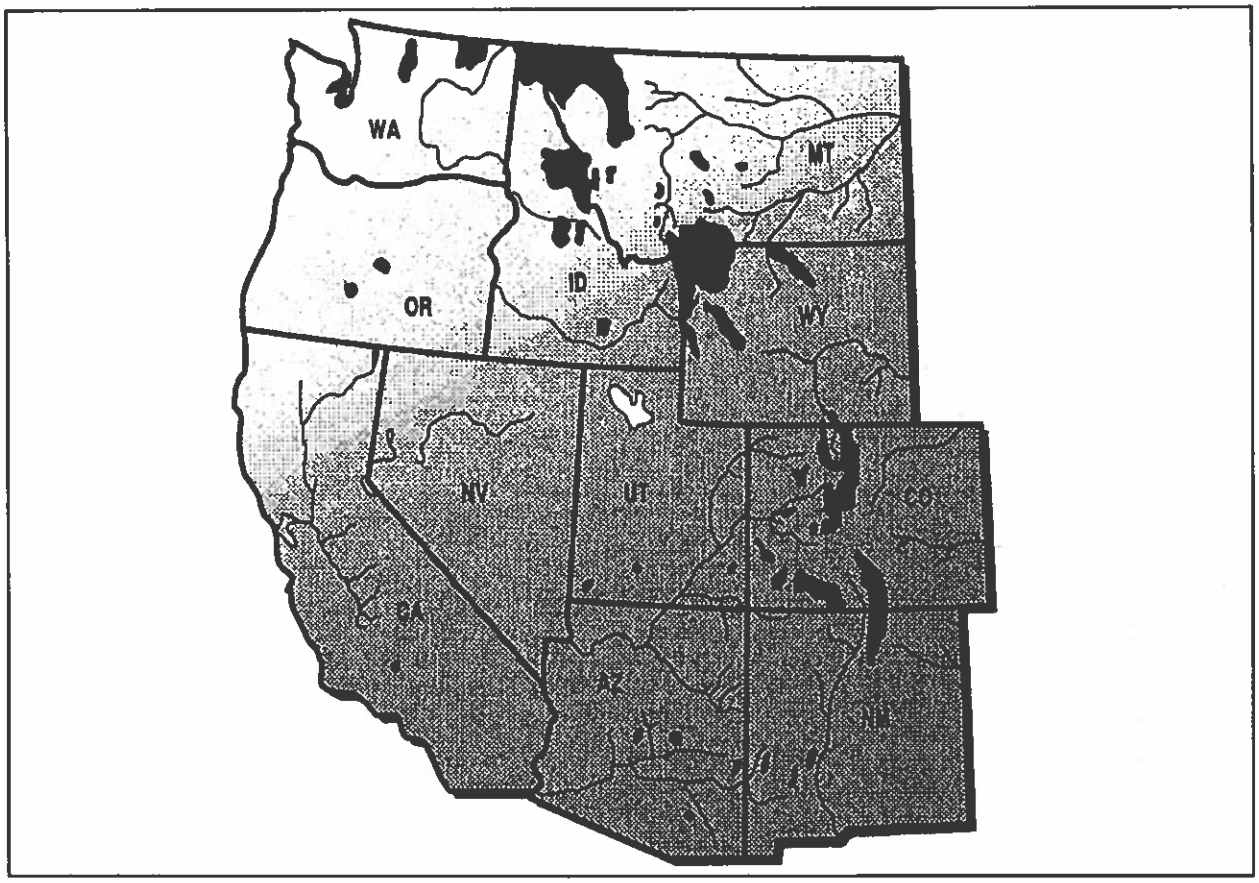


Figure 6-3. Historical grizzly bear distribution in the conterminous 48 States (in black), by C. H. Merriam in 1922 (from *Outdoor Life,* Dec. 1922; reprinted with permission from the Popular Science Publishing Company), *in* Earle F. Layser 1978.

Hamilton. He sold his furs, then returned to Big Sand Lake in late April to set bear traps. In six days he placed 10 sets at promising locations in the surrounding mountains. Some days he caught one bear some days none, and three times he caught two bears in the same day. During late May, on the last round of his trapline, Fales caught a large female grizzly below the Hidden Fork of Big Sand Creek. He wanted a photograph. While he waited for good light, a cub jumped up on a log followed by another and another, then all three ran along the log to the mother who fought for freedom from the trap. He photographed the trapped mother and her cubs" (Moore 1984, 1996). He killed the female and caught one of the cubs. Fales described the killing of five black bears and four grizzlies during the spring of 1908. He implied to Moore that he had killed several more. And he was one of 6 to 10 trappers who combed the Bitterroot Mountains each spring. By conservative estimate writes Moore, "trappers near the turn of the century killed 25 to 40 grizzly bears annually in the Bitterroot Mountains."

Following the 1910 fires, sheep herders and cattlemen grazed their livestock in newly created meadows and open areas high in the Bitterroot Mountains. Although the Selway Game Preserve was created in 1919, grizzly bears and other predators were not protected. Livestock operators, homesteaders, hunters and trappers continued to kill grizzly bears whenever they were seen. Moore saw a grizzly bear in the upper Lochsa River area in 1930, and he and his father shot a big grizzly near a band of sheep they were tending in 1931. In 1932, Moore found nine bear scalps nailed on a tree at Packer's Meadows, and some of those scalps according to Moore were grizzly bear. This was believed to be the last verified evidence of a dead grizzly bear in the Bitterroots. Moore reported some sightings of bears and tracks and a report of a dead bear during the 1930's but he never saw it. The last track Moore saw was along the North Fork of Spruce Creek in 1946. "The mud had dried around the imprint of the big paw and long claws in what seemed to me an attempt by nature to preserve some sign of the great bear's passing" (Moore 1984). Moore was attributed as having killed the last grizzly bear at Colt Creek in 1956 while stationed at Powell Ranger Station. However, Moore disclaimed that report saying he had killed a large black bear that someone saw and mistook for a grizzly bear.

Current Status - Current evidence suggests that grizzly bears no longer exist in the Bitterroot Ecosystem. Idaho Department of Fish and Game, the USDA Forest Service, and the U.S. Fish and Wildlife Service continue to receive sporadic reports of grizzly bears and continuously attempt to verify the sightings. All observation reports received are classified, documented, and investigated, if timely and of high quality. All verification attempts have resulted in either; various colored black bears that were misidentified as grizzly bears, or were inconclusive based on insufficient evidence or information. Verification efforts are typically conducted by trained bear biologists on the ground, with occasional aerial survey efforts following reception of likely reports.

Melquist (1985) conducted a preliminary survey to determine the status of the grizzly bear in the Clearwater National Forest. The survey consisted of ground and aerial searches, soliciting new grizzly bear observation reports, and compiling and evaluating 88 reports of grizzly bears recorded from 1900-1984. The survey failed to provide conclusive evidence of current presence of grizzly bears in the Clearwater National Forest. No sign of grizzly bears were found during aerial or ground searches and no observation reports received during the survey could be verified. In reviewing the 88 records of grizzly bear observations, Melquist reported the last grizzly bear was killed in 1956 along Colt Creek near Powell. Subsequent verification efforts have shown that report to be erroneous.

Groves (1987) continued Melquist's original work by compiling and reviewing a total of 175 historical grizzly bear reports for central and northern Idaho through 1986. Groves compiled 77 reports of grizzly bears from within the Primary Analysis Area including all National Forests except the Sawtooth and Bitterroot National Forests. The majority (62) of reports were received for the Clearwater National Forest. Groves efforts could not document additional evidence to confirm any

grizzly bear reports. See Appendix 23 for clarifying information from Melquist of Idaho Department of Fish and Game.

Based on historical reports of sightings, Servheen et al. (1990) and Kunkel et al. (1991) conducted surveys for grizzly bears in the North Fork of the Clearwater River drainage and a few other locations on the Clearwater National Forest during two consecutive summer field seasons (May - September). These surveys consisted of placing remote infrared sensitive cameras over bait, to photograph wildlife as they walked in front of the cameras and triggered the shutter. During a total of 480 camera days, 559 photographs of wildlife were taken, 265 of them were of bears. None of the photos were of grizzly bears.

The failure of all current verification efforts to produce a confirmed grizzly bear observation indicates that no grizzly bears are presently in the Bitterroot Ecosystem. Grizzly bears may occasionally travel through the area. However, the evidence strongly suggests that grizzly bear presence is nonexistent or so rare that despite thousands of visitors, hunters, management and research biologists in the Bitterroot Ecosystem annually, grizzly bears have not been verified either by a photograph, track, or hair sample since 1946.

Literature Cited

Conley, C. 1982. Idaho for the curious - a guide. Backeddy Books, Cambridge, Ida. 704pp.

Groves, C. 1987. A compilation of grizzly bear reports for central and northern Idaho. Endangered Species Projects E-III, E-IV. Idaho Dept. of Fish and Game, Boise, Ida. 85pp.

Kunkel, K., W. Clark, and G. Servheen. 1991. A remote camera survey for grizzly bears in low human use areas of the Bitterroot grizzly bear evaluation area. Idaho Department of Fish and Game unpubl. report. Boise, ID. 12pp.

Melquist, W. 1985. A preliminary survey to determine the status of grizzly bears (*Ursus arctos horribilis*) in the Clearwater National Forest of Idaho. Idaho Coop. Fish and Wildlife Research Unit. University of Idaho, Moscow, ID. 54pp.

Merriam, C. H. 1922. Distribution of grizzly bear. U. S. Outdoor Life (December): 405-406.

Moore, W. R. 1984. Last of the Bitterroot grizzly. Montana Magazine (November-December) : 8-12.

Moore, W. R. 1996. The Lochsa story. Mountain Publishing Co., Missoula, Mont. 461pp.

Servheen, G., M. S. Nadeau, and C. Queen. 1990. A survey for grizzly bears in the Bitterroot Grizzly Bear Evaluation Area. Idaho Department of Fish and Game unpubl. report. Boise, Ida. 11pp.

Thwaites, G. R., L.L.D. 1959. Original journals of the Lewis and Clark expedition 1804-1806. Antiquarian Press Ltd. NY.

Wright, W. H. 1909. The grizzly bear. Charles Scribner's Sons, N.Y. 274pp.

APPENDIX 5. PUBLIC ATTITUDES ABOUT GRIZZLY BEARS: A REVIEW OF RECENT SURVEYS

Research Overview

Many research studies have focussed on American's attitudes, beliefs and values of bears, few of them entail grizzly bears alone except in site-specific studies. The majority of American site-specific studies of people's relations with grizzly bears have been done in the pacific northwest states and Alaska. Several other studies of a similar scope have been done in Canada.

First, the attitudinal, belief, and value studies relevant to grizzly bears from the broader public perspective will be summarized. Then the same kinds of research done for site-specific populations of grizzly bears in the United States and Canada will be reviewed. Finally, a more detailed summary of the available information that is directly related to the U.S. Fish and Wildlife Service's proposal to augment or reintroduce grizzly bears in the northern Rocky Mountains will be covered. Locations include the Cabinet-Yaak ecosystem in northwestern Montana and the Selway-Bitterroot ecosystem in east central Idaho and west central Montana.

General Research

Views. -- Kellert (1994) wrote that attitudes toward bears, and more generally wildlife, result from, "4 interrelated factors including: basic wildlife values, perceptions of particular species, knowledge and understanding of wildlife, and people-animal interactions." Kellert describes several "demographic distinctions" regarding how people view or value wildlife species, and in particular their perspective of bears. These demographic distinctions include: 1) "human dependence on land and natural resources as reflected in rural residency, property ownership, and agricultural and other resource-dependent occupations"; 2) "socioeconomic status as measured by education and income"; and 3) "age and gender."

The first distinction is that people who can be described this way tend to have highly utilitarian and dominionistic wildlife values (e.g., would likely endorse bear exploitation and subordination for enhancing human interests and needs), while expressing little support for moralistic and humanistic wildlife values. The second distinction is that people who are highly educated and earn more than most, tend to express highly naturalistic and ecologistic wildlife values (e.g., would likely endorse bear conservation and protection and have a pronounced interest in the outdoor recreational experience of bears). The third distinction is that younger and female respondents tend to have pronounced moralistic and humanistic wildlife values (e.g., would likely express strong affection for bears as well as strongly oppose consumptive use).

Kellert (1994) further asserts, "that knowledge and understanding of wildlife represents an additionally important influence on people's attitudes toward animals, although perhaps to a less degree than often assumed...greater knowledge is often more a basis for reinforcing and rationalizing attitudes than a cause for attitudinal convergence or change."

The bear's actual "conservation status" (i.e., threatened standing as defined by the Endangered Species Act) has greatly affected North American attitudes (Kellert 1994). In a national survey (Kellert 1985), a significant majority of respondents expressed their willingness to protect millions of acres of national forests, despite job and timber losses to protect grizzly habitat. However, only a minority of elderly, rural, and lower socioeconomic Americans supported that degree of sacrifice nationwide.

An example of the application of Kellert's work comes from Alberta, Canada, where to determine the value of bears held by the population of Waterton National Park visitors, Maw (1989) took the responses to two questions and assigned each respondent to one of ten attitude groupings described by Kellert (1979). These questions were: 1) "In your opinion of what value, if any, is a bear?"; and 2) "What do you like most about bears?" The results of this assignment are reported in Table 6-1. The most common value indicated for bears was ecologistic, which shows a strong concern that the bear is a part of the environment, and is related to other ecosystem parts. For the purposes of the analysis, Maw combined scientific with ecologistic and also humanistic with moralistic.

Table 6-1. The value of bears as stated by visitors to Waterton National Park

Value Grouping	Number	Percent
Ecologistic	127	34.4
Aesthetic	81	21.9
Naturalistic	62	16.7
Moralistic	43	11.6
Utilitarian	28	7.6
Negativistic	21	5.7
Humanistic	3	0.8
Scientific	2	0.5
Dominionistic	0	0
Neutralistic	0	0
Unknown	3	0.8
Total	**370**	**100.0**

MacCracken et al. (1994) address "value and cultural barriers" in regard to grizzly recovery in Idaho. They make an interesting observation: "Although federal agencies are required to listen to...competing views of how natural resources should be managed, their own professional value and bureaucratic cultural systems are sometimes disproportionately represented in policy decisions due to the lack of a public consensus on management direction or action."

But at the local level in Idaho; "fears of loss of livelihood and property, as well as possible attacks, can lead to deliberate killings of grizzlies. In addition, poaching grizzlies for valuable parts...may

be viewed as a means to offset perceived job losses or decreased economic opportunities from protection and recovery actions" (MacCracken et al. 1994).

These authors also point out that within one generation, some local populations living near or in Idaho's grizzly country have seen the emphasis shift from trying to eradicate grizzly bears to their augmentation or reintroduction. Furthermore, in certain areas, religious teachings are used to justify promoting human welfare over other animals. They assert that; "information that would allow recovery teams to predict how cultural attitudes might influence the success of recovery efforts would be valuable, as it would suggest specific groups that could be targeted for education programs or enforcement efforts."

Additionally, MacKracken et al. (1994) say that some people may resent grizzly bear protection and recovery as a means to restrict traditional land uses akin to what they perceive the designation of wilderness to be. Others believe the mining, logging and grazing of public lands are causing long term harm to natural systems and thus support grizzly protection and recovery because of the habitat management implications.

Values. -- Swanson et al. (1994) examined the economic value of grizzly bears in the greater Yellowstone area. They argued that two categories of economic value need to be defined when looking at the value of grizzly bears in the Yellowstone Recovery Zone (6 national forests and 2 national parks), namely economic impact and net economic efficiency. The former refers to expenditures and other economic activity generated in a region because the grizzly bears are there. Whereas the latter refers to the benefit received beyond the expenditures related to a resource - in other words, what would individuals be willing to pay beyond current expenditures if costs associated with bear-related activities increased or access fees were charged to view bears (Swanson et al. 1994).

Several different types of values are associated with the concept of net economic efficiency for grizzly bears, including use value, option value, existence and bequest values. Such values can be negative as well as positive, in that some people may be willing to pay to receive benefits derived from the absence of grizzly bears.

In 1983 a study of Wyoming hunters' willingness to pay for the future continuation of grizzly bear hunting (option value) and how much they'd pay to maintain grizzlies even if they could not hunt them in the future (existence value) was conducted (Brookshire et al. 1983).

Overall, Swanson et al. (1994, p. 579) contended that, " (t)here is virtually no information on the economic impact associated with threatened or endangered species".

Site-specific Studies

Waterton National Park. -- In a random sample survey study of people's attitudes toward and knowledge of grizzly bears in Waterton National Park, Alberta, Maw (1989) describes several major findings:

- Nearly 80% of visitors thought grizzly bears were dangerous animals.
- More than half (54%), of these 80% who identified grizzlies as dangerous, failed to take precautions regarding possible encounters with bears.
- Half of the visitors perceived that the reason why people were injured by bears was due to their own fault or carelessness.
- "The value that the visitor held for bears was found to be related to the visitor's: 1) level of biological bear knowledge; 2) age; 3) educational level; 4) population size of current home area; and 5) type of user."
- "There was a relationship between higher levels of biological bear knowledge and ecological, aesthetic, and naturalistic values for bear, while the lower levels of biological bear knowledge were related to utilitarian and negativistic values."
- "In contrast to perceived opinions among park staff, there was strong support for bears to receive management priority for the use of a valley in the park. Many visitors indicated a willingness to give up their use of a valley in order to preserve bear populations."

Yellowstone National Park. -- Trahan (1987) conducted a mail survey in 1985 of backcountry hikers who had self-registered at trailheads in Yellowstone National Park. A total of 210 questionnaires were returned, yielding a 49% response rate.

When asked if having grizzly bears present had any effect on their decision to hike Yellowstone backcountry, 53% said no. Of those who said yes, their comments included they took more care with the choice of trail, they asked for or looked for more information, or they took precautions. Fifteen percent of all respondents said they felt "very safe," 67% felt "safe," 11% "did not think about" it, 12% felt "unsafe," and 1% felt "very unsafe." Fourteen percent felt that the amount of danger grizzly bears present to backcountry hikers was "significant" to "very significant." Two-thirds (66%) felt "some" danger, whereas 20% felt "insignificant" to "very insignificant" danger was presented.

Even though a two-thirds of respondents felt "some danger" was presented by grizzly bears to backcountry hikers, over half (56%) would still like to "view a grizzly from a great distance." A fifth (22%) wanted to "never encounter" one and another fifth (22%) wanted to be "close enough to get a good look." No one wanted to get "quite close." More than three-fourths (78%) felt that they were at least well informed versus 5% who felt that they were at least poorly informed about potential grizzly bear dangers in the backcountry of Yellowstone.

Trahan (1987) reported some interesting relationships occurred among several of these variables that may be relevant for this review. Inexperienced hikers were more likely than experienced hikers to

want to get close enough to "get a good look," although these inexperienced hikers were more likely to admit uncertainty as to what to do if they encountered a grizzly. Experienced hikers were more likely to report feeling very well informed than the less experienced ones.

Other studies dealing with possible courses of action to insure the safety of both visitors and wildlife, including grizzly bears have been conducted in the Yellowstone area (Compton 1993).

Glacier National Park. -- Braithwaite (1989) surveyed backcountry campers who visited Glacier National Park and Jewel Basin in 1987 about their perceptions of how social influences affected their backcountry behavior. She found that informational and social influences do affect certain types of backpackers. Those affected include groups composed of family members or family and friends, and relatively inexperienced or novice backpackers.

McCool and Braithwaite (1989) reported that Jewel Basin backpackers showed strong negativistic beliefs toward grizzly bears. Yet those backpackers with ecologistic beliefs tended to participate more in appropriate behavior than those with negativistic beliefs. These authors then asserted that by sensitizing Jewel Basin visitors through written communication to an ecologically oriented perspective of the grizzly, behavioral compliance may have increased.

Mission Valley. -- Frost (1985) undertook a study in May 1984 of 154 Mission Valley (in northwestern Montana) residents' attitudes toward grizzly bears and many of the findings have relevance for consideration in the Bitterroot Mountains reintroduction proposal.

When asked if their neighbors had seen grizzly bears on their property, 88.5% of the population said yes, 56% of the population had observed grizzlies on their own land. When asked if neighbors or friends manage their property to maintain and protect grizzly bear habitat, only 4% answered a definitive yes, whereas 20% of the respondents said that they were managing their own property in this way. Seventy percent said that some of their local neighbors, friends, or relatives have had a problem which was caused by grizzly bears, while only 17% of the respondents indicated that they themselves had a problem with grizzlies. Forty percent said their nearby neighbors left food items around that could attract grizzly bears onto the property.

Other findings about respondent knowledge of grizzly bears and their behavior include:

- Only 34% knew that the Montana grizzly is "threatened."
- Their knowledge about the size of the grizzly population was poor - only 18% of the population was correct (between 16-32 bears).
- Three-fourths (74%) properly identified grizzly bear exploratory behavior correctly; 14% incorrectly interpreting it as a sign of imminent attack.
- Three-fifths (61%) properly identified huffing and teeth clacking as threat behavior, however, 39% were unaware that this was a threat display.

Findings about grizzly bears adding to the quality of life include:

- Over one half (55%) of respondents felt that having grizzly bears in the Missions added to their quality of life; 32% felt the presence of grizzly bears did not add to their quality of life, and 13% didn't know.
- Respondents who felt grizzly bears added to their quality of life had a higher overall knowledge of grizzlies and their behavior than those who felt the species didn't add to their quality of life. These respondents were also more likely to be younger, and were more likely to at least have seen a grizzly bear (the more encounters with grizzlies the more likely an individual felt the species added to their quality of life).

Overall, 61% of the respondents agreed that they liked grizzly bears; 27% disagreed, and 12% were uncertain. Those individuals who agreed were more likely to have higher grizzly bear scores. Those who disagreed that they liked grizzlies were more likely to: disagree that grizzlies are in danger of disappearing, agree that the disappearance of the grizzly bear is unavoidable if human needs are to be met, have had less encounters with grizzly bears, and be older in age.

Frost (1985) concludes that, "nurturing the active involvement of resident landholders is a necessity, to obtain a holistic protection of grizzly habitat on private, as well as federal, lands", especially in regard to the three grizzly bear ecosystems designated as "recoverable" in Montana.

Grizzly Bear Augmentation and Reintroduction Efforts

Cabinet-Yaak Augmentation Effort. -- In 1988, the FWS held a 60 day public comment period (2/1-3/31) for public response to the Draft Environmental Assessment (DEA) for grizzly bear population augmentation in the Cabinet-Yaak ecosystem. A total of 892 comments were received: 90% originated from Lincoln and Sanders Counties; 8% came from the rest of Montana, all of northern Idaho, and eastern Washington; 2% came from across the U.S. Ninety-five percent of the comments (843) were from individuals, 2% came from industry/ business, 1% from community/civic organizations and 1% from environmental/ conservation groups (FWS 1988). Overall response to the augmentation proposal was negative, people were not in favor of increasing the grizzly bear population in the Cabinet-Yaak ecosystem.

The number of comments per issue and a summary of the comments by issue follows:

1. The effects on public safety - 131 comments.
   Fear comments outweighed other comments almost 2 to 1 and ranged from not wanting bears in their back yards to not wanting to give up trips to the wilderness area due to fear of bear attacks.
2. The effects on recreational opportunities, public land uses, and public attitudes - 146 comments.
   One-fourth of the comments made said that an increased bear population would decrease wilderness activities because of more road closures. A little more than a third of the comments made indicated that respondents lacked trust in land management agencies, their policies, and practices.

3. The effects on local economies - 62 comments.

   Nine-tenths of the comments perceived adverse effects on the local economy with any increase in grizzly bear numbers. Responses indicated that no logging or mining would occur with grizzlies present in larger numbers which would both jeopardize jobs and prohibit these industries from expanding.

4. The expense, coordination, complexity, and potential success of an augmentation program - 33 comments.

   All comments were opposed to the immediate and long term costs of the project.

5. Biological/ecological effects of moving bears from one area and placing more bears in the Cabinet Mountains - 265 comments.

   A fourth of the comments indicated that not enough area/habitat was available for more bears in the proposed augmentation area. The balance of the comments were related to concerns that were indirectly related to the augmentation.

The Public and Grizzly Bear Reintroduction in the Bitterroot Ecosystem

The USFWS and the Idaho Fish and Game Department (IDFG) authorized a survey of public opinion regarding the reintroduction of grizzly bears into the Bitterroot Ecosystem (Duda and Young 1995). The contractor, Responsive Management, conducted the random digit dial telephone survey in June, 1995. Nine hundred interviews were administered to randomly selected people selected from national, regional, and local samples. Tables 6-2 through 6-6 summarize the responses to several questions received from completed interviews. The type of response is further tallied by the three geographically defined groups. The balance of Duda and Young's (1995) findings are summarized within this section.

Attitudes. --

Table 6-2. In general, do you support or oppose reintroducing grizzly bears to the Bitterroot Mountains? (N = 919 respondents)

RESPONSE	LOCAL (%)	REGIONAL (%)	NATIONAL (%)
Strongly support	33	39	42
Moderately support	29	34	35
Neither	8	10	10
Moderately oppose	8	5	5
Strongly oppose	18	5	3
Don't know	4	7	4

Table 6-3. What is the main reason you support grizzly bear recovery in the Bitterroot Mountains? (N = 650 respondents)

REASON	LOCAL (%)	REGIONAL (%)	NATIONAL (%)
Save from extinction	34	28	41
Part of ecosystem	33	37	24
Aesthetic	6	5	4
Were here before we were	17	18	17
Preserve for future generations	3	4	6
Other	7	8	7

Table 6-4. What is the main reason you oppose grizzly bear reintroduction in the Bitterroot Mountains? (N = 137 respondents)

REASON	LOCAL (%)	REGIONAL (%)	NATIONAL (%)
Bears are dangerous	48	40	54
Will kill pets / livestock	7	7	8
No need for them	16	13	8
Reintroduction wouldn't work	9	7	N/A
Costs too much	3	3	4
Land restrictions	7	10	4
Other	10	20	23

Table 6-5. I would derive satisfaction from just knowing grizzly bears are present in the Bitterroot Mountains. (N = 919 respondents)

RESPONSE	LOCAL (%)	REGIONAL (%)	NATIONAL (%)
Strongly agree	30	37	33
Moderately agree	40	41	49
Moderately disagree	10	12	8
Strongly disagree	16	4	3
No opinion	5	7	7

Table 6-6. I dislike the idea of grizzly bears being present in the Bitterroot Mountains. (N = 919 respondents)

RESPONSE	LOCAL (%)	REGIONAL (%)	NATIONAL (%)
Strongly agree	15	6	3
Moderately agree	9	8	5
Moderately disagree	26	29	32
Strongly disagree	45	52	53
No opinion	4	6	8

Management Options. -- A range of management options for the reintroduction of grizzly bears were presented for consideration by the respondents. These options included: no special accommodations in land use were made for grizzly bears, such as logging or recreation; if grizzly bears were released only in areas already designated as Wilderness; if a State or Tribal wildlife manager was stationed in the area to help track bears, inform and educate people, and resolve conflicts; if costs for capture, release and monitoring were tightly controlled and kept at a minimum; if non-government groups covered some of the costs of the program; if local communities around the Bitterroot area had more input in grizzly bear management decisions; if a Citizen Conservation Council with local and national representatives of various interests, such as logging, ranchers, and conservationists were granted management responsibility; and if grizzly bears that lingered in areas of high human use, acted aggressively toward humans, or killed livestock were removed promptly.

Six of the eight ways resulted in a majority of local, regional and national respondents to state that they would be more supportive of bear reintroduction. Less than a majority said that they would be more supportive from all 3 samples; "if a Citizen Conservation Council with local and national representatives of various interests, such as logging, ranchers, and conservationists were granted management authority and no special accommodations in land use, such as logging or recreation were made specifically for grizzly bears" (Responsive Management, 1995).

Social Assessment of the Bitterroot Valley (of western Montana). -- In this study, 51 residents shared their opinions about important issues relative to natural resources management. Interviewees were classified based on their primary relationship with forest management and so were identified as the "amenities", "commodities", or "neutral" groups (Bitterroot Social Research Institute 1994).

Interviewees who were oriented to amenities most commonly mentioned; "their affinity for the forest and outdoors, observing that they spent a lot of time in the forest recreating and being close to nature." Those who are commodity oriented related forest management to their business and livelihood and commonly had; "concern for the Bitterroot Valley's economic stability, wilderness prescribed fire escapes, soil conservation, and water storage." Those interviewees with a neutral

outlook on amenity or commodity interests tended to have no particular interest in ecosystem management (EM) and fire management or they had a variety of personal interests in the way the forest was managed.

These three groups had specific comments about grizzly bears which were shared by respondents under the topic "threatened and endangered species." The amenity group's response regarding grizzly bears follows: "Some support reintroduction because they want to know everything is in the system for now and the future. Supporters of reintroduction differed among themselves relative to the potential threat of grizzly bears to forest visitors. They acknowledged opponents of reintroduction feel personally and economically threatened by the proposed reintroduction" (Bitterroot Social Research Institute 1994).

Additionally, some specifically felt that the well-being of humans needs to be considered as much as the well-being of grizzly bears. The commodity group had several members who were willing to accept grizzly bears living in their current habitat, but didn't want their range expanded to the Bitterroot Ecosystem.

Many believed that direct conflicts would result from the reintroduction of a large number of bears (e.g., up to 250) into the Selway-Bitterroot Wilderness with visitors to the Bitterroot Forest which has had use increasingly encouraged by the USDA Forest Service over the past several decades. Furthermore, when an area, like the Bitterroot Valley has had agriculture for more than 100 years, respondents in this group wondered why the FWS was so determined to reintroduce grizzly bears.

Half of the neutral group (neither commodity nor amenity oriented) felt grizzly reintroduction was wrong and commented, "I can't see the benefit of reintroducing grizzlies". These individuals believed that in the presence of grizzlies, stockmen were more likely to practice "the three S's rule" where one "shoots, shovels and shuts up". Some neutralists, who perceived that the economic influence of agriculture in the Bitterroot Valley was declining, thought that if grizzly bears were reintroduced, the economic effect would be minimal. An argument was also presented, "...where humans ought to be the ones having to adapt to grizzlies..." (Bitterroot Social Research Institute 1994).

Literature Cited

Braithwaite, A. M. 1989. The effects of normative and informational social influence on visitor behavior in occupied grizzly bear habitat. Unpublished M.S. Thesis, Univ. of Montana, Missoula. 139 pp.

Brookshire, D. S., Eubanks, L. S. and Randall, A. 1983. Estimating option prices and existence values for wildlife resources. Land Econ. 59 (Feb.):1-15.

Clarkson, P. L. and Gray, P. A. 1989. Presenting safety in bear country information to industry and the public. Pages 203-207 *In* Bear-people conflicts - proc. of a symposium on management strategies (1989). Northwest Territories Dept. of Renewable Resources.

Compton, G. W. 1993. Visitors and wildlife: Yellowstone National Park. Eastern Michigan University, 8 pp.

Duda, M. D. and K. C. Young. 1995. The public and grizzly bear reintroduction in the Bitterroot Mountains of Central Idaho. Responsive Management, Harrisonburg, Virginia. 141 pp.

Duffield, J. 1989. Nelson property acquisition: social and economic impact assessment. Rep. to Montana Fish, Wildlife & Parks, Helena, MT.

Frost, J. R. 1985. Living with the grizzly: perceptions of mission valley residents. Unpublished M.S. Thesis, Univ. of Montana, Missoula. 96 pp.

Green, J. S. and R. A. Woodruff. 1989. Livestock-guarding dogs reduce depredation by bears. Pages 49-54 *In* Bear-people conflicts - Proc. of a symposium on management strategies (1989). Northwest Territories Dept. of Renewable Resources.

Interagency Grizzly Bear Committee. 1987. Grizzly bear compendium. U.S. Fish and Wildl. Serv., Missoula, Mont. 540pp.

Jope, K. and B. Shelby. 1984. Hiker behavior and the outcomes of interactions with grizzly bears. Leisure Sciences, Vol 6., No. 3: 357-270.

Jorgensen, C. 1979. Bear-livestock interactions, Targhee National Forest. Unpublished M.S. Thesis, Univ. of Montana, Missoula. 162pp.

Kellert, S. R. 1979. Public attitudes toward critical wildlife and natural habitat issues. Dept. of the Interior, U. S. Fish and Wildl. Serv. 138pp.

_____. 1985. Public perception of predators, particularly the wolf and coyote. Biol. Cons. 31:167-189.

_____. 1994. Public attitudes toward bears and their conservation. Int. Conf. Bear Res. and Manage. 9(1):43-50.

MacKracken, J. G., D. Goble and J. O'Laughlin. 1994. Grizzly bear recovery in Idaho. Rep. 12 of the Idaho Forest, Wildlife and Range Policy Analysis Group. University of Idaho, Moscow.

Martinka, C. J. 1982. Keeping people and bears apart, people management in Glacier National Park. Western Wildlands 8(1):8-11.

Maw, R. R. 1987. Visitor attitudes, perceptions and knowledge concerning bears and bear management practices, Waterton Lakes National Park, Canada. Unpublished Ph.D. Dissertation. University of Alberta, Edmonton.

McArthur, K. L. 1979. Behavior of grizzly bears in relation to people in Glacier National Park. Paper presented to Second Conference on Scientific Research in the National Parks, San Francisco. November 26-30, 1979.

McCool, S. F. and A. M. Braithwaite. 1989. Beliefs and behaviors of backcountry campers in Montana toward grizzly bears. The Wildl. Soc. Bulletin. 17:514-519.

McCrory, W. P., S. Herrero and G. Jones. 1989. A program to minimize conflicts between grizzly bears and people in British Columbia Provincial Parks. Pages 93-98 *In* Bear-people conflicts

- Proc. of a symposium on management strategies (1989). Northwest Territories Dept. of Renewable Resources.

Miller, S. M., S. D. Miller and D. W. McCollum. (In Press) Attitudes toward and relative value of Alaskan brown and black bears to resident voters, resident hunters, and nonresident hunters. Int. Conf. Bear Res. and Manage. Vol. 10.

Molitor, A. and S. F. McCool. 1992. Communicating appropriate behavior in occupied grizzly bear habitat to backcountry visitors. Institute for Tourism and Recreation Research, School of Forestry, Univ. of Montana. 90 pp.

Ruediger, B. 1989. Grizzlies in the Cabinet Mountains: augmentation or decline. Western Wildlands, Spring. pp. 3-5.

Servheen, C. 1989. The management of the grizzly bear on private lands: some problems and possible solutions. Pages 195-200 *In* Bear-people conflicts - Proc. of a symposium on management strategies (1989). Northwest Territories Dept. of Renewable Resources.

Struzik, E. 1989. Problems between wildlife scientists and the media. Pages 209-213 *In* Bear-people conflicts - Proc. of a symposium on management strategies (1989). Northwest Territories Dept. of Renewable Resources.

Sundstrom, T. C. 1985. An analysis of Denali National Park and Preserve's management program to educate visitors regarding proper behavior while in bear country. Unpublished M.S. Thesis, Univ. of Wyoming, Laramie.

Trahan, R. G. 1987. An investigation of hiker attitudes, values and behaviors in relation to the presence of grizzly bears in the Yellowstone backcountry. Paper presented to: The 29th Annual Conference of the Western Social Science Association, El Paso, TX. 18 pp.

U. S. Fish and Wildlife Service. 1988. Summary of public input content analysis, grizzly bear population augmentation, Cabinet-Yaak ecosystem. U. S. Fish and Wildl. Service, Missoula, Mont. 15 pp.

_____. 1993. Grizzly bear recovery plan. U. S. Fish and Wildl. Service, Missoula, Mont. 181 pp.

Vincent, B. 1989. People vs grizzlies: survival of the fittest? Western Wildlands, Spring. pp. 7-9.

APPENDIX 6. SCIENTIFIC TECHNIQUES FOR THE REINTRODUCTION OF GRIZZLY BEARS

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TRANSPLANTING GRIZZLY BEARS *Ursus arctos horribilis* AS A MANAGEMENT TOOL — RESULTS FROM THE CABINET MOUNTAINS, MONTANA, USA

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Abstract

A study of grizzly bears Ursus arctos horribilis *in the Cabinet Mountains, Montana indicated that the future of the population was in jeopardy, and population augmentation was recommended. The US Fish and Wildlife Service (USFWS) issued an augmentation plan in 1987. The first of four projected transplants was completed in July 1990. The first transplanted grizzly bear was a 5-year-old female that weighed 71 kg. The first bear remained in the Cabinet Mountains following release and was monitored for 13 months before the radio collar was lost. This bear was visually located in the target area on 15 May 1992 approximately 19 km from the release site. Her home range from July 1990 through May 1992 encompassed 555 km². Data regarding movements and habitat use were analysed and compared with native grizzly bears in the Cabinet Mountains. Trapping efforts in southeast British Columbia for additional bears to transplant were again conducted in 1991 and 1992. The effort resulted in the capture of eight different grizzly bears in 1991, but none met the sex and age criteria of 2–6-year-old females. Efforts in 1992 resulted in the capture of a second 71 kg 6-year-old female (bear 258) which was released at the same location as the first bear exactly 2 years later on 22 July 1992. Movements of bear 258 from July through November 1992 encompassed 388 km² in the target release area. This second bear emerged with a single cub in May 1993 and was radio-monitored until July 1993 when it was found dead in the target release area. No trace of the cub was found although it had been seen with its mother in late June. The cause of death is as yet unknown pending completion of toxicology reports. A third subadult female bear (286) was captured in July 1993 and released in the target area where she has remained through October 1993. Transplanting of bears can be a valuable tool in the conservation of small bear populations worldwide.*

Keywords: grizzly bear, bear, management, Montana, transplant, *Ursus arctos*.

INTRODUCTION

In 1975, the grizzly bear *Ursus arctos horribilis* was listed as a threatened species in the 48 adjacent states under the provisions of the US Endangered Species Act. Six ecosystems were identified as supporting self-perpetuating or remnant grizzly populations (USFWS, 1982, 1993). The Cabinet/Yaak Ecosystem (CYE) was one of three ecosystems designated by the recovery plan for concentrated recovery efforts to restore viable populations of grizzly bears. The hunting of grizzly bears in the area had been suspended by the State of Montana in 1974.

Grizzly bear ecological research was conducted in the Cabinet Mountains from 1983 to 1988 (Kasworm & Manley, 1988) to determine habitat use and the status of the existing population. The study concluded that the continued existence of the population in the Cabinet Mountains was in serious doubt, and that the probability of the extinction of this population in the next few decades was high. This conclusion was based on the capture of only three grizzly bears despite an extensive trapping effort, the advanced age of the individuals captured, few additional sightings, only one observation of a female with young, and high mortality rates of marked bears.

The placement of grizzly bears into the Cabinet Mountains was proposed as a conservation effort in order to maintain this population. Two approaches for augmenting grizzly bears were proposed (USFWS, 1987). The first involved transplanting adults or subadults from higher density populations in other areas of similar habitat into the Cabinet Mountains. Transplants would involve bears from remote areas that would have no history of conflict with humans. The use of subadult females was recommended because they were thought most likely to remain in the target area rather than returning to the site of origin because of their smaller home ranges and potential reproductive contribution (Maguire & Servheen 1992). The second proposed approach relied on the cross-fostering of grizzly bear cubs to wild black bear (*Ursus americanus*) females

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currently resident in the target area. Under this approach, grizzly bear cubs from zoos would replace black bear cubs in the maternal dens of black bear females during March or April. The fostering of orphaned black bear cubs to surrogate black bear females has been used successfully in several areas (Alt, 1984; Alt & Beecham, 1984). This approach was initially considered but was rejected due to lack of public support.

The objective of the study was to test grizzly bear transplant techniques in the Cabinet Mountains to determine if transplanted bears would remain in the area of release and ultimately contribute to the population through reproduction.

STUDY AREA

The Cabinet Mountains (48° N, 116° W) constitute the southern portion of the CYE (Fig. 1). Approximately 90% of the study area is on public land administered by the Kootenai, Lolo and Panhandle National Forests.

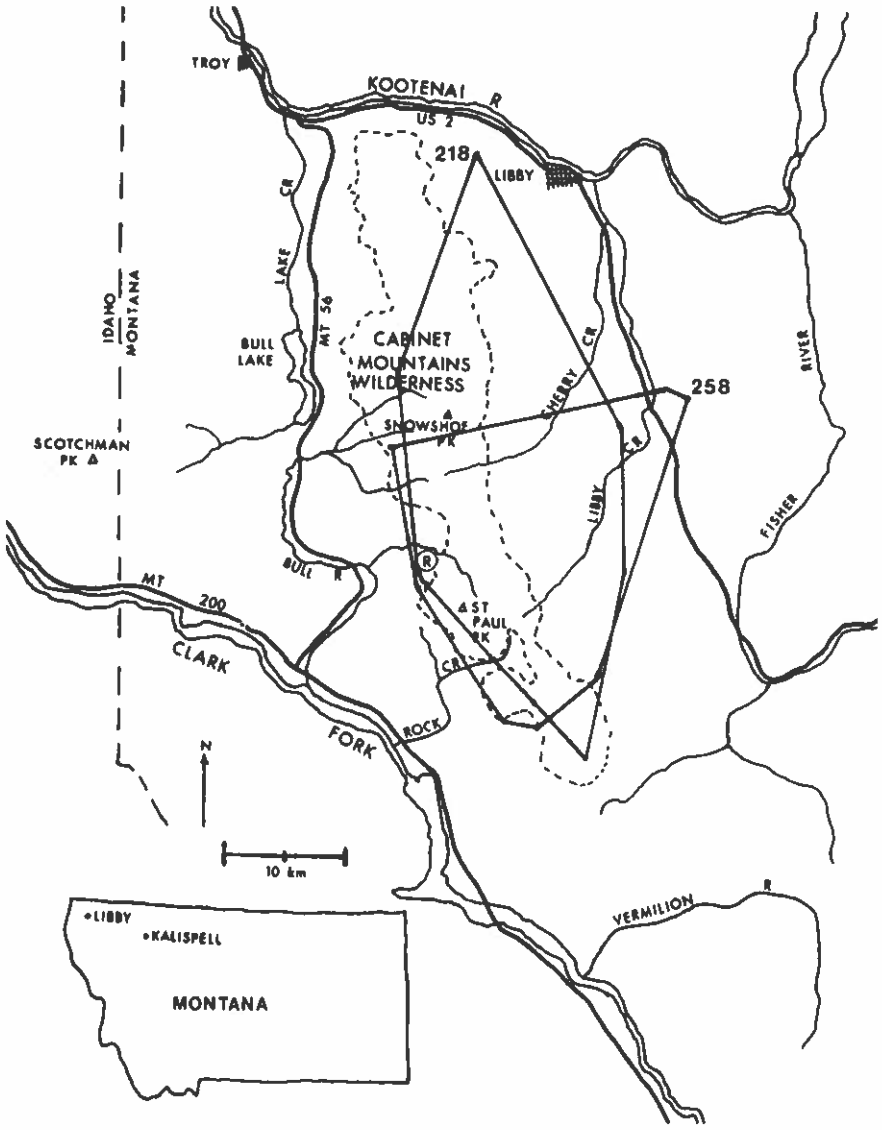


Fig. 1. Composite home ranges of grizzly bears 218 and 258 in the Cabinet Mountains, 1990–92 (R, release site).

Plum Creek Timber Company Inc. and Champion International are the main corporations holding significant amounts of land in the area. Individual ownership exists primarily along the major rivers and valley bottoms, and there are numerous patented mining claims along the Cabinet Mountains Wilderness boundary which encompasses 381 km² of the higher elevations of our study area in the East Cabinet Mountains.

The entire CYE encompasses 5,360 km² and is located in northwest Montana and northern Idaho. The Cabinet Mountains portion of the ecosystem is 3,960 km² and lies south of the Kootenai River, while the Yaak area borders Canadian grizzly populations to the north. Two 12-km-wide areas link the Yaak with the Cabinet Mountains.

Elevations in the Cabinet Mountains range from 610 m along the Kootenai River to 2,664 m at Snowshoe Peak. The study area has a Pacific maritime climate characterized by short, warm summers and heavy, wet winter snowfalls. The lower, drier elevations support stands of ponderosa pine *Pinus ponderosa* and Douglas-fir *Pseudotsuga menziesii*, whereas grand fir *Abies grandis*, western red cedar *Thuja plicata*, and western hemlock *Tsuga heterophylla* dominate the lower elevation moist sites. Mixed stands of subalpine fir *Abies lasiocarpa*, spruce *Picea engelmannii*, and mountain hemlock *Tsuga mertensiana* predominate between 1,500 m and the timberline. Mixed stands of coniferous and deciduous trees are interspersed with riparian shrubfields and wet meadows along the major rivers. Huckleberry *Vaccinium* spp. and mixed shrubfields are largely a result of the wildfires that occurred in 1910 and 1929. Effective fire suppression since then has virtually eliminated wildfire as a natural force in creating and maintaining berry-producing shrubfields.

Contemporary resource use by humans in the area includes mineral exploration and extraction, timber harvest, and recreation. ASARCO operated the Troy mine complex 20 km south of Troy from 1979 to 1992. Silver and copper were the primary minerals extracted. Mineral exploration activity currently centers on the southwestern portion of the Cabinet Mountains Wilderness Area. Noranda Minerals Corporation began construction of a similar facility in Libby Creek during 1990, and ASARCO has proposed a second mine near the community of Noxon.

Timber harvest is the principal land management activity over most of the CYE. A total timber volume of 935,856 m³ was harvested on the Kootenai National Forest from 1988 to 1991. Additional timber was harvested from private lands in the area.

Various forms of recreational use occur in the Cabinet Mountains. Summer recreation consists primarily of day hikes, overnight backpack trips, and fishing. Recreational and commercial huckleberry picking occurs during the fall and primarily outside the Wilderness. The West Cabinets (Scotchman Peak) and areas adjoining the Cabinet Wilderness are under consideration as additions to the wilderness system. Big-game hunting and fishing provide seasonal recreation and are an important part of the local economy.

Trapping for this study in 1990 to 1993 was conducted in the upper North Fork of the Flathead River drainage and the Wigwam River drainage in British Columbia, approximately 20–40 km north and 15 km to the south of the US border. Subalpine fir was the indicated climax species throughout most of the area, with lodgepole pine *Pinus contorta* the most prevalent. Recent wildfires in the upper elevations have had more of an influence on habitat than in the CYE. An outbreak of pine bark beetles *Dendroctonus ponderosae* resulted in the logging of large areas at lower elevations during the 1980s. Large portions of the upper elevations had been logged earlier in response to a spruce bark beetle *Dendroctonus obesus* epidemic. Although roads were relatively common in the area trapped, very little public use was observed. Grizzly bears are considered an important game animal in this portion of British Columbia and are hunted under a system of limited entry.

METHODS

Bears were captured with foot snares (Aldrich Snare Company, Clallam Bay, Washington) (the use of trade names does not imply endorsement of such products by the US Fish and Wildlife Service) placed in and near wooden cubbies baited with road-killed deer and miscellaneous meat scraps (Johnson & Pelton, 1980). Scraps of bait were dragged along roads and trails to produce scent trails to attract bears to the trap sites. Human scent on the snares was reduced by boiling them for several hours with bark, needles, leaves, and paraffin, and then handling only with gloves. Signs were posted to warn humans of the snare sets. Snares were checked daily.

Captured grizzly bears were immobilized with tiletamine hydrochloride and zolazepam hydrochloride (Telazol), administered at a dose of 8 mg per kg of body weight. Captured black bears were immobilized with a mixture of ketamine hydrochloride (Ketaset or Vetalar) and xylazine hydrochloride (Rompun), administered at 4·4 mg per kg of ketamine and 2·2 mg per kg of xylazine. Drugs were delivered with either a Palmer Cap-Chur gun or jab stick. Dosages were based on estimated weights of bears by experienced personnel.

Rubberized button ear tags were used to mark captured bears. One numbered tag was placed in each ear. Colored streamers were attached to the ear tags of grizzly bears transplanted to the CYE. Physical measurements and estimates of body condition were recorded at each capture. The first premolar was extracted and used to determine the age of the individual by counting cementum annuli (Stoneberg & Jonkel, 1966).

Only independent unmarked female grizzly bears < 7 years and > 35 kg were deemed suitable for transplanting to the CYE. All other captured grizzly bears were released on-site. Females > 2 years old were fitted with radio collars (Telonics, Mesa, Arizona) prior to release,

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in agreement with the British Columbia Fish and Wildlife Branch, to aid an ongoing grizzly bear study. All radio collars were attached with a canvas spacer to allow collar separation in 2–3 years (Hellgren *et al.*, 1988). Male grizzly bears were ear tagged but not collared.

Habitat values and bear food habits were carefully compared between the origin area and the target area to assure that the trophic resources available were similar in type and availability. This was done to assure that released bears would not have to learn new food sources in the target area. Timing of release was set for July, the time when food availability in the target area was highest, with shrub fruits, the major food source in the area, ripe and available for bears. Before July, shrub fruits were not ripe, and after July, the possibility of capture in the origin area dropped as bears moved into shrubfield areas and fed on shrub fruits almost exclusively.

Captured bears were immobilized at the capture site and fitted with radio collars and ear tags. They were then placed inside aluminum culvert traps for transport and release. Transplanted bears were moved to the release site during darkness to avoid the daytime heat. This method required only a single immobilization of each transplanted bear. Bears were released at the target area 24–28 h after capture at the origin site. They were given water in the holding cage but were not fed.

Monitoring of each bear was conducted from the air and ground beginning immediately after release. Locations were plotted on 1:24,000 US Geological Survey topographic maps by Universal Transverse Mercator (UTM) coordinates. Minimum convex polygons (Mohr, 1947) were calculated using a computer program (McPAAL; Smithsonian Institution). Radio locations were also classified by grizzly bear habitat component (Madel, 1982), US Forest Service management area (USFS, 1987), and elevation. Distance measurements from roads and trails to radio locations were used to examine their relationships to bear distribution (Kasworm & Manley, 1990). Closed roads were considered to be trails for analysis. If open roads were closer to locations than the nearest trail, the distance to the road was also entered as the measurement for the nearest trail. A random point sample was used to delineate distance-to-road categories (DRC) and distance-to-trail categories (DTC) in the area used by native grizzly bears (Kasworm & Manley, 1990). Twenty percentiles of randomly located points produced five DRCs: (1) 0–274 m; (2) 275–914 m; (3) 915–1,859 m; (4) 1,860–3,322 m; and (5) >3,322 m. Similarly, 20 percentiles of randomly located points produced five DTCs (1) 0–122 m; (2) 123–305 m; (3) 306–610 m; (4) 611–1,128 m; and (5) >1,128 m. Statistical analyses were performed through the use of the computer packages MSUSTAT (Lund, 1983) and SPSS/PC+ (SPSS Inc., 1988).

THE PUBLIC INVOLVEMENT PROCESS

Because the augmentation of the Cabinet Mountains grizzly bear population was a project that had an effect on the environment, the project was subject to an environmental assessment under the US National Environmental Policy Act (NEPA). This process involved a series of public meetings to ask which type of augmentation procedure the public preferred and to be sure that public concerns about augmentation were addressed. During this review, many concerns were expressed which included human safety, conflicts with other land-uses, the effects on existing wildlife populations, and long-term grizzly bear population goals.

A citizens' involvement committee was formed to aid in information exchange between the public and the agencies, by asking the community to appoint 10–15 community leaders who represented a cross-section of local opinion ranging from those against bear conservation to those strongly in favor of conservation. This group was asked to work closely with the management agencies in developing a plan to answer the questions and concerns of the local public about the augmentation and to provide direct input to agencies on how to improve conservation efforts. Representatives of several local organizations donated their time to further this purpose.

The first product of this citizens' group was a question and answer brochure regarding grizzly bear conservation in the Cabinet/Yaak Ecosystem, mailed to every person in Lincoln and Sanders counties, Montana, some 14,000 mail box holders. In response to concerns expressed by the citizens' group, the augmentation proposal was modified to eliminate cross-fostering and to reduce total numbers of transplanted bears to four individuals over 5 years. The initiation of transplanting was also postponed for 1 year to allow for additional public information and education programs regarding the proposal.

An approach to the integration of general public knowledge into the augmentation process was described by Maguire and Servheen (1992). This method utilized decision analysis to select the best course of action when the best information was a combination of subjective and objective information. The result was the selection of the best possible alternatives given the level of uncertainty in such a management action like augmentation of a grizzly bear population.

RESULTS AND DISCUSSION

Trapping

In July 1990, a 5-year-old 71 kg female grizzly bear (bear 218) was captured and moved to the Cabinet Mountains as part of the augmentation effort. Bear 218 was trapped in the North Fork of the Flathead River approximately 15 km north of the international boundary on 21 July 1990 and released in Lost Girl Creek on the west side of the Cabinet Mountains wilderness on 22 July 1990. A total of four different grizzly bears were captured before the selected bear.

Trapping for candidate grizzly bears in British Columbia in 1991 began on 9 July and continued for 26 days ending on 7 August. Ten captures of eight individual

Table 1. Capture effort and trap success for grizzly bears in southeast British Columbia during July 1990, 1991 and 1992

Year	Trap nights	Grizzly bears captured	Trap nights/ grizzly bear
1990	240	5	48·0
1991	310	8	38·8
1992[a]	212	5	42·4
1993	73	2	36·5

[a]1992 data include some trapping effort in northwest Montana in addition to British Columbia data.

grizzly bears occurred during the 310 trap nights (Table 1). None of the captured grizzly bears met the criteria for bears to be transplanted. All captured bears were released at the capture site. These included one adult male, three subadult males, three adult females, and one 1-year-old female (Table 1). The adult females were radio collared for research monitoring by Canadian biologists. The yearling female was judged too small to be a good candidate for transplanting. Twenty-one black bears were captured, ear tagged, and released.

Trapping activities began on 7 July 1992 in the North Fork of the Flathead River, both north of the border in British Columbia and south of the border in the US. Trapping concluded on 22 July in British Columbia and on 28 July in the US. Three grizzly bears were captured in British Columbia and two grizzly bears were captured in the US (Table 1). Four of the five grizzly bears captured in 1992 were subadults. The other individual was an adult female with yearlings. One of the subadult females, a 6-year-old 71 kg animal (bear 258), was trapped on 21 July 1992 and transferred to the Lost Girl Creek release site in the Cabinet Mountains.

Trapping activities began on 9 July 1993 in the North Fork of the Flathead River and concluded on 15 July. Two grizzly bears and five black bears were captured. A 2-year-old female grizzly bear (bear 286) was transferred to the Lost Girl Creek release site on 16 July 1993.

Monitoring

Radio location flights and ground monitoring of bear 218 were conducted from release in July 1990 to late August 1991 when the radio collar came off the animal. Forty-five specific radio locations were obtained during 1991. Forty-one of these were aerial and four were ground. Several additional general ground locations were obtained.

Movements of bear 218 as a 5-year-old during 1991 in the Cabinet Mountains encompassed 439 km², and its composite home range during 1990–92 was 555 km² (Fig. 1). This compared with a 1990 home range of 191 km². The home range size of bear 258 from 22 July to 30 September 1992 was 388 km² (Fig. 1).

Bear 218 emerged from her den during mid-April 1991. In late July she began using lower elevations on the east side of the Cabinet Mountains where huckleberries and serviceberries *Amelanchier alnifolia* were abundant. She stayed in this area until the first week of August at which time she moved south where the huckleberry crop also appeared good.

Table 2. Mean distance (m) and confidence interval between successive radio locations of grizzly bear 218 in the Cabinet Mountains, 1990–91

Time	Mean period	*n*	$\bar{x}$ (m)	95% CI (m)
22–28 July	Weekly	5	1,176	671–1,682
29 July–4 August	Weekly	7	3,647	1,060–6,288
5–11 August	Weekly	8	5,811	2,378–9,244
12–18 August	Weekly	7	3,629	1,215–6,043
19–31 August	Monthly	7	4,870	0–9,818
1–30 September	Monthly	14	2,491	760–4,222
1–31 October	Monthly	6	4,803	1,144–8,462
15–30 April	Monthly	2	4,243	0–51,675
1–31 May	Monthly	10	3,571	1,552–5,589
1–30 June	Monthly	8	5,569	193–10,944
1–31 July	Monthly	11	7,556	2,823–12,289
1–31 August	Monthly	14	3,846	2,004–5,688

Distances between successive locations for bear 218 were analysed to quantify movements following release. During the first four weeks following release, daily aerial radio locations were attempted. Mean daily movements were calculated by weekly intervals and compared (Table 2). Mean daily movements were lowest during week 1 (1,176 m) and highest during week 3 (5,811 m), though none of the four weekly means were significantly different ($F = 2{\cdot}47$; $p = 0{\cdot}087$). Following week 4, monitoring frequency dropped to an average of three flight locations per week. Mean movements between successive locations were then computed on a monthly basis and compared (Table 2). Mean distance between successive locations was least during September and greatest during July for the period 19 August 1990–1 September 1991, though none of the eight monthly means were significantly different ($F = 1{\cdot}24$; $p = 0{\cdot}297$).

Bear 218 appeared to develop a geographical memory of specific sites. The vicinity of the release site was revisited during middle and late August 1990 and again in late June 1991. Several other small drainages or basins were used repeatedly during the 13 months she was monitored. Bear 218 was visually located on 15 May 1992 approximately 19 km from her release site.

Bear 218 was 5 years-old during the breeding season of 1991 and may have been reproductively fit. Although she was observed three times from the air during the May and June breeding period, no other bears were observed with her. Throughout the entire 1990–91 monitoring period, she was observed a total of 30 times during aerial monitoring flights. At no time were other grizzly bears observed accompanying her. During the 13 months of monitoring, she remained within the intended area of the transplant and had little reported contact with people. Her movement patterns and home range appear similar to native grizzly bears monitored from 1983 to 1989.

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Radio location flights and ground monitoring of bear 258 were conducted from release on 22 July 1992 to den entry in early November. Thirty-nine aerial radio locations were obtained during 1992. This bear used a portion of the Cabinet Mountains south of the area used by bear 218 while she was monitored. Bear 258 denned in the Rock Creek drainage during early November 1992 at about 1850 m. She emerged in May 1993 with a single cub. Since she was captured in July and the breeding season is normally in late May and June, she likely bred in 1992 in Canada before capture. Her movements in 1993 were localized in high-elevation areas within 8 km of her den site prior to her death in July. This bear remained in the release area for 12 months during which time she was radio monitored and all movements and behaviors appeared to be normal. The cause of death is a mystery as her fat level and body condition appeared to be normal. No sign of acute injury was evident. The body was helicoptered out and examined at a veterinary pathology lab. Toxicology tests for arsenic, cyanide, and strychnine were negative. Additional toxicology tests are ongoing.

The production of a cub in 1993 indicated that this bear was not unusually stressed by the transplant and found sufficient food to complete her pregnancy. Nothing in the data available to date indicates that the transplant had a direct relationship to her death.

Habitat use characteristics

Habitat information from 131 specific aerial radio locations from bears 218 and 258 was summarized and compared with 233 specific aerial locations obtained from native grizzly bears in the Cabinet Mountains during 1983–88 (Kasworm & Manley, 1988).

Monthly mean elevations of radio locations from transplanted bears varied from a low of 1,327 m during May to a high of 1,839 m during September and ranged from a minimum of 853 m to a maximum of 2134 m (Fig. 2) The mean elevation of all radio locations from transplanted bears (1,664 m) during 1990–92

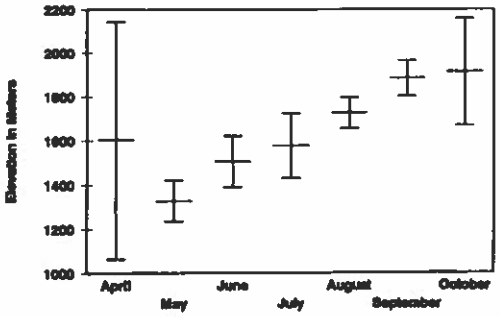


Fig. 2. Monthly mean elevation of grizzly bear radio locations in the Cabinet Mountains, 1990–92, for transplanted grizzly bears 218 and 258 at 95% confidence intervals. April, n = 2; May n = 10; June n = 8; July n = 29; August, n = 58, September, n = 23; October n = 5.

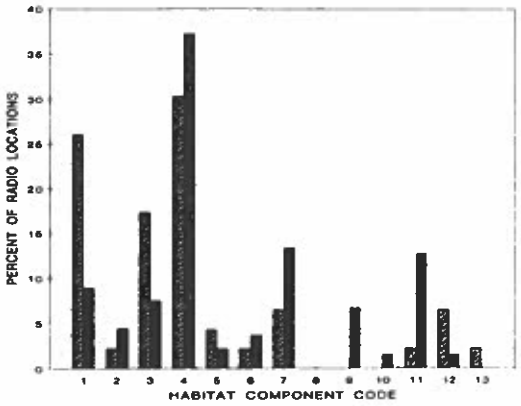


Fig. 3. Early-season habitat component use by transplanted grizzly bears during 1990–92 and native grizzly bears in the Cabinet Mountains, 1983–88. Shaded bars, transplant; solid bars, native. Transplant, n = 46; Native, n = 134. Habitat component key: 1, closed timber, 2, open timber; 3, timbered shrubfield; 4, shrubfield snowchutes; 5, shrubfield cutting units; 6, shrubfield burn; 7, alder shrubfield; 8, huckleberry shrubfield; 9, riparian; 10, drainage forbfield; 11, graminoid sidehill park; 12, beargrass sidehill park; 13, slabrock.

was greater than the mean elevation of all radio locations of native grizzly bears (1,591 m) during 1983–89 (t = 2·47, p = 0·014). This difference in elevational use may be related to spring sample size differences, the annual variation of food production and resultant habitat use that occurred during 1990–92, or it may reflect a greater avoidance of low-elevation areas used by people for transplanted bears as compared with native bears.

Two seasons were defined on the basis of bear food habits, an early season from den exit to 31 July, when bears are largely dependent on green vegetation other than berries, and a late season from 1 August to den entry when they are feeding heavily on berries. Grizzly bear radio locations were classified by habitat component (Madel, 1982) based on existing vegetation structure and composition.

Seventy-four percent of transplanted bear radio locations occurred in the closed timber, timbered shrubfield, and mixed shrub/snowchute habitat components during the early season (Fig. 3). Native grizzly bears monitored in the Cabinet Mountains from 1983 to 1989 had 54% of their radio locations in the same three habitat components and made greater use of alder *Alnus sinuata* shrubfields and graminoid sidehill parks than transplanted bears during the periods studied.

Seventy percent of transplanted bear radio locations occurred in timbered shrubfield, mixed shrub/snowchute, huckleberry shrubfield, and beargrass *Xerophyllum tenax* sidehill park habitat components during the late season (Fig. 4). Fifty-four percent of radio locations from native grizzly bears occurred in the same components. Transplanted bears made greater use of huckleberry shrubfields and beargrass sidehill parks than native bears, likely related to the distribution of

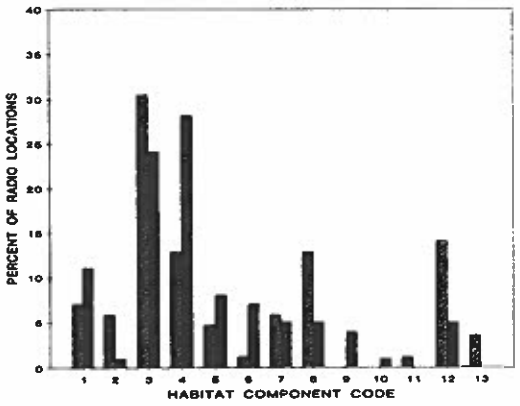


Fig. 4. Late-season habitat component use by transplanted grizzly bears during 1990–92 and native grizzly bears in the Cabinet Mountains, 1983–88. Shaded bars, transplant; solid bars, native. Transplant, $n = 85$; native, $n = 99$. See Fig. 3 for habitat component key.

huckleberries during the years monitored. Native bears made greater use of mixed shrubfield snowchutes and mixed shrubfield burns. Production of huckleberries in beargrass sidehill park components may be more variable than other components because these sites lack timber cover which may protect plants from frost damage. Likewise, a partial timbered overstory may provide shading to huckleberry bushes during dry conditions. Good production on these sites may be indicative of good overall production.

Relations to human activity

Ninety-eight percent of aerial radio locations obtained from transplanted bears were on US Forest Service administered lands. Classification of radio locations by US Forest Service management area indicated that 83% of use by transplanted bears occurred in wilderness, proposed wilderness, or non-motorized recreational lands. Ninety-one percent of native bear locations occurred on US Forest Service administered lands and 85% of use occurred in either wilderness, proposed wilderness, or non-motorized recreational lands.

Aerial radio locations of transplanted bears were analysed to determine their relationship to open roads and trails (including closed roads). Use of five distance to open road categories (DRC) by transplanted grizzly bears was compared with use by native bears (Kasworm & Manley, 1990). Native grizzly bear use of the five DRCs was different from expected based on availability ($\chi^2 = 132{\cdot}51$, $p < 0{\cdot}001$). Native grizzly bears used DRCs 1 and 2 less than expected ($p < 0{\cdot}05$) and DRCs 4 and 5 more than expected (Table 3). Use of DRC 3 was not different from expected. Native grizzly bear use of DRCs 1 and 2 combined was 20% of expected.

Transplanted grizzly bear use of the five DRCs was different from expected based on availability ($\chi^2 = 58{\cdot}88$, $p < 0{\cdot}001$). Transplanted bears used DRCs 1 and 2 less than expected and used DRCs 4 and 5 more than expected (Table 3). Use of DRC 3 was not different from expected. Combined use of DRCs 1 and 2 by transplanted grizzly bears was 26% of expected. Use of these DRCs by transplanted and native bears was identical.

Native grizzly bear use of the five distance to trail categories (DTC) was significantly different from expected based on availability ($\chi^2 = 70{\cdot}56$, $p < 0{\cdot}001$). They used DTCs 1 and 3 less, and DTC 5 more, than expected (Table 4). All other DTCs received use as expected.

Transplanted grizzly bears' use of the five DTCs was different from expected based on availability ($\chi^2 = 36{\cdot}54$, $p < 0{\cdot}001$). They used DTC 1 less, and DTC 5 more, than expected (Table 4). Use of DTCs 2, 3 and 4 was not different from expected, and DTC 1 36% of expected. Use of these DTCs by transplanted bears was thus similar to native bears.

Table 3. Proportional use (U) and availability (A) of distance to open road categories (DRC) for native and transplanted grizzly bears in the Cabinet Mountains, 1983–1992

Group	*n*	DRC 1 0–274 m U *p*[a] A	DRC 2 275–914 m U *p* A	DRC 3 915–1,859 m U *p* A	DRC 4 1,860–3,322 m U *p* A	DRC 5 > 3,322 m U *p* A
Native	233	0·009 < 0·205	0·073 < 0·201	0·202 = 0·198	0·296 > 0·198	0·421 > 0·198
Transplant	133	0·023 < 0·205	0·083 < 0·201	0·211 = 0·198	0·338 > 0·198	0·346 > 0·198

[a]Significant differences ($p < 0{\cdot}05$): < less than, > greater than, = no difference.

Table 4. Proportional use (U) and availability (A) of distance to trail categories (DTC) for native and transplanted grizzly bears in the Cabinet Mountains, 1983–1992

Group	*n*	DTC 1 0–122 m U *p*[a] A	DTC 2 123–305 m U *p* A	DTC 3 306–610 m U *p* A	DTC 4 611–1,128 m U *p* A	DTC 5 > 1,128 m U *p* A
Native	215	0.098 < 0.234	0.172 = 0.166	0.144 < 0.213	0.177 = 0.189	0.409 > 0.198
Transplant	119	0.084 < 0.234	0.143 = 0.166	0.168 = 0.213	0.210 = 0.189	0.395 > 0.198

[a]Significant differences ($p < 0{\cdot}05$): < less than, > greater than, = no difference.

CONCLUSION

Trapping for other candidate bears for transplant will continue. Additional locations for trapping will be examined. There are no plans to alter the sex and age criteria for candidate bears or time for release into the Cabinet Mountains.

Relocation of 2–6-year-old female grizzly bears has thus far proven to be a useful tool to increase the number of reproductively capable animals in a small population where reproduction and numbers are critically low. Important factors to the success of the effort include age, sex, and human-related history of the released animals, the timing of release, and the similarity of food resources between the origin and release sites. Public support is critical and to date has proved to be the main factor limiting the use of this technique. Significant efforts must be initiated to develop and maintain public understanding and support for bear conservation as part of any transplant effort. Continued success of the effort must be monitored with ultimate success being reproduction of the transplanted bears.

The future of many bear populations worldwide is precarious due in large part to habitat loss and fragmentation that produces small isolated populations (Servheen, 1990). The management of such populations isolates requires active, intrusive operations if they are to survive increasing human pressures. Many areas of potential bear habitat are currently unoccupied due to historical excessive human-caused mortality. Such areas have the potential again to have bear populations with the use of the technique described in this paper. Human actions such as transplanting bears will be required if bear populations are to be re-established and small populations are to survive.

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REFERENCES

Alt, G. L. (1984). Cub adoption in the black bear. *J. Mammal.*, **65**, 511–12.

Alt, G. L. & Beecham J. J. (1984). Reintroduction of orphaned black bear cubs into the wild. *Wildl. Soc. Bull.*, **12**, 169–74.

Hellgren, E. C., Carney D. W, Garner N. P. & Vaughan M. R. (1988). Use of breakaway cotton splicers on radio collars. *Wildl. Soc. Bull.*, **16**, 216–18.

Johnson, K. G. & Pelton M. R. (1980). Prebaiting and snaring techniques for black bears. *Wildl. Soc. Bull.*, **8**, 46–54.

Kasworm, W. & Manley T. (1988). *Grizzly bear and black bear ecology in the Cabinet Mountains of northwest Montana.* Montana Department of Fish, Wildlife and Parks, Helena.

Kasworm, W. & Manley T. (1990). Road and trail influences on grizzly bears and black bears in northwest Montana. *Int. Conf. Bear Res. and Manage.*, **8**, 79–84.

Lund, R. E. (1983). MSUSTAT — *An interactive statistical analysis package.* Montana State University, Bozeman.

Madel, M. J. (1982). *Grizzly bear habitat delineation and reconnaissance in the Cabinet Mountains: a procedural description.* US Forest Service, Kootenai National Forest.

Maguire, L. & Servheen C. (1992). Integrating biological and social concerns in endangered species management: augmentation of grizzly bear populations. *Conserv. Biol.*, **6**, 426–34.

Mohr, C. O. (1947). Table of equivalent populations of North American small mammals. *Amer. Midl. Nat.*, **37**, 223–49.

Servheen, C. (1990). The status and conservation of the bears of the world. *Int. Conf. Bear Res. and Manage. Monogr. Series*, No. 2.

SPSS Inc. (1988). *SPSSPC+ V2.0 base manual.* Chicago, Illinois.

Stoneberg, R. & Jonkel C. (1966). Age determination in black bears by cementum layers. *J. Wildl. Manage.*, **30**, 411–14.

US Fish and Wildlife Service (1982). *Grizzly bear recovery plan.* US Department of Interior, Washington, DC.

US Fish and Wildlife Service (1987). *Draft environmental assessment — grizzly bear population augmentation test, Cabinet–Yaak ecosystem.* US Department of Interior, Denver, Colorado.

US Fish and Wildlife Service (1993). *Revised grizzly bear recovery plan.* US Department of Interior, Washington, DC.

US Forest Service (1987). *Kootenai National Forest Plan.* US Forest Service, Kootenai National Forest.

APPENDIX 7. BUDGET ESTIMATES FOR FEIS ALTERNATIVES FOR REINTRODUCTION AND MONITORING OF GRIZZLY BEARS IN THE BITTERROOT ECOSYSTEM

Alternative 1. Restoration of Grizzly Bears as a Nonessential Experimental Population with Citizen Management

Summary.-- A nonessential experimental population rule would be established by regulation. A minimum of 25 grizzly bears would be captured and moved to the BE during the first 5 years of the program. The capture and transport portion of this budget estimates costs for work that would be accomplished by USFWS personnel, and assumes availability of bears in areas that are accessible for trapping. Bears would be transported to the BE by vehicle from the capture site and transported to the release site by helicopter. All animals would be fitted with radio transmitters and monitored. Population monitoring would be accomplished through recapture and radio monitoring of instrumented animals. Funding for the Citizen Management Committee travel costs is included.

Table 6-7. Estimated Annual Costs of Implementing Alternative 1.

	Annual Cost for First 5 Years
Capture and Transport - U.S. Fish and Wildlife Service	
Salaries and Benefits	$49,132
Vehicles and Travel	$7,000
Trapping and Miscellaneous Supplies	$20,000
Helicopter Release	$7,500
Helicopter Capture (Canada)	$7,000
Subtotal of Annual Costs for Capture and Transport - U. S. Fish and Wildlife Service	**$90,632**
Monitoring and Management - IDFG, Nez Perce Tribe, MDFWP [a]	
Salaries and Benefits	$100,000
Aircraft Costs for Monitoring	$20,000
Law Enforcement Assistance	$10,000
Equipment (Collars, Receivers, Culvert Trap, Vehicle)	$33,000
Operations (Travel, Supplies)	$10,000
Citizen Management Committee (Travel and Expenses for CMC and Science Advisors)	$20,000
Subtotal of Annual Costs for Monitoring and Management -IDFG, Nez Perce Tribe, MDFWP [a]	**$193,000**
Monitoring and Management - USDA Forest Service	
Annual Operating Cost for Sanitation, Information and Education, Law Enforcement, Etc.	**$150,000**
Annual Cost for the 5-Year Reintroduction Period - All Agencies	**$433,632**
Total Cost for the 5 - Year Reintroduction Period	**$2,168,160**
Annual Cost for Monitoring & Citizen Management After the First 5 Yrs.	**$193,000**

[a] Monitoring and management through cooperative agreements with IDFG, Nez Perce Tribe, and MDFWP.

Alternative 1A. Restoration of Grizzly Bears as a Nonessential Experimental Population with USFWS Management

Summary.-- A nonessential experimental population rule would be established by regulation. A minimum of 25 grizzly bears would be captured and moved to the BE during the first 5 years of the program. The capture and transport portion of this budget estimates costs for work that would be accomplished by USFWS personnel, and assumes availability of bears in areas that are accessible for trapping. Bears would be transported to the BE by vehicle from the capture site and transported to the release site by helicopter. All animals would be fitted with radio transmitters and monitored. Population monitoring would be accomplished through recapture and radio monitoring of instrumented animals.

Table 6-8. Estimated Annual Costs of Implementing Alternative 1A.

	Annual Cost for First 5 Years
Capture and Transport - U.S. Fish and Wildlife Service	
Salaries and Benefits	$49,132
Vehicles and Travel	$7,000
Trapping and Miscellaneous Supplies	$20,000
Helicopter Release	$7,500
Helicopter Capture (Canada)	$7,000
Subtotal of Annual Costs for Capture and Transport - U. S. Fish and Wildlife Service	**$90,632**
Monitoring and Management - IDFG, Nez Perce Tribe, MDFWP [a]	
Salaries and Benefits	$100,000
Aircraft Costs for Monitoring	$20,000
Law Enforcement Assistance	$10,000
Equipment (Collars, Receivers, Culvert Trap, Vehicle)	$33,000
Operations (Travel, Supplies)	$10,000
Subtotal of Annual Costs for Monitoring and Management -IDFG, Nez Perce Tribe, MDFWP	**$173,000**
Monitoring and Management - USDA Forest Service	
Annual Operating Cost for Sanitation, Information and Education, Law Enforcement, Etc.	**$150,000**
Annual Cost for the 5-Year Reintroduction Period - All Agencies	**$413,632**
Total Cost for the 5 - Year Reintroduction Period	**$2,068,160**
Annual Cost for Monitoring & Management After the First 5 Yrs.	**$173,000**

[a] Monitoring and management through cooperative agreements with IDFG, Nez Perce Tribe, and MDFWP.

Alternative 2. The No Action - Natural Recovery of a Grizzly Bear Population

Summary.-- This alternative relies on natural recovery of grizzly bear populations through immigration from other bear populations and habitat protection for any grizzly bears that might exist in the BE. Population establishment would be monitored through sighting reports from agencies and the public.

Table 6-9. Estimated Annual Costs of Implementing Alternative 2.

	Estimated Annual Cost
U.S. Fish and Wildlife Service	
Salaries and Benefits	$25,000
Operations (Travel, Supplies)	$15,000
USDA Forest Service	
Sanitation, I&E, Law Enforcement, Permit Issuance, Etc.	$100,000
TOTAL Annual Cost	**$140,000**

Alternative 3. No Grizzly Bear Recovery

Summary. -- Special legislation would be prepared for action by congress and the states of Colorado, Idaho, Montana, Washington, and Wyoming. Grizzly bears would be removed from the list of threatened and endangered species in that region of the United States. Costs associated with this alternative include staff time and travel to develop the required legislation. The total cost would be spread over several years.

Table 6-10. Estimated Total Cost Over Several Years of Implementing Alternative 3.

	Estimated Total Cost
U.S. Fish and Wildlife Service	
Salaries and Benefits	$400,000
Operations (Travel, Supplies)	$100,000
Legislative, lobbying, and public relations effort	$1,500,000
TOTAL Cost Over Several Years (minimum estimate)	**$2,000,000**

Alternative 4. Restoration of Grizzly Bears as a Threatened Population With Full Protection of the ESA and Habitat Restoration

Summary. -- The grizzly bear population in the BE would be managed as a threatened population similar to management in other ecosystems. A minimum of 25 grizzly bears would be captured and moved to the BE during the first 5 years of the program. The capture and transport portion of this budget estimates costs for work that would be accomplished by USFWS personnel, and assumes availability of bears in areas that are accessible for trapping. Bears would be transported to the BE by vehicle from the capture site and transported to the release site by helicopter. All animals would be fitted with radio transmitters and monitored. Further monitoring of population changes is anticipated and would be accomplished through recapture and radio monitoring of instrumented animals. Funding for the Scientific Management Committee travel costs is included.

Table 6-11. Estimated Annual Costs of Implementing Alternative 4.

	Annual Cost for First 5 Years
Capture and Transport - U.S. Fish and Wildlife Service	
Salaries and Benefits	$49,132
Vehicles and Travel	$7,000
Trapping and Miscellaneous Supplies	$20,000
Helicopter Release	$7,500
Helicopter Capture (Canada)	$7,000
Subtotal of Annual Costs for Capture and Transport - U. S. Fish and Wildlife Service	**$90,632**
Monitoring and Management - IDFG, Nez Perce Tribe, MDFWP [a]	
Salaries and Benefits	$100,000
Aircraft Costs for Monitoring	$20,000
Law Enforcement Assistance	$10,000
Equipment (Collars, Receivers, Culvert Trap, Vehicle)	$33,000
Operations (Travel, Supplies)	$10,000
Scientific Committee (Travel and Expenses for entire Committee)	$15,000
Subtotal of Annual Costs for Monitoring and Management -IDFG, Nez Perce Tribe, MDFWP	**$188,000**
Monitoring and Management - USDA Forest Service	
Annual Operating Cost for Sanitation, Information and Education, Law Enforcement, Etc.	**$150,000**
Annual Cost for the 5-Year Reintroduction Period - All Agencies	**$428,632**
Total Cost for the 5 - Year Reintroduction Period	**$2,143,160**
Annual Cost for Monitoring & Management After the First 5 Yrs.	**$188,000**

[a] Monitoring and management through cooperative agreements with IDFG, Nez Perce Tribe, and MDFWP.

Alternative 4A. Restoration of Grizzly Bears as a Threatened Population With Full Protection of the ESA and USFWS Management

Summary. -- The grizzly bear population in the BE would be managed as a threatened population similar to management in other ecosystems. A minimum of 25 grizzly bears would be captured and moved to the BE during the first 5 years of the program. The capture and transport portion of this budget estimates costs for work that would be accomplished by USFWS personnel, and assumes availability of bears in areas that are accessible for trapping. Bears would be transported to the BE by vehicle from the capture site and transported to the release site by helicopter. All animals would be fitted with radio transmitters and monitored. Further monitoring of population changes is anticipated and would be accomplished through recapture and radio monitoring of instrumented animals. Funding for a Scientific Advisory Committee is included to cover travel and per diem.

Table 6-12. Estimated Annual Costs of Implementing Alternative 4A.

	Annual Cost for First 5 Years
Capture and Transport - U.S. Fish and Wildlife Service	
Salaries and Benefits	$49,132
Vehicles and Travel	$7,000
Trapping and Miscellaneous Supplies	$20,000
Helicopter Release	$7,500
Helicopter Capture (Canada)	$7,000
Subtotal of Annual Costs for Capture and Transport - U. S. Fish and Wildlife Service	**$90,632**
Monitoring and Management - IDFG, Nez Perce Tribe, MDFWP [a]	
Salaries and Benefits	$100,000
Aircraft Costs for Monitoring	$20,000
Law Enforcement Assistance	$10,000
Equipment (Collars, Receivers, Culvert Trap, Vehicle)	$33,000
Operations (Travel, Supplies)	$10,000
Scientific Advisory Committee (Travel and Expenses for entire Committee)	$15,000
Subtotal of Annual Costs for Monitoring and Management -IDFG, Nez Perce Tribe, MDFWP [a]	**$188,000**
Monitoring and Management - USDA Forest Service	
Annual Operating Cost for Sanitation, Information and Education, Law Enforcement, Etc.	**$150,000**
Annual Cost for the 5-Year Reintroduction Period - All Agencies	**$428,632**
Total Cost for the 5 - Year Reintroduction Period	**$2,143,160**
Annual Cost for Monitoring & Management After the First 5 Yrs.	**$188,000**

[a] Monitoring and management through cooperative agreements with IDFG, Nez Perce Tribe, and MDFWP.

APPENDIX 8. GRIZZLY BEAR REINTRODUCTION TO THE BITTERROOT ECOSYSTEM AND EXECUTIVE ORDER 12630 (GOVERNMENT ACTIONS AND INTERFERENCE WITH CONSTITUTIONALLY PROTECTED PROPERTY RIGHTS)

Under Executive Order 12630, executive departments and agencies should review their actions carefully to prevent unnecessary takings of private property. Governmental actions, including federal regulations or proposed federal regulations, that may have an impact on private property should be scrutinized to avoid undue or unplanned burdens.

The proposed action to reintroduce grizzly bears into the Bitterroot Ecosystem (BE) has been designed to avoid affecting private property. If grizzly bears are released in the BE of central Idaho, they will be released and managed so the recovery actions are compatible with existing private land uses (principally ranching) so that the lifestyle and income are not negatively affected. Other wild predators such as gray wolves, coyotes, mountain lions, black bears, foxes, and golden eagles presently utilize lands in public and private ownership and are an accepted part of the natural environment. Private landowners are concerned that grizzly bears will depredate on livestock and that grizzly bear recovery will place restraints on their land management practices or reduce their incomes. Grizzly bears just like other large predators may occasionally attack livestock. Under the proposed action, people could kill grizzly bears in self-defense or in defense of other human life. Following the issuance of a permit by the FWS, the public would be allowed to harass a grizzly bear attacking livestock (cattle, sheep, horses, and mules). A livestock owner may be issued a permit to kill a grizzly bear that is killing or pursuing livestock on private land, if it has not been possible to capture such a bear through agency efforts. Designation of the released population as a nonessential experimental population means the released grizzly bears would be treated as though they are a proposed species. Private property would not be affected by land-use restrictions because of grizzly bear recovery.

We anticipate that grizzly bears would initially be viewed as a novelty by the local community and attract considerable attention. Eventually, however, we believe grizzly bears would be viewed as a normal part of the local resident's natural environment and the bears would receive diminishing attention from the local populace.

The U.S. Fish and Wildlife Service foresees no need to purchase lands as part of this grizzly bear recovery effort. If such a need should arise, acquisition would be only from willing sellers. Land values in northwestern Montana and northern Idaho have not been noticeably affected by grizzly bears recently recolonizing those areas, and there is no reason to suspect that grizzly bear presence would negatively affect land values in other parts of Montana and Idaho.

The reintroduction would undoubtedly attract the interest of wildlife viewers throughout the United States as well as other areas. Tourism is becoming a major industry in central Idaho and western Montana and some tourists would likely include visits to these areas if grizzly bears were present. Federal public land on National Forests, Wildlife Refuges, Bureau of Land Management lands, and National Parks would provide the public with opportunities to visit areas where grizzly bears would be present. Visitors are unlikely to be a trespass nuisance on private lands.

APPENDIX 9A. INTRA-SERVICE SECTION 7 EVALUATION FOR THE RESTORATION OF GRIZZLY BEARS TO THE BITTERROOT ECOSYSTEM OF CENTRAL IDAHO AND WESTERN MONTANA

Description Of Proposed Action

The Revised Grizzly Bear Recovery Plan (U. S. Fish and Wildlife Service 1993) calls for evaluation of the Bitterroot Ecosystem as a potential recovery area. Section 10(j) of the Endangered Species Act grants authority to the U. S. Fish and Wildlife Service (Service) to release animals of a threatened or endangered species outside its current range, such as an area of former range that is currently unoccupied by the species. The area for the introduced population is to be designated along with details regarding the management of the population and its habitat.

The Bitterroot Ecosystem Grizzly Bear Recovery Chapter of the Revised Grizzly Bear Recovery Plan (U. S. Fish and Wildlife Service 1996) directed development of an Environmental Impact Statement (EIS) to consider a range of alternatives, including a Section 10(j) alternative to reintroduce grizzly bears.

The preferred alternative of the final EIS proposes to reintroduce a minimum of 25 grizzly bears, of both sexes, over a 5-year period into the Bitterroot Ecosystem of east central Idaho and a portion of western Montana. Grizzly bears would be reintroduced into the Selway-Bitterroot Wilderness portion of the recovery area. A Citizen Management Committee (CMC) would determine if reintroduction is appropriate for the Frank Church-River of No Return Wilderness. Grizzly bears would be captured in Canada and the United States from areas with healthy populations of grizzly bears and habitat similar to the Bitterroot Ecosystem. Three sources of grizzly bears for the Bitterroot Ecosystem have been identified: Southeastern British Columbia, the Northern Continental Divide Ecosystem population in northwestern Montana, and the Yellowstone Ecosystem population. Capture and reintroduction would occur during periods when optimal food supplies exist for the Bitterroot Ecosystem. Each grizzly bear would be radio-collared and monitored to determine individual movements, use of habitat, and to inform the public of grizzly bear locations and recovery efforts.

The USFWS has determined, based upon the best scientific evidence available, there are no grizzly bears in the Bitterroot Ecosystem at this time (U. S. Fish and Wildlife Service 1997, U. S. Fish and Wildlife Service 1996). Based on habitat analysis of the area, the Bitterroot Ecosystem should provide suitable habitat for more than 200 bears (Davis and Butterfield 1991, Servheen et al. 1991, U. S. Fish and Wildlife Service 1997).

Location

The project area is defined as the Bitterroot Ecosystem of central Idaho and western Montana in the Northern Rocky Mountains. The analysis area considered in the preferred alternative of the final EIS is referred to as the Bitterroot Grizzly Bear Experimental Population Area. The experimental population area includes Forest lands or portions thereof within the Bitterroot, Boise, Challis, Clearwater, Nez Perce, Payette, Sawtooth, Salmon, and Panhandle National Forests in Idaho and the Bitterroot and Lolo National Forests in Montana. A few scattered parcels of private and state land occur within the recovery area, but total acreage is minor.

The experimental population area is bounded by U.S. Highway 93 from Missoula, Montana to Challis, Idaho; Idaho Highway 75 from Challis to Stanley, Idaho; Idaho Highway 21 from Stanley to Lowman, Idaho; Idaho

Highway 17 from Lowman to Banks, Idaho; Idaho Highway 55 from Banks to New Meadows, Idaho; U.S. Highway 95 from New Meadows to Coeur d'Alene, Idaho; and Interstate 90 from Coeur d'Alene to Missoula, Montana.

The center of the experimental population area is characterized by 3 wilderness areas, the Frank Church-River of No Return, the Selway-Bitterroot, and the Gospel Hump Wilderness Areas. The Bitterroot Grizzly Bear Recovery Area was identified as the area of recovery emphasis, and includes the Selway-Bitterroot and Frank Church-River of No Return Wilderness Areas of east central Idaho and western Montana. Grizzly bears would likely be introduced into the Selway-Bitterroot Wilderness portion of the recovery area, north of Moose Creek Station.

Listed Species Or Critical Habitat Considered (see Species List in Project File)

Gray wolf (*Canis lupus*)	LE[1], XN[2]
Grizzly bear (*Ursus arctos horribilis*)	LT[3]
Bald eagle (*Haliaeetus leucocephalus*)	LT
Peregrine falcon *(Falco peregrinus*)	LE
Macfarlane's four-o'clock (*Mirabilis macfarlanei*)	LT
Water howellia (*Howellia aquatilis*)	LT
Ute's ladies tresses (*Spiranthes diluvialis*)	LT
Bull trout (*Salvelinus confluentus*)	LT
Lynx (*Felis lynx canadensis*)	PT[4]
Northern Idaho ground squirrel (*Spermophilus brunneus brunneus*)	PT

Candidate Species Considered (see Species List in Project File)
None

List Of Species Of Concern Considered (see Species List in Project File)

Mammals

Long-legged myotis (*Myotis volans*)	Long-eared myotis (*Myotis evotis*)
Fringed myotis (*Myotis thysanodes*)	Townsend's big eared bat (*Plecotus townsendii*)
Yuma myotis (*Myotis yumannensis*)	Pygmy rabbit (*Brachylagus idahoensis*)
Wolverine (*Gulo gulo luscus*)	

Birds

Northern goshawk (*Accipiter gentilis*)	Harlequin duck (*Histrionicus histrionicus*)
Ferruginous hawk (*Buteo regalis*)	Black tern (*Chlidonias niger*)
Columbia sharp-tailed grouse (*Tympanuchus phasianellus columbianus*)	

[1] Listed as endangered.

[2] Experimental population designation.

[3] Listed as threatened.

[4] Proposed for listing as threatened.

Fish
Interior redband trout (*Oncorhynchus mykiss gairdneri*)
Westslope cutthroat trout (*Oncorhynchus clarki lewisii*)

Plants
Clustered lady's slipper (*Cypripedium fasciculatum*)
Howell's gumweed (*Grindelia howellii*)
*[5] Lemhi penstemon (*Penstemon lemhiensis*)
Hazel's prickly phlox (*Leptodactylon pungens ssp. hazeliae*)
Jessica's aster (*Aster jessicae*)
Broad-fruit mariposa (*Calochortus nitidus*)
Palouse goldenweed (*Haplopappus liatriformis*)
Clearwater phlox (*Phlox idahonis*)
Crenulate moonwort (*Botrychium crenulatum)*
Salmon River fleabane (*Erigeron salmonensis*)
Spalding's silene (*Silene spaldingii*)
Hapeman's sullivantia (*Sullivantia hapemanii var. hapemanii*)
Tobias' saxifrage (*Saxifraga bryophora var. tobiasiae*)
* Salmon twin bladderpod (*Physaria didymocarpa var. lyrata*)
* Bartonberry (*Rubus bartonianus*)
* Aase's onion (*Allium aaseae*)
* Idaho douglasia (*Douglasia idahoensis*)
* Slickspot peppergrass (*Lepidium papilliferum*)
Payson's milkvetch (*Astragalus paysonii*)
White Cloud's milkvetch (*Astragalus vexillifexus var. nubilus*)
Douglas' wavewing (*Cymopterus douglassii*)
Guardian buckwheat (*Eriogonum meledonum*)
Stanley whitlow-grass (*Draba trichocarpa*)
* Wavy-leaf thelypody (*Thelypodium repandum*)
* Alkali primrose (*Primula alcalina*)

Invertebrates
Columbia pebblesnail (*Fluminicola columbianus*)
Idaho pointheaded grasshopper (*Acrolophitus pulchellus*)
Idaho banded mountainsnail (*Oreohelix idahoensis*)
Boulder pile mountainsnail (*Oreohelix jugalis)*
Whorled mountainsnail (*Oreohelix vortex*)
Mission Creek Oregonian (*Cryptomastix magnidentata*)
Lava rock mountainsnail (*Oreohelix waltoni*)
Carinated striate banded mountainsnail (*Oreohelix strigosa goniogyra*)

[5] The original list of plant species is located on the Species List in the FEIS Project File. Plant species with an asterisk (*) have subsequently been determined to be outside of the analysis area boundaries.

Explanation Of Impact Of Action On Listed Species Or Critical Habitat

Gray wolf - Not likely to adversely affect. Grizzly bears and wolves coexist throughout the northern Hemisphere and would be expected to coexist in the proposed experimental area. Research on wolf and grizzly bears in and near Glacier National Park indicates only minor interaction between bears and wolves, other than that both species kill ungulates (U. S. Fish and Wildlife Service 1994). Grizzly bears will occasionally usurp wolf-killed prey by driving the wolves away. Wolves and grizzly bears have been documented to kill each other in some areas where they coexist in North America, but such instances are uncommon even in areas with high densities of both grizzly bears and wolves (U. S. Fish and Wildlife Service 1994). Wolves and grizzly bears usually avoid direct contact with one another. Wolves may both provide and compete for ungulate carcasses with grizzly bears, but such competition should be insignificant in terms of effect on population levels (U. S. Fish and Wildlife Service 1994).

Grizzly bear - Beneficial effect. This action will lead to recovery of grizzly bear populations in the Bitterroot Ecosystem, enhancing recovery of the species (U. S. Fish and Wildlife Service 1997). Genetic diversity of grizzly bears will be increased as a result of reintroduction. Reintroducing grizzly bears may result in some individual bears being killed, relocated, or removed from the area because of conflicts with humans, livestock, ungulate populations, and listed salmonid populations. Such losses of individual bears have been considered as part of the bear recovery-reintroduction program and are not expected to significantly affect bear population growth to recovery. There have been occasional, but unverified, sightings of grizzly bears in the Bitterroot Ecosystem for decades, however the last verified evidence of grizzly bears was in 1946 (U. S. Fish and Wildlife Service 1997). The USFWS has determined, based upon the best scientific evidence available, there are no grizzly bears in the Bitterroot Ecosystem at this time (U. S. Fish and Wildlife Service 1997, U. S. Fish and Wildlife Service 1996). If native grizzly bears were subsequently identified in the recovery area, they may become more vulnerable to mortality under an experimental population rule than currently, because these bears would be subject to the same removal criteria as reintroduced animals. However, any increased vulnerability would be mitigated by reintroduction because of increased chances of finding mates and producing young.

Bald eagle - No effect. Grizzly bears are not known to prey on bald eagles or their nests, which are located primarily in trees in the potentially affected areas. Bald eagles could scavenge carrion killed by grizzly bears but are primarily a fish-eating species. Bald eagles and grizzly bears have coexisted in other parts of North America without apparent effect on one another.

Peregrine falcon - No effect. Grizzly bears are not known to prey on peregrine falcons or their nests which are typically located on cliffs. Grizzly bears do not usually prey on small birds or waterfowl and therefore will not compete for food with peregrine falcons (Mattson et al. 1991; Craighead et al. 1995). Peregrine and other falcons and grizzly bears have coexisted in other parts of North America without apparent effect on one another.

Macfarlane's four-o'clock (*Mirabilis macfarlanei*), **Water howellia** (*Howellia aquatilis*), and **Ute's ladies tresses** (*Spiranthes diluvialis*) - No effect. Although grizzly bears do eat plants, they primarily eat vegetation that is high in nutritional value such as fleshy fruits, nuts or bulbous roots (Craighead et al. 1995; Alberta Forestry, Lands and Wildlife 1990). Neither Macfarlane's four-o'clock, water howellii, nor Ute's ladies tresses are likely desirable food species for grizzly bears (Edna Vizgirdas, US Fish and Wildlife Service,

pers. comm. 1996). Both water howellia and Macfarlane's four-o'clock are located on the northern and western edges (respectively) of the experimental population area. Ute's ladies tresses is located on the southern edge of the experimental population area. Due to the large expanse of area and varied land uses between the experimental area and the locations of all three species, it is unlikely that grizzly bears will encounter any of the plant species. These plant species and grizzly bears have likely coexisted in the past without apparent effect on one another.

Lynx (*Felis lynx canadensis*) - Not likely to adversely effect. The experimental population area occurs in the southern limits of lynx distribution (Idaho Department of Fish and Game et al. 1995). Contrary to predator-prey fluctuations documented between lynx and snowshoe hare populations in northern reaches of lynx range, southern reaches do not appear to respond in this cyclic fashion (Ruggiero et al. 1994). This may be due to a greater diversity of predators and competitive species of snowshoe hare in the southern portion of lynx range, thus keeping snowshoe hare populations at a lower level that does not cycle (Idaho Department of Fish and Game et al. 1995). Due to low levels of snowshoe hare and diversity of prey in southern reaches of lynx range, it is unlikely that competition for prey with grizzly bears would adversely affect lynx populations. Natural predation of lynx has been documented to occur but appears to be in low numbers and has been determined to be a non-threat to the species (Idaho Department of Fish and Game et al. 1995).

Bull trout (*Salvelinus confluentus*) - Not likely to adversely affect. The USFWS is unaware of any literature documenting grizzly bears utilize bull trout as a food resource. Grizzly bears have been documented to feed on cutthroat trout (U. S. Fish and Wildlife Service 1997), but this source of food represents only a minor portion of the grizzly bear's main diet if other food sources are available (Mattson et al. 1991; Craighead et al. 1995). It is possible that reintroduced grizzly bears could feed on bull trout; however, the above finding would seem to indicate that effects to bull trout populations would be minimal. Bull trout could be used by grizzly bears during late summer-fall spawning migration, but due to low population numbers of grizzly bears in the early years of reintroduction and generally dispersed distribution of the bull trout in the recovery area, it is unlikely that grizzly bears will have an adverse effect on bull trout population levels (Steve Duke, U. S. Fish and Wildlife Service, pers. comm. 1996).

Northern Idaho Ground Squirrel (*Spermophilus brunneus brunneus*) - No effect. Most populations of the Northern Idaho ground squirrel lie outside the experimental population area boundary, with one possible extant population occurring just inside the western boundary of the experimental area (USDA Forest Service and U. S. Fish and Wildlife Service 1997). It is unlikely that given the distance and land use practices between the experimental area and the single colony site near the experimental population area, that grizzly bears would encounter this species.

Long-legged myotis (*Myotis volaris*), **Long-eared myotis** (*Myotis evotis*), **Fringed myotis** (*Myotis thysanodes*), **Townsend's big eared bat** (*Plecotus townsendii*), and **Yuma myotis** (*Myotis yumannensis*) - Not likely to adversely affect. All referenced bat species are insectivorous, especially on beetles and moths (Groves 1996). While feeding behaviors may overlap (Groves 1996) between time of day and insect species of choice, grizzly bears are not likely to adversely affect the prey base required for these species. There is no documentation available to indicate that bats or their roosting habitats have been affected by the presence of grizzly bears in the past.

Wolverine (*Gulo gulo*) - Not likely to adversely affect. Wolverines are scavengers, mainly dependent on large mammal carrion (Ruggiero et al. 1994). Due to this scavenging nature, wolverines are dependent on the presence of other predators to provide carrion, but can also become prey of these predators (Ruggiero et al. 1994). However, current wolverine distribution (Idaho Department of Fish and Game et al. 1995) indicates that it is widely distributed and is unlikely that either competition for carrion during the spring or direct predation would adversely affect the population as a whole. Grizzly bears and wolverines likely have coexisted in the experimental area (Idaho Department of Fish and Game et al. 1995) prior to the loss of grizzly bears without known adverse effects.

Pygmy rabbit (*Brachylagus idahoensis*) - Not likely to adversely affect. Pygmy rabbits are found primarily in big sagebrush (*Artemisia tridentata*) habitats (Green and Flinders 1980a; White et al. 1982) distributed throughout most of the Great Basin and portions of the intermountain West (Green and Flinders 1980b). Although pygmy rabbits could be eaten by grizzly bears, predation events will likely be incidental and are not likely to adversely affect this species. Only the northeast corner of the range of the pygmy rabbit (as shown in Green and Flinders 1980b) occurs within the experimental population area for grizzly bears. This overlap comprises less than 20 percent of pygmy rabbit distribution. The primary food of pygmy rabbits is big sagebrush, although they may consume grasses (*Agropyron* spp. and *Poa* spp.) during mid to late summer (Green and Flinders 1980b). Although in some areas pygmy rabbits and grizzly bears could utilize the same forage species, such competition for food is not likely to adversely affect their continued survival.

Northern goshawk (*Accipiter gentilis*) - Not likely to adversely affect. Northern goshawks use a variety of forested habitats during the nesting period, which is generally from April to August (Braun et al. 1996). Northern goshawks prefer to nest in large trees 30 to 40 feet above ground, where clear access is afforded by a stream or other opening (DeGraaf et al. 1991). Goshawks may hunt prey (primarily birds and small mammals) in woodlands, clearings, and open fields (DeGraaf et al. 1991). Goshawks in central Idaho (Boise National Forest) have been known to consume grouse and snowshoe rabbits (Burleigh 1972). Because grizzly bears do not climb trees (Craighead and Mitchell 1982), it is unlikely that they will consume goshawk eggs or individuals. Although goshawks and grizzly bears may eat similar prey items, competition with grizzly bears for food is unlikely to affect populations of this widespread raptor species.

Ferruginous hawk (*Buteo regalis*) - Not likely to adversely affect. Ferruginous hawks feed primarily on birds and mammals including rabbits, ground squirrels, mice, rats, and gophers (DeGraaf et al. 1991). They prefer tall trees for nesting, but will use a variety of sites including low hills, buttes, small cliffs, powerlines, and riverbed mounds (DeGraaf et al. 1991). Tree nests are generally located in the upper canopy, ranging from 6 to 55 feet above ground (DeGraaf et al. 1991). Although grizzly bears do not climb trees (Craighead and Mitchell 1982), they may occasionally consume ferruginous hawk eggs or juveniles when nests are located at or near ground level. Ferruginous hawks and grizzly bears may eat similar prey items; however, competition with grizzly bears for food is unlikely to affect populations of this fairly common raptor species.

Harlequin duck (*Histrionicus histrionicus*) - Not likely to adversely affect. Breeding harlequin ducks are generally dependent on rough, turbulent streams, and feed mainly on crustaceans, molluscs, and insects (Ehrlich et al. 1988). Most known breeding sites in Northern Idaho occur in the Clearwater drainage and north (Cassirer and Groves 1990). The species is known to occur as far north as Alaska and includes British Columbia, Alberta, Idaho, Montana, Washington, and Oregon (Idaho Department of Fish and Game 1996). Given current distribution of the species in North America, and that breeding sites occur mainly in the northern most reaches of the grizzly bear experimental area, it is unlikely that grizzly bears would adversely

affect harlequin duck populations. It is also unlikely that given the specific and unique habitat requirement for breeding harlequin ducks, that grizzly bears would utilize similar habitats for foraging.

Black tern (*Chlidonias niger*) - Not likely to adversely affect. Burleigh (1972) considers black terns to be a fairly common, local summer resident over much of Idaho. Black terns require aquatic habitats with extensive stands of emergent vegetation and large areas of open water (DeGraaf et al. 1991). Black terns usually nest on islands or over water two or more feet in depth on top of cattails, reeds, and other vegetation (Burleigh 1972). In migration, black terns can occur along marshes, rivers, lakes, and nearby cultivated fields (DeGraaf et al. 1991). Although it is possible that grizzly bears could disturb black tern nesting sites and consume eggs or juvenile birds, such impacts would tend to be localized and are not likely to affect survival of this wide-ranging species.

Columbia sharp-tailed grouse (*Tympanuchus phasianellus columbianus*) - No effect. After closer review of the final recovery area delineation, it is determined that current known range of Columbia sharp-tailed grouse is outside of the experimental area (Ulliman et al. 1996).

Interior redband trout (*Oncorhynchus mykiss gairdneri*) and **Westslope cutthroat trout** (*Oncorhynchus clarki lewisii*) - Not likely to adversely effect. Grizzly bears have been documented to feed on resident spawning salmonids, but this source of food represents only a minor portion of the grizzly bears main diet if other food sources are available (Mattson et al. 1991; Craighead et al. 1995). Interior redband trout and westslope cutthroat trout both occur within the Bitterroot Ecosystem (Behnke 1992). Grizzly bears could feed on these fish during spawning runs. However, it is unlikely that grizzly bears would adversely affect local or regional populations of interior redband trout or westslope cutthroat trout as a whole.

Broad-fruit mariposa (*Calochortus nitidus*) - Not likely to adversely affect. Although grizzly bears may consume the bulbs of the broad-fruit mariposa, overall effect of consumption on the population by grizzly bears would likely be negligible. This species likely evolved with grizzly bear consumption and is more widespread than originally thought (Edna Vizgirdas, U. S. Fish and Wildlife Service, pers. comm. 1996). In addition, the Cottonwood Resource Area for the Bureau of Land Management has black bears within the proposed experimental population area where broad-fruit mariposa occurs, and there is no evidence that the species is declining due to black bear activity.

Other plant species of concern (see Species List in Project File) - No effect. Although grizzly bears are strongly herbaceous, incidental consumption of any of the remaining plant species of concern is unlikely to affect overall population levels. None of these plants has been documented to be overgrazed by grizzly or black bears to date (Jeri Wood, U. S. Fish and Wildlife Service, pers. comm. 1996). All of the plant species of concern have coexisted with bear species in the past with no apparent effect on plant populations.

Invertebrate species of concern (see Species List in Project File) - No effect. Available documentation indicates that grizzly bears may consume large quantities of ants and moths when available (Mattson et al. 1991; Craighead et al. 1995), however there is no evidence that grizzly bears consume molluscs or grasshoppers. None of the invertebrate species of concern has been documented to be overgrazed by bear species to date (Jeri Williams, U. S. Fish and Wildlife Service, pers. comm. 1996). Invertebrate species of concern and grizzly bears have likely coexisted in the past without adverse effects on invertebrate population levels.

Literature Cited

Alberta Forestry, Lands and Wildlife. 1990. Wildlife Management Planning Series Number 2. Management plan for grizzly bears in Alberta. Alberta Forestry, Lands and Wildlife, Fish and Wildlife, Alberta, Canada. 164 pp.

Behnke, R. J. 1992. Native trout of western North America. American Fisheries Society Monograph 6. American Fisheries Society, Bethesda, Maryland. 174 pp.

Braun, C.E., J.H. Enderson, M.R. Fuller, Y.B. Linhart, and C.D. Marti. 1996. Northern goshawk and forest management in the southwestern United States. Wildl. Soc. Tech. Rev. 96-2. 19 pp.

Burleigh, Thomas D. 1972. Birds of Idaho. *Buteo regalis* (Gray): Ferruginous hawk. Caxton Printers, Ltd. Caldwell, Idaho. pp. 67-68.

Burleigh, Thomas D. 1972. Birds of Idaho. *Chlidonias niger surinamensis* (Gmelin): Black tern. Caxton Printers, Ltd. Caldwell, Idaho. pp. 152-154.

Burleigh, Thomas D. 1972. Birds of Idaho. *Accipiter gentilis atricaphillus* (Wilson): Goshawk. Caxton Printers, Ltd. Caldwell, Idaho. pp. 59-60.

Cassirer, F.E. and C.R. Groves. 1990. Distribution, habitat use and status of harlequin ducks (*Histrionicus histrionicus*) in Northern Idaho, 1990. Natural Heritage Section, Nongame and Endangered Wildlife Program, Bureau of Wildlife, Idaho Department of Fish and Game, Boise, Idaho. 54 pp.

Craighead, J.J. and J. A. Mitchell. 1982. Wild mammals of North America. Grizzly bear, *Ursus arctos*. John Hopkins University Press, Baltimore, Maryland. pp. 515-518.

Craighead, J.J., J.S. Sumner, and J.A. Mitchell. 1995. The grizzly bears of Yellowstone: their ecology in the Yellowstone ecosystem, 1959 - 1992. Island Press, Washington D.C. 535 pp.

Davis, D. and B. Butterfield. 1991. The Bitterroot grizzly bear evaluation area: a report to the Bitterroot Technical Review Team. Interagency Grizzly Bear Committee, Denver, Colorado. 56 pp.

DeGraff, R.M., V.E. Scott, R.H. Harnre, L. Ernst, S.H. Anderson. 1991. Forest and rangeland birds of the United States, natural history and habitat use: Northern goshawk. Agriculture Handbook 688. pp. 79.

DeGraff, R.M., V.E. Scott, R.H. Harnre, L. Ernst, S.H. Anderson. 1991. Forest and rangeland birds of the United States, natural history and habitat use: Ferruginous hawk. Agriculture Handbook 688. pp. 90.

DeGraff, R.M., V.E. Scott, R.H. Harnre, L. Ernst, S.H. Anderson. 1991. Forest and rangeland birds of the United States, natural history and habitat use: Black tern. Agriculture Handbook 688. pp.172.

Ehrlich, P.R., D.S. Dobkin, D. Wheye. 1988. The birder's handbook. Harlequin duck. Simon and Schuster, Fireside Books, New York, New York. pp. 88.

Green, J.S. and J.T. Flinders. 1980a. Habitat and dietary relationships of the pygmy rabbit. J. of Range Manage. 33(2):136-142.

Green, J.S. and J.T. Flinders. 1980b. *Brachylagus idahoensis*. Mammalian Species. No. 125, pp.1-5.

Groves, C. In prep. Excerpts from Annotated atlas of Idaho's terrestrial vertebrates (draft). Idaho Conservation Data Center. Boise, Idaho.

Idaho Department of Fish and Game, Nez Perce Tribe, and Sawtooth National Forest. 1995. Forest carnivores in Idaho (draft). Habitat Conservation Assessments and Conservation Strategies. Idaho Department of Fish and Game, Idaho Department of Parks and Recreation, Bureau of Land Management, USDA Forest Service (Region 1 and 4), U.S. Fish and Wildlife Service. 126 pp.

Idaho Department of Fish and Game. 1996. Idaho Wildlife, Summer 1996. Harlequin duck: whitewater bird. pp. 2.

Mattson, D.J., B.M. Blanchard, and R.R. Knight. 1991. Food habits of Yellowstone grizzly bears, 1977-1987. Can. J. Zool. 69: 1619-1629.

Ruggiero, L.F., K.B. Aubry, S.W. Buskirk, L.J. Lyon, W.J. Zielinski. 1994. The scientific basis for conserving forest carnivores: American marten, fisher, lynx and wolverine in the western United States. Gen. Tech. Rep. RM-254. Ft Collins, CO: US Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station. 184 pp.

Servheen, C., A. Hamilton, R. Knight, and B. McLellan. 1991. Report of the technical review team: Evaluation of the Bitterroot and North Cascades to sustain viable grizzly bear populations. Report to the Interagency Grizzly Bear Committee. US Fish and Wildlife Service, Boise, Idaho. 9 pp.

State of Idaho. 1996. Governor Philip E. Batt's State of Idaho bull trout conservation plan. Boise, Idaho 116 pp.

US Fish and Wildlife Service. 1993. Grizzly bear recovery plan. US Fish and Wildlife Service, Missoula, Montana. 181 pp.

US Fish and Wildlife Service. 1994. Appendix 7. Intra-Service section 7 evaluation the reintroduction of gray wolves to Yellowstone National Park and Central Idaho. 62 pp.

US Fish and Wildlife Service. 1997. Grizzly bear recovery in the Bitterroot Ecosystem, draft Environmental Impact Statement. US Fish and Wildlife Service, Missoula, Montana. 464 pp.

US Fish and Wildlife Service. 1996. Bitterroot Ecosystem recovery plan chapter - supplement to the grizzly bear recovery plan. US Fish and Wildlife Service, Missoula, Montana. 27 pp.

US Forest Service and US Fish and Wildlife Service. 1996. Conservation Agreement: *Spermophilus brunneus brunneus* - Northern Idaho ground squirrel. 14 pp.

Ulliman, M.J., Sands, A. and Hemker, T. 1996. Conservation strategy for Columbian sharp-tailed grouse and its habitats in Idaho (draft). University of Idaho, Bureau of Land Management, Idaho Department of Fish and Game. 23 pp.

White, S.M., J.T. Flinders, R.L. Welch. 1982. Preference of pygmy rabbits (*Brachylagus idahoensis*) for various populations of big sagebrush (*Artemisia tridentata*). J. of Range Manage. 35(6):724-726.

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1849-1999

File: 1264 - Bitterroot Recovery Zone

March 29, 1999

Christopher Servheen, Grizzly Bear Recovery Coordinator
U.S. Fish and Wildlife Service
University Hall, Room 309
University of Montana
Missoula, Montana 59812

Dear Mr. Servheen:

This is in response to your February 11 letter requesting that the Fish and Wildlife Service (Service) review the biological assessment pertaining to Federally listed endangered and threatened species for the proposed grizzly bear reintroduction into the Bitterroot Ecosystem of Idaho and Montana. The Montana Field Office received your request on February 16.

The Service has reviewed the biological assessment and concurs with the determinations that the proposed action will benefit the threatened grizzly bear (*Ursus arctos horribilis*), is not likely to adversely affect non-essential experimental or endangered gray wolves (*Canis lupus*), threatened bull trout (*Salvelinus confluentus*), or proposed lynx (*Lynx canadensis*), and will have no effect on the threatened bald eagle (*Haliaeetus leucocephalus*), Macfarlane's four-o'clock (*Mirabilis macfarlanei*), water howellia (*Howellia aquatilis*), Ute's ladies tresses (*Spiranthes diluvialis*), or the endangered peregrine falcon (*Falco peregrinus anatum*), or proposed northern Idaho ground squirrel (*Spermophilus brunneus brunneus*). Therefore, pursuant to section 402.13(a) of the 50 CFR, formal consultation is not required.

If, after public review and comment, the final project design is changed so as to have effects on threatened or endangered species other that those described in your biological assessment, a revised biological evaluation will be necessary. The Service will then issue a letter of concurrence or nonconcurrence for the revised biological evaluation.

If you have questions regarding this letter, please contact Anne Vandehey of my staff at the addresses or phone provided above. Your cooperation and assistance in meeting our joint responsibilities under the Endangered Species Act are appreciated.

Sincerely,

Kemper M. McMaster
Field Supervisor

APPENDIX 9B. ESA SECTION 7 EVALUATION OF IMPACTS TO ANADROMOUS FISH FROM THE RECOVERY OF GRIZZLY BEARS IN THE BITTERROOT ECOSYSTEM OF CENTRAL IDAHO AND WESTERN MONTANA

Endangered Species Act - Section 7
Consultation

BIOLOGICAL OPINION

Grizzly Bear Recovery in the Bitterroot Ecosystem

Agency: U.S. Fish and Wildlife Service, Region 6

Consultation Conducted By: National Marine Fisheries Service, Northwest Region

Date Issued: May 12, 1998

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I. Background

The U.S. Fish and Wildlife Service (USFWS) contacted National Marine Fisheries Service (NMFS) for initial review of the draft proposed action in November 1996. The USFWS anticipated needing Endangered Species Act (ESA) consultation with NMFS on the proposed grizzly bear reintroduction program, because reintroduced grizzly bears may eat ESA listed Snake River salmon. The agencies met January 27, 1997, and April 17, 1997, to discuss the potential effects of the proposed action and to determine what information would be needed in a biological assessment (BA). The BA was submitted for consultation July 21, 1997. The USFWS provided supplemental information for the BA on September 18, 1997. The NMFS was delayed in consulting on the proposed action due to the listing of steelhead (August 18, 1997, effective October 17, 1997) which necessitated a large scale programmatic consultation on U.S. Forest Service (USFS) and Bureau of Land Management (BLM) land management plans. The NMFS and USFWS resumed discussions of the proposed action with a March 25, 1998, teleconference. This was followed by numerous communications (between Johnna Roy, USFWS, and Ken Troyer, NMFS) including an April 14, 1998, meeting in Orofino, Idaho. On May 1, 1998, NMFS provided a draft copy of this biological opinion (Opinion) to USFWS for comments. Comments were received from USFWS on May 7, 1997.

The objective of this Opinion is to determine whether the grizzly bear recovery program is likely to jeopardize the continued existence of ESA listed steelhead and salmon species or result in the destruction or adverse modification of their designated critical habitat.

II. Proposed Action

The USFWS proposes to release four to six grizzly bears[6] per year over five years in the Selway-Bitterroot Wilderness. Additional bears may be reintroduced if needed to replace bears lost to human-induced mortality. The Selway-Bitterroot Wilderness is part of a broad historic range of grizzly bears in Idaho, and was identified as a potential recovery area for the species in USFWS' grizzly bear recovery plan (USFWS 1993). The bears will likely be released within an 8-mile radius of the confluence of Moose Creek and the Selway River. In the short term, the USFWS expects the bears to occupy the Selway-Bitterroot Wilderness. A large proportion of the streams in this area provide habitat for ESA listed steelhead, whereas a small proportion (those accessible streams that flow into the Salmon River) provide habitat for listed salmon. If the bear recovery plan is successful, the population might eventually expand into other areas, including the Salmon River basin, which contains designated critical habitat for Snake River sockeye, spring/summer chinook, and fall chinook salmon, as well as habitat for Snake River steelhead.

The USFWS proposes to radio-collar each released bear and determine locations of the bears approximately each week, depending on weather conditions for aerial tracking. Progeny of the released bears would not necessarily be radio-collared. The USFWS would locate non-collared progeny through a combination of means including monitoring radio-collared adults with their progeny, aerial and ground-based reconnaissance surveys, and through information provided by other agencies and the public.

---

[6]The words "bears" and "bear" throughout this Opinion are used to mean grizzly bears; black bears will be referred to by full common name.

The USFWS proposes to avoid conflicts (such as with some human activities, and with the survival and recovery of listed fish species) by keeping bears away from certain areas using hazing methods and, if necessary, relocation. Hazing methods may include the use of noise and other devices. Electric fencing may also be used to exclude bears from certain areas, as this method has proven effective in some cases (Chuck Schwartz, Alaska Department of Fish and Game (ADFG), July 21, 1997, electronic mail to Wayne Kasworm, USFWS).

III. Biological Information and Critical Habitat

The NMFS has listed four anadromous fishes in the Snake River basin under the ESA. These include: Snake River steelhead, sockeye salmon, spring/summer chinook salmon, and fall chinook salmon. These species occur in watersheds where grizzly bears were found historically and where they may become re-established because of the proposed action. The action also may affect designated critical habitat for Snake River spring/summer and fall chinook salmon, and Snake River sockeye salmon (December 28, 1993, 58 FR 68543).

An action area is defined (50 CFR § 402.02) as: "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The reintroduced grizzly bears may harass and kill listed anadromous fish, and thus will tend to have direct, rather than indirect effects on the survival of listed fish in the action area. In the short term, the action area containing both grizzly bears and listed anadromous fish will likely include several watersheds of the upper Clearwater River subbasin and a few watersheds on the north side of the middle Salmon River subbasin. In the long term, the action area may include other parts of the Snake River basin accessible to anadromous fish.

A. Snake River Steelhead

The NMFS' status review of west coast steelhead (Busby et al. 1996), summarizes biological information on several Evolutionarily Significant Units (ESUs) of steelhead, including Snake River steelhead. Snake River steelhead are listed as threatened under ESA (August 18, 1997, 62 FR 43974). Critical habitat for this species has not yet been proposed. Snake River steelhead are an anadromous form of redband trout (*Oncorhynchus mykiss*) (Behnke 1992). Part of their life history is spent in the ocean, and spawning occurs in freshwater streams. Snake River steelhead are primarily summer-run fish which enter freshwater nine or ten months prior to spawning. They are described as either "A" or "B" run fish, depending on when they pass over Bonneville Dam on the mainstem Columbia River.

Snake River steelhead spawn from March to July, and enter streams several months before spawning. Juvenile steelhead have a variety of migration patterns that vary with local conditions; control mechanisms range from mostly genetic to mostly environmental (Behnke 1992). In some populations, steelhead may remain in natal streams before migrating to the ocean, but in others they migrate upstream or downstream soon after emergence to enter other rearing areas. In some watersheds, perhaps depending upon water temperatures and subsequent growth rates, parr remain in freshwater for up to seven years (Mullen et al. 1992).

Wild and naturally-reproducing stocks of steelhead have declined dramatically in the interior Columbia River Basin (Lee et al. 1997). Their decline is due to a variety of factors, but construction of dams along the Snake

and Columbia Rivers is a primary cause (Meehan and Bjornn 1991). Loss and degradation of spawning and rearing habitats as well as the introduction of non-native fishes have also contributed to declines. Smolt-to-adult survival has declined from more than 4% in 1968 to approximately 1.5% during the early 1970s and to less than 1% in recent years (Raymond 1979; and Lee et al. 1997). The current known distribution of steelhead in the interior Columbia River basin includes approximately 41% of their historical range and they are classified as "strong" within only 1.3% of the remaining range (Lee et al. 1997).

As noted in section III. above, the distribution of Snake River steelhead overlaps that of ESA listed Snake River spring/summer and fall chinook salmon, and Snake River sockeye salmon. The area unique to steelhead is the Clearwater River subbasin upriver from Lolo Creek.

Only three subbasins within the range of the Snake River basin ESU have wild steelhead that are unaffected by hatchery production (Idaho Department of Fish and Game (IDFG) 1996). These sub-basins are the Selway River (HUCs 17060301 and 17060302), a Clearwater River tributary; the South Fork Salmon River (HUC 17060208), and the Middle Fork Salmon River (HUC 17060205 and those portions with the Middle Fork watershed of 17060206), both tributaries to the Salmon River. These subbasins are of a large enough size (about 750,000 acres or larger) to sustain genetically diverse subpopulations of wild steelhead. Thurow (1985 and 1987) documented genetic divergence among subpopulations in various tributaries to the Middle Fork Salmon River and South Fork Salmon River. Lee et al. (1997) identified smaller watersheds with strongholds of steelhead that would form the nucleus of a more widespread distribution of steelhead with little or no influence of non-indigenous stocks.

Low run sizes over the last 10 years are most pronounced for naturally-produced steelhead, and average parr densities recently have dropped for both A and B run steelhead. Declines in abundance have been particularly serious for B-run steelhead, increasing the risk that some of the life history diversity may be lost. Recently obtained information indicates low smolt survival and poor ocean production for Snake River steelhead in 1992-1994.

Although steelhead populations have declined greatly and are at risk of further declines from a variety of factors, their life history makes them less vulnerable than salmon species to predation by grizzly bears. The spring timing of steelhead spawning overlaps partly with the period of hibernation for grizzly bears, and also typically coincides with high flows and increased instream turbidity, reducing the likelihood that grizzly bears would capture spawning steelhead. Although steelhead spawning sites can overlap with those used by salmon, steelhead are often more widely dispersed and select steeper, more turbulent sites.

B. Snake River Salmon and Critical Habitat

Three Snake River salmon populations listed as threatened or endangered under the ESA occur in the recovery area which may be re-inhabited by grizzly bears over the long term. Snake River sockeye salmon (*Oncorhynchus nerka*) are listed as endangered (November 20, 1991, 56 FR 58619). Snake River spring/summer chinook salmon (*O. tshawytscha*) and Snake River fall chinook salmon (*O. tshawytscha*) are listed as threatened species (April 22, 1992 57 FR 14653). The NMFS designated critical habitat for Snake River sockeye salmon, Snake River spring/summer chinook salmon, and Snake River fall chinook salmon on December 28, 1993 (58 FR 68543), effective on January 27, 1994.

A brief description of the life history and status of each salmon species is provided below. For more detailed information on the Snake River salmon species, refer to Attachment 1 of this Opinion, Waples et al. (1991), Matthews and Waples (1991), NMFS (1991), and *U.S. v Oregon* Technical Advisory Committee (1998).

Snake River sockeye salmon use the mainstem Snake River and mainstem Salmon River as a migration corridor to and from Redfish Lake, Idaho. Redfish Lake supports the only remaining run of sockeye salmon in the Snake River basin. Arrival of adult fish at Redfish Lake peaks in August, and spawning occurs primarily in October (Bjornn et al. 1968). Eggs hatch in the spring between 80 and 140 days after spawning. Fry remain in the gravel for three to five weeks, emerge in April through May and move immediately into the lake; there, juveniles feed on plankton for one to three years before they migrate to the Pacific Ocean (Bell 1986). Migrants leave Redfish Lake from late April through May (Bjornn et al. 1968), and smolts migrate almost 900 miles to the ocean.

Very few adult sockeye salmon have returned to Redfish Lake in recent years, with counts of 0-10 fish each year since 1988. A program to enhance the Snake River sockeye salmon using captive broodstock has been underway since the early 1990s. Adult sockeye salmon produced under this program are expected to begin returning to Redfish Lake in 2000 at a rate of several hundred fish per year (Tom Flagg, NMFS Northwest Fisheries Science Center, July 7, 1997, personal communication). Adult sockeye salmon would be vulnerable to capture by grizzly bears in Redfish Lake Creek and other shallow streams in the area. This area is, however, approximately 150 miles south of where the bears will be reintroduced, and USFWS does not anticipate that grizzly bears would occupy this area during the next 50 years (the prediction of bear distribution is described in more detail in section V, below).

The present range of spawning and rearing habitat for naturally-spawned Snake River spring/summer chinook salmon is primarily limited to Asotin Creek and the Salmon, Grande Ronde, Imnaha, and Tucannon River subbasins. Most Snake River spring/summer chinook salmon enter individual subbasins from May through September. Juvenile Snake River spring/summer chinook salmon emerge from spawning gravels from February through June (Perry and Bjornn 1991). Typically, after rearing in their nursery streams for about one year, smolts begin migrating seaward in April and May (Bugert et al. 1990; and Cannamela 1992). After reaching the mouth of the Columbia River, spring/summer chinook salmon probably inhabit nearshore areas before beginning their northeast Pacific Ocean migration, which lasts two to three years.

Snake River spring/summer chinook salmon populations have continued to decline since the ESA listing of the species. Escapement counts of natural spring/summer chinook salmon at Lower Granite Dam averaged approximately 8000 fish in the 5-year period ending in 1992, and approximately 4800 fish in the subsequent 5 years. Returns of 1000 or fewer fish are predicted for 1999 and 2000, whereas escapement levels averaging approximately 30,000 fish would be needed to recover the species.

Adult Snake River fall chinook salmon enter the Columbia River in July and migrate into the Snake River from August through October. Fall chinook salmon spawning is primarily limited to the Snake River below Hells Canyon Dam and the lower reaches of the Clearwater, Grand Ronde, Imnaha, Salmon, and Tucannon Rivers. Fall chinook salmon generally spawn from October through November and fry emerge from March through April. Downstream migration generally begins within several weeks of emergence (Becker 1970; and Allen and Meekin 1973), and juveniles rear in backwaters and shallow water areas through mid-summer prior to smolting and migration to the ocean.

Fall chinook salmon populations have remained at very low levels for many years, with estimates of natural-origin fish at Lower Granite Dam ranging from 78 to 797 fish per year over the last 20 years. Because fall chinook salmon spawn in mainstem reaches of large rivers, where the water is relatively deep and fast, they would not likely be susceptible to predation by grizzly bears. Effects on fall chinook salmon therefore will not be further considered in this Opinion.

Of the listed species considered in this Opinion, Snake River spring/summer chinook salmon are the most vulnerable to predation by grizzly bears. These salmon are vulnerable to capture because they spawn during August and September (typically low water periods) in primarily shallow, low gradient stream reaches. When populations are healthy, spawning fish are often found concentrated in relatively short stream reaches. The nearest listed spring/summer chinook salmon are approximately 25 miles south of the area where bears would be reintroduced, and USFWS does not expect the bears to occupy this area during the next 20 years (the prediction of bear distribution is described in more detail in section V, below) .

IV. Evaluating Proposed Actions

The standards for determining jeopardy are set forth in Section 7(a)(2) of the ESA as defined by 50 C.F.R., Part 402 (the consultation regulations). NMFS discusses the analysis necessary for application of these standards in the particular contexts of the listed species of Pacific salmon in Attachment 2. This analysis involves the following steps: (1) Define the biological requirements of the listed species; (2) evaluate the relevance of the environmental baseline to the species' current status; (3) determine the effects of the proposed or continuing action on listed species; (4) determine whether the species can be expected to survive with an adequate potential for recovery under the effects of the proposed or continuing action, the environmental baseline and any cumulative effects, and considering measures for survival and recovery specific to other life stages; and (5) identify reasonable and prudent alternatives to a proposed or continuing action that is likely to jeopardize the continued existence of the listed species.

A. Biological Requirements

The relevant biological requirements are those necessary for the listed species to survive and recover to naturally reproducing population levels at which protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stocks, enhance their capacity to adapt to variable environmental conditions, and allow them to become self-sustaining in the natural environment.

When considering the status of the listed species in all its life stages, biological requirements are expressed in terms of cohort replacement ratios and numerical escapement goals. Refer to Attachment 2 of this Opinion for a discussion of these requirements for Snake River salmon. A similar document for Snake River steelhead is not yet available; however, the general guidance and information for chinook salmon concerning critical habitat, life cycle and historical population trends, biological requirements, species status under the environmental baseline, and the effects on the environmental baseline, are expected to be similar for steelhead. It is not possible, based upon currently available scientific data and analysis, to prescribe life-stage specific numerical survival rates necessary to achieve the combined life-stage requirements described

above. However, NMFS' Proposed Recovery Plan for Snake River Salmon (NMFS 1995) notes that survival must improve in all life stages, given current critically low population levels.

For actions that influence spawning and rearing habitat quantity and quality, biological requirements include increasing spawning success and survival of early life history stages (egg-to-smolt stages), as well as protecting or improving those habitat characteristics that function to support successful spawning and survival of early life history stages. The relevant habitat characteristics are well-known and are documented in the scientific literature (e.g., Raleigh et al. 1986; and Bjornn and Reiser 1991). For example, fine sediment levels should not be so high that incubation and overwintering survival are affected significantly.

The precise number of adults needed to maintain adequate subpopulation levels is also not known with absolute certainty, but best available evidence suggests that subpopulation production should range between 200-250 and 1,100-1,375 based on escapement levels from 1962-1967, which are considered relatively healthy (NMFS 1995). The Biological Requirements Working Group (BRWG 1994) suggested that the figure of 50% of the 1962-1967 index area redd counts for subpopulations be used as a target. A similar target may be reasonable for steelhead; however, recovery estimates have not yet been developed.

B. Environmental Baseline

The current rangewide status of the listed species under the environmental baseline is described in Attachment 1. The biological requirements of the listed species are currently not being met under the environmental baseline. Their status is such that there must be a significant improvement in the current conditions of the critical habitat. Any further degradation of these conditions would have a significant impact due to the amount of risk the listed salmon presently face under the environmental baseline.

Declines in salmon production in the action area have resulted from a variety of activities including hydropower, harvest, artificial propagation, and land management activities. Land management activities that contributed to degraded habitat and egg-to-smolt mortality included water withdrawals, unscreened water diversions, small hydropower development, road construction, timber harvest, mining, livestock grazing, outdoor recreation, and associated activities. In general, land management actions that disturb ground and remove vegetation have: (1) Reduced connectivity (i.e., the flow of energy, organisms, and materials) between streams, riparian areas, floodplains, and uplands; (2) significantly elevated watershed sediment yields, leading to pool filling and elimination of spawning and rearing habitat; (3) reduced or eliminated instream replenishment of large woody debris that traps sediment, stabilizes streambanks, and helps form pools; (4) reduced or eliminated vegetative canopy that minimizes temperature fluctuations; (5) caused streams to become straighter, wider, and shallower, which has the tendency to reduce spawning and rearing habitat and increase temperature fluctuations; (6) altered peak flow volume and timing, leading to channel changes and potentially altering fish migration behavior; (7) altered water tables and base flows, resulting in riparian wetland and stream dewatering; and (8) contributed to degraded water quality by adding toxicants through mining and pest control (Eastside Forests Scientific Society Panel 1994; McIntosh et al. 1994; Rhodes et al. 1994; Wissmar et al. 1994; and Quigley and Arbelbide 1997).

Since the listing of the Snake River salmon species, broad-scale efforts have been initiated to improve the environmental baseline conditions which contributed to the decline of those species. For example, the adoption of an interim salmonid conservation strategy (PACFISH) by the U.S. Forest Service and Bureau of Land Management has helped reduce impacts of Federal land management activities and reduced

hindrances to natural recovery processes. PACFISH and related guidance have resulted in widely applied protections of riparian areas, decreased rates of construction of new roads, and increased rates of road obliteration on Federal lands in the Snake River basin. Also, Bonneville Power Administration (BPA) and the Army Corps of Engineers have developed or are developing interim measures to improve survival of listed salmon and steelhead through the migration corridor, specifically hydropower facilities and impoundments. These efforts do correlate with significant increases in survival in several cases; however, data are not yet available to fully evaluate the effectiveness of these interim measures. Longer- term strategies for conservation and recovery of listed species (e.g. HCPs with non-Federal entities, Interior Columbia River Basin Ecosystem Management Project (ICBEMP), Federal Columbia River Power System Power System 1999 Decision, etc.) are being developed for implementation within the next few years.

The environmental baseline includes some level of predation on adult salmon and steelhead in the Snake River basin by black bears, otters, eagles, and other animals. Information was not available to quantify this existing level of predation; however, because of the presently low numbers of anadromous fish, salmon and steelhead are likely uncommon in the diets of these species and are not target food items on which the species depend. These inland predators are not noted among the factors for the decline of the anadromous fish species (NMFS 1991b; NMFS 1996).

V. Analysis of Effects

A. Effects of Proposed Action

The effects of the grizzly bear recovery project on listed anadromous fishes are likely to be different in the short term versus the long term. The BA noted that there is very little risk to listed anadromous fish species in the short term, due to the location of bear release sites, slow expansion expected of the bear population, lack of fishing experience among the bears to be released, low numbers of the listed fish species, and timing and location of spawning which minimizes availability of certain species (steelhead and fall chinook salmon) to bears. Those factors are described in more detail below. The "likely to adversely affect" determination in the BA was based on assumptions that, in the longer term, bear populations would expand into areas with listed salmon, that salmon population sizes would have increased, and some individual salmon would eventually be killed or harassed by the bears. The NMFS discusses short- and long-term effects of the action below.

Short Term

The USFWS estimated that the grizzly bears would not occupy areas with listed salmon within 20 years following the bear reintroduction (Wayne Kasworm, USFWS, May 7, 1998, personal communication). The USFWS estimated bear population growth assuming a 4% growth rate, which USFWS considered optimistic, and predicted that over 20 years the population may grow from 25 to approximately 60 bears (Draft Environmental Impact Statement, p. II-11). The USFWS further predicted that if bear densities were sparse (one bear per 22 square miles), within 20 years the population may occupy a 20-mile radius area around the release sites (USFWS Biological Assessment, page 35). The nearest area with listed salmon is the upper reaches of Bargamin Creek, approximately 25 miles away from the proposed release sites. If the geographic expansion of the bear population is in less of a circular pattern and more linear, bears may be farther from the release sites in that timeframe. Also, according to the BA, male bears tend to wander more than the

females, and it is possible one or more of these males could wander outside of the area the USFWS expects the bears to occupy during the first 20 years. The NMFS considers the 20-year period in this analysis of the action's short-term effects, and assumes (given the possibilities of a more linear geographical expansion and straying of some bears) that bears could establish ranges within a 30-mile radius of the release sites in the 20-year period.

The USFWS compiled information on both the possible locations of salmon concentrations, and factors influencing bear fishing success, to allow NMFS to better understand where listed salmon may be most vulnerable to predation by bears in the short and long terms. The USFWS submitted a list of maps of recent and historic concentrations of Snake River spring/summer chinook salmon. These areas include spawning areas and partial barriers to migration where salmon may congregate, such as at waterfalls and other steep gradient stream reaches, diversion dams, and weirs operated for fisheries research or propagation. The USFWS also provided information (from bear biologists experienced with bear fishing behavior) on the physical dimensions of streams associated with successful fishing by bears.

Wildlife biologists with USFWS and ADFG noted that bears fish successfully at waterfalls and in shallow, low gradient stream reaches where salmon are concentrated (electronic mails to Wayne Kasworm, USFWS, from: Chuck Schwartz, ADFG, July 22, 1997; Sterling Miller, ADFG, July 21, 1997; and Vic Barnes, USFWS, July 22, 1997; and Dick Sellers, ADFG, May 2, 1997, personal communication with Ken Troyer, NMFS). These biologists noted that bears were either substantially less successful or did not fish where stream dimensions allowed escape routes for fish due to depths (pool depths of 3 feet or greater), high flows, undercut banks, or other structures. Anecdotal information from the Clearwater River basin in the early 1900s indicates that grizzly bears caught salmon at a few cascade areas where fish were numerous (Herb Pollard[7], NMFS, April 22, 1997, personal communication relating information from the bear hunting journals of William Wright). Wildlife biologists with ADFG indicated that black bear fishing behavior in Idaho will give some indication of where grizzly bears may fish. Little information was available to NMFS on black bear fishing; however, black bears were observed fishing successfully in Big Creek (Middle Fork Salmon River tributary) and in the Poverty Flats section of the South Fork Salmon River in the 1970s (Dave Burns, USFS, April 28, 1998, personal communication). In fish surveys of Bear Valley Creek in the 1960s, nearby black bears were observed feeding on a small percentage of available salmon carcasses, as the bears apparently were utilizing mainly other foods (Herb Pollard, NMFS, April 22, 1998, personal communication).

Based on this information on bear feeding behavior and areas of salmon concentrations in the Salmon River basin, NMFS asked fishery biologists familiar with these sites to assess where salmon may be most vulnerable to predation. The fisheries biologists provided a list of sites included in Tables 1 and 2 below. Table 1 includes areas within 30 miles of the release sites; that is, where salmon and steelhead[8] could be vulnerable to capture by bears in the short term. Table 2 includes areas outside the 30-mile radius, where salmon and steelhead may be vulnerable over the long term (see discussion of Long Term, below).

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[7]Herb Pollard, currently with NMFS, is the former director of the IDFG Lewiston, Idaho Office and in that position was involved in the interagency coordination on the proposed action.

[8]Because of the timing of their spawning in the spring, steelhead would be less available to bears; however, fisheries biologists noted that at certain partial barriers, steelhead may be vulnerable to capture by bears.

Chapter 6 -Appendix 9B

Table 1. Areas within 30 miles of the grizzly bear release sites where listed salmon or steelhead may be vulnerable to predation by bears (information from fishery biologists with USFS, IDFG, and Tribes).

Subbasin/Watershed	Location	Comments
Selway River/ Moose Creek	diversion dam in North Fork	Steelhead move through in April, may be concentrated here
Lochsa River/Fish Creek	weir	Steelhead concentrated here (approx 25 miles from bear release area); human presence may deter bears
Lochsa River/Squaw Creek	culvert in West Fork partial barrier	Steelhead move through in April; not clear if densities would be sufficient to attract bears
Lochsa River/Papoose Creek	cascade in West Fork 1/4 mile above mouth	Steelhead move through in April; not clear if densities would be sufficient to attract bears
Lochsa River/Boulder Creek	weir	Steelhead move through in April; not clear if densities would be sufficient to attract bears
Salmon River/ Bargamin Creek	upper meadows	Salmon spawning area, potential densities of fish not known; physical dimensions of stream (small, shallow) could enable fish capture

Information on locations of bears will enable USFWS to determine if bears may be taking listed salmon, and thus allow USFWS to implement measures to minimize the take. The USFWS will likely have information on the locations of individual bears during the first several years of the project, because released bears will be radio-collared and any non-collared progeny will likely accompany the collared adults for approximately three years. According to USFWS, non-collared female progeny are expected to eventually establish their own territories adjacent to, or not far from their mother's territory. Male bears would also tend to stay in these areas; however, in a small percentage of the cases males may wander away from the rest of the population. If non-collared bears have not been located, the USFWS will attempt to locate the bears with aerial and ground-based reconnaissance. Information on bear locations will also likely be available from public users of the wilderness, and from personnel with other agencies working in the area.

The risk to listed salmon in the short term appears to be very low. According to the USFWS estimates of population growth, it is highly unlikely that grizzly bears would occupy sockeye salmon spawning areas (150 miles south of the bear release sites) in the next 20 years. Spring/summer chinook salmon in Bargamin Creek are within 25 miles of the bear release sites; however, as with other spring/summer chinook salmon populations in the basin, there have been few if any salmon found in Bargamin Creek in recent years. While the physical dimensions of Bargamin Creek may allow bears to catch some salmon, it appears unlikely that salmon would be available in sufficient concentrations to attract bears. Wildlife biologists with ADFG and USFWS have noted that bears eat primarily other foods in areas where salmon are either unavailable or available in low densities (electronic mails to Wayne Kasworm, USFWS, from: Chuck Schwartz, ADFG, July 22, 1997; Sterling Miller, ADFG, July 21, 1997; and Vic Barnes, USFWS, July 22, 1997; and Dick Sellers, ADFG, May 2, 1997, personal communication with Ken Troyer, NMFS). In the short term, bears will depend on foods other than fish (e.g., vegetation, insects, rodents, and wild ungulates), but may encounter salmon in the course of foraging for other foods.

It is not clear that bears would fish successfully during the short term, even if they have an opportunity to catch salmon. The USFWS noted that fishing behavior appears to be learned through maternal training and that the released bears would not have that training. It is not known how quickly bears may learn to catch fish. Bears without maternal training in fishing have been observed to take many years to begin fishing, even with concentrations of fish nearby (Wayne Kasworm, USFWS, April 17, 1997, personal communication). The bears' persistence at trying to catch fish might be increased if they have eaten carcasses nearby; however, availability of carcasses alone would not necessarily initiate fishing (Herb Pollard, NMFS, April 22, 1998, personal communication).

Along with the factors of fishing experience and stream dimensions, salmon abundance will influence bears' success in catching salmon. As noted in section III, above, numbers of Snake River spring/summer chinook salmon are currently very low and have been for several years. Annual adult spring/summer chinook salmon returns averaged approximately 125,000 fish in the 1950s, and 59,000 fish in the 1960s. In spite of increased production from hatcheries beginning in 1966, the abundance of natural[9] fish continued to decline by about 50-70% per decade. Annual abundance estimates of spawners within the last few years have been approximately 1000-5000 fish, well below the average of approximately 30,000 fish which NMFS has identified as a recovery goal (see attachment 1 to this Opinion). Given the very low numbers of the species currently and considering the species' life cycle averages 5 years, the NMFS anticipates recovery will be slow and the recovery goal will not be met within the next 20 years. In this short term period, while numbers of spring/summer chinook salmon remain relatively low, reintroduced bears would not likely encounter concentrations of salmon which would trigger attempts at, and success with fishing.

In summary, it is not likely that bears will occur in areas with concentrations of listed salmon in the next 20 years, and even less likely that the bears will harm or kill listed salmon, given the low densities of salmon, the bears' focus on other foods, and the bears' lack of fishing experience. There is, however, a possibility that the proposed action could result in taking of salmon during this period. The USFWS will monitor movements of many bears, but will not know precise locations of all bears. The USFWS does propose to avoid conflicts (such as with some human activities, and with the survival and recovery of listed fish species) by fencing or hazing bears away from streams if bears are taking salmon and discussions with NMFS indicate management action is necessary. Relocation of bears could occur if other actions prove ineffective and relocation is logistically possible.

Listed steelhead are in the area where bears would be released, but the risk to steelhead is low primarily because of the timing of their spawning. Steelhead spawn in the spring, when bears are either still in, or just out of winter dens. Also, water levels are typically high and turbid at this time, reducing the bears' abilities to locate and capture steelhead. Further, steelhead will tend to move downstream into bigger rivers after spawning, so few carcasses would be available to attract bears. Still, fisheries biologists felt that at some sites (see Table 1) steelhead may be vulnerable to capture by bears. Capture of steelhead by reintroduced bears, while possible, does not appear to be probable in the short term, due to the timing of steelhead spawning, lack of fishing experience among the bears, and the tendency for bears just out of the dens to feed in upland areas away from streams (Wayne Kasworm, USFWS, April 17, 1997, personal communication).

[9]Natural fish are those produced in stream gravels; some of these fish have hatchery ancestors.

Long Term

In the long term (>20 years from the proposed reintroduction of grizzly bears), bears may become established in areas with listed salmon as well as steelhead. The NMFS' analysis of effects of the action must consider the longer term period because the introduction of bears itself will tend to foreclose some long term options, such as completely excluding bears from all areas where they may kill salmon.

It is difficult to estimate the degree of adverse effects reintroduced grizzly bears may have on listed anadromous fish in the long term. This will depend on future distributions and abundances of both bears and fish, as well as other factors. Table 2 contains a list of sites in the Salmon River basin where concentrations of listed fish may occur and dimensions of the sites could enable bears to catch fish. For reasons noted above, Snake River spring/summer chinook salmon are the listed fish most likely to be caught by bears. It is possible that grizzly bears could catch sockeye salmon in the Stanley Basin area. The sockeye salmon spawning grounds are also heavily used areas of tourism, however, so USFWS would likely haze bears away from this area anyway to avoid conflicts with humans.

Table 2. Areas more than 30 miles from the grizzly bear release sites (but within the grizzly bear recovery experimental area) where listed salmon or steelhead may be vulnerable to predation by bears (information from fishery biologists with USFS, IDFG, and Tribes).

Subbasin/Watershed	Location	Comments
Lochsa River/Crooked Fork	weir	Steelhead move through in April; human presence may deter bears from this area
Lochsa River/Crooked Fork	cataracts above mouth of Boulder Creek	Steelhead move through in April; not clear if densities would be sufficient to attract bears
Lochsa River/Colt-Killed Creek	cataracts in Storm Creek	Steelhead move through in April; not clear if densities would be sufficient to attract bears
South Fork Clearwater River/ Meadow Creek	lower 1/2 mile, steep area where steelhead jump	Steelhead move through in March and April; human activity nearby, and probably little overlap with bear presence (out of dens in April)
Clearwater River/Lolo Creek	weir	Steelhead move through in April, may be vulnerable to capture
Clearwater River/Lolo Creek	Eldorado Creek weir	Steelhead move through in April, may be vulnerable to capture
Little Salmon River/ Rapid River	hatchery weir	Chinook salmon and steelhead congregate below this and may be vulnerable to capture; however, human activity in the vicinity would tend to deter bears
South Fork Salmon River/Secesh River	In Lake Creek and below mouth of Lake Creek	Chinook salmon spawning, shallow, limited escape routes for fish, but redds may be scattered throughout
South Fork Salmon River	Poverty Flats, Reed Ranch area	Chinook salmon spawning; black bears caught salmon here in the 1970s

Subbasin/Watershed	Location	Comments
South Fork Salmon River	Reaches where Roaring, Nickel, and Dime Creeks enter	Chinook salmon spawning, shallow, limited escape routes for fish
South Fork Salmon River/Cabin Creek	approximately 2 miles upstream	Chinook salmon spawning, small creek, shallow, limited escape routes for fish
South Fork Salmon River	IDFG fish trap	Migrating chinook salmon and steelhead confined at this site could be caught by bears
South Fork Salmon River	Stolle Meadows	Chinook salmon spawning, shallow, limited escape routes for fish
South Fork Salmon River/East Fork	Johnson Creek: Deadhorse Rapids, Ice Hole area	Chinook salmon migration and spawning, partial barrier or shallow, fish vulnerable to capture
Salmon River/ Chamberlain Creek	West Fork	Chinook salmon spawning, shallow, limited escape routes for fish
Middle Fork Salmon River/ Big Creek	primarily Coxey Hole; Monumental Bar; Lick Creek confluence; Taylor Ranch area	Chinook salmon spawning; black bears caught salmon in at least some of these areas in the 1970s
Middle Fork Salmon River/ Big Creek	Monumental Creek: Mud Creek to Roosevelt Lake; Roosevelt Lake to Annie Creek	Chinook salmon spawning, shallow, limited escape routes for fish
Middle Fork Salmon River/ Camas Creek	West Fork; above and below West Fork confluence	Chinook salmon spawning, shallow, limited escape routes for fish in some spawning areas
Middle Fork Salmon River/ Loon Creek	between Cold Springs and Mayfield Creeks	Chinook salmon spawning, shallow, limited escape routes for fish in some spawning areas
Middle Fork Salmon River/ Marsh Creek	weir	Chinook salmon and steelhead may mill at weir and be vulnerable to capture
Middle Fork Salmon River/ Cape Horn Creek		Chinook salmon spawning, shallow, limited escape routes for fish in some spawning areas
Middle Fork Salmon River/ Bear Valley Creek		Chinook salmon spawning, shallow, limited escape routes for fish in some spawning areas
Middle Fork Salmon River/ Elk Creek		Chinook salmon spawning, shallow, limited escape routes for fish in some spawning areas
Salmon River/Lemhi River	weir; section downstream from Leadore	Chinook salmon spawning, large concentrations of fish historically; current irrigation activities and concentration of human activity limit potential for fish and bears
East Fork Salmon River	weir; upper mainstem (below Bowery Creek)	Chinook salmon migration and spawning, limited escape routes for fish at weir and in some spawning areas

Subbasin/Watershed	Location	Comments
upper Salmon River	Indian Riffles; Torrey's Hole	Chinook spawning, shallow, limited escape routes for fish in some spawning areas
upper Salmon River/ Valley Creek		Chinook salmon spawning, shallow, limited escape routes for fish in some spawning areas
upper Salmon River/Redfish Lake Creek	weir; low gradient reaches below weir	Shallow, sockeye salmon need to traverse to reach spawning areas; black bears present in the area; sockeye salmon numbers extremely low in recent years; concentrated human activity in this area

As noted in Table 2, there are several areas in the Salmon River basin where bears may be able to catch spring/summer chinook salmon, and a few areas where they may be able to catch sockeye salmon or steelhead, if the fish are available in sufficient numbers. Information from fishery biologists who assisted NMFS in compiling table 2 included observations of black bears catching fish at two of these sites in the 1970s, when spawning fish were approximately 5-10 fold more numerous than they are now. Salmon are currently absent from, or present in very low numbers in most of the areas listed in table 2. There are a few weir sites where spring/summer chinook salmon, at current population levels, could be available in great enough densities to attract bears; however, human activity around these sites combined with bear inexperience in fishing reduce the probability of bear predation on salmon.

Assuming that salmon would be substantially more abundant but not de-listed under ESA (abundances approximating those in the 1970s) in the long term, fishing areas for grizzly bears may still be few, as evidenced by the few areas where black bears[10] were known to catch salmon in the 1970s. Further, the BA notes that grizzly bears may be relatively sparsely distributed south of the Salmon River, where the generally drier climate and associated vegetation provides less forage than in the Selway-Bitterroot Wilderness. The NMFS also considered that if grizzly bears do find a concentration of salmon and catch fish, they may displace black bears which would have fished the area, possibly merely maintaining a level of take which would occur without the proposed action.

As noted above, locations of bears would initially be determined with radio-collaring and other methods. Over the long term, as the bear population increases and expands its range, uncertainty about the location of individual bears will likely increase. Public concerns about locations of the bears will, however, tend to place continued emphasis on monitoring the bears through various means. Many sites where listed salmon are potentially vulnerable to capture by bears will also be monitored (typically for counting adult fish or redds), and thus it may be determined if a grizzly bear is using the area.

The USFWS has also stated that it will use hazing and relocations as necessary to minimize take of listed fish (Wayne Kasworm, USFWS, April 17, 1997, personal communication). Given the speculative nature of envisioning the likelihood of, and allowable levels of take so many years in the future, this commitment

[10]Black bear fishing areas provide an indication of where grizzly bears would fish (Sterling Miller, ADFG, July 21, 1997, electronic mail to Wayne Kasworm, USFWS); however, information was not available to NMFS to determine if grizzly bears would fish in other areas not used by black bears.

by USFWS (along with mitigating factors mentioned above which reduce the scope of potential take) decreases NMFS' concern about conflicts between the recovery of grizzly bears and anadromous fish over the long term.

B. Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future state and private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation."

Information on specific activities planned or foreseeable on non-Federal land was not provided in the BA. The NMFS assumes, conservatively, that management impacts from non-Federal activities which have adversely affected listed anadromous fish or degraded or hindered recovery of elements of their habitat will continue in the short-term. This assumption may be conservative in the long-term, as the listed species may benefit from habitat improvements on non-Federal land, such as those gained through the Idaho bull trout plan and Habitat Conservation Plans (HCP) developed with non-Federal entities to fulfill the requirements of ESA section 10.

VI. Conclusion

The NMFS has determined that, based on the available information, the grizzly bear recovery project is not likely to jeopardize the continued existence of Snake River steelhead, sockeye salmon, and spring/summer chinook salmon species or result in the destruction or adverse modification of critical habitat. This conclusion was based on the following factors which create a very low risk of adverse effects in the short term:

1) Even with liberal estimates of bear population expansion, reintroduced bears will not likely encounter, and even less likely learn to catch spring/summer chinook salmon in the short term;

2) Bears will occupy areas with listed steelhead; however, the timing and other characteristics of steelhead spawning combined with bear denning and early season feeding habits make the likelihood of predation on steelhead very low; and

3) Sockeye salmon are essentially unavailable to bears in the short term.

Further, NMFS conclusion of "not likely to jeopardize or adversely modify" was based on the following considerations over the longer term:

1) The potential scope of grizzly bear impacts on spring/summer chinook salmon populations over the longer term is limited by a combination of low abundance of listed salmon (below de-listing levels), low densities of grizzly bears which can be sustained by vegetation south of the Salmon River, inexperience of bears with fishing, limited sites where fishing would be successful, and USFWS' commitment to haze/relocate bears if necessary to reduce conflicts between their project and the recovery of listed salmon;

2) Grizzly bears could take at most a very small percentage of steelhead in the future, due to timing and other aspects of steelhead spawning, as well as early season feeding habits of bears which will minimize contact with listed steelhead; and

3) Sockeye salmon may be vulnerable to predation, particularly in Redfish Lake Creek; however, USFWS will relocate or haze bears away from this area of concentrated human activity if conflicts[11] occur.

VIII. Conservation Recommendations

Section 7 (a)(1) of the ESA directs Federal agencies to utilize their authorities to further the purposes of the ESA by carrying out conservation programs for the benefit of the threatened and endangered species. Conservation recommendations are discretionary measures suggested to minimize or avoid adverse effects of a proposed action on listed species, to minimize or avoid adverse modification of critical habitat, or to develop additional information. NMFS believes the following conservation recommendation is consistent with these obligations, and therefore should be implemented by the USFWS:

The USFWS should maintain and regularly update lists of bear locations and salmon concentrations within 10 miles of the bears, so that USFWS will be prepared to determine, and apprise NMFS of situations where take of listed anadromous fish could occur.

In order for NMFS to be kept informed of actions minimizing or avoiding adverse effects, or those that benefit listed species or their habitat, NMFS requests notification of the implementation of any conservation recommendations.

IX. Reinitiation of Consultation

Consultation must be reinitiated if: the amount or extent of taking specified in the Incidental Take Statement is exceeded, or is expected to be exceeded; new information reveals that the action may affect listed species in a manner or to an extent not previously considered; the action is modified in a way that causes an effect on listed species that was not previously considered; or, a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16).

Consultation must also be reinitiated within 20 years after the USFWS begins implementing the proposed action. This will enable USFWS and NMFS to re-assess the effects of the action with up-to- date information on the populations of bears and their potential to affect anadromous fish. If, in the meantime, circumstances occur which limit USFWS' ability to meet the terms and conditions in this Opinion (section XI.c.), the USFWS must reinitiate consultation to identify where measures to minimize take should be focused.

X. References

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this opinion.

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[11]There would be a high probability of conflicts with humans if grizzly bears were in this area.

Allen, R.L., and T.K. Meekin. 1973. An evaluation of the Priest Rapids chinook salmon spawning channel, 1963-1971. Wash. Dept. Fisheries, Technical Report 11:1-52 p.

Becker, D.C. 1970. Temperature, timing, and seaward migration of juvenile chinook salmon from the central Columbia River. AEC Research and Development Report, Battelle Northwest Laboratories. Richland, WA. 21 p.

Behnke, R.J. 1992. Native trout of North America. American Fisheries Society Monograph 6, American Fisheries Society, Bethesda, Maryland.

Bell, M.C. 1986. Fisheries handbook of engineering requirements and biological criteria. Army Corps of Engineers. 290 p.

Biological Requirements Work Group (BRWG). 1994. Progress Report: Analytical methods for determining requirements of listed Snake River salmon relative to survival and recovery. Idaho et. al. v. NMFS et. al. October.

Bjornn, T.C., D.R. Craddock and D.R. Corley. 1968. Migration and survival of Redfish Lake, Idaho, sockeye salmon, Oncorhynchus nerka. Transactions of the American Fisheries Society 97:360-373.

Bjornn, T. C., and D. W. Reiser. 1991. Habitat requirements of salmonids in streams. Pages 105 - 115 *in* W. Meehan, ed. Influences of forest and rangeland management on salmonid fishes and their habitats. American Fisheries Society Special Publication 19, American Fisheries Society, Bethesda, Maryland.

Bugert, R., P. LaRiviere, D. Marbach, S. Martin, L. Ross, and D. Geist. 1990. Lower Snake River compensation plan salmon hatchery evaluation program 1989 annual report. Report to the U.S. Fish and Wildlife Service, Cooperative Agreement 14-16-0001-89525, 145 p. Available from U.S. Fish and Wildlife Service, 4696 Overland Road, Room 560, Boise, ID 83702.

Busby, P. J., T. C. Wainwright, G. J. Bryant, L. Lierheimer, R. S. Waples, F. W. Waknitz, and I. V. Lagomarsino. 1996. Status review of west coast steelhead from Washington, Idaho, Oregon, and California. U.S. Department of Commerce, NOAA, Technical Memorandum NMFS-NWFSC-27, 261 p.

Cannamela, D.A. 1992. Potential impacts of releases of hatchery steelhead trout "smolts" on wild and natural juvenile chinook and sockeye salmon. A white paper, Idaho Department of Fish and Game, Boise, ID.

Eastside Forests Scientific Society Panel. 1994. Interim protection for late-successional forests, fisheries and watersheds. National Forests east of the Cascade crest, Oregon and Washington. A report to the Congress and the President of the United States. August. The Wildlife Society, Bethesda, Maryland. 245 p.

Idaho Department of Fish and Game. 1996. Fisheries Management Plan, 1996-2000. Idaho Department of Fish and Game. Boise, Idaho.

Lee, D. C., and 20 co-authors. 1997. Broadscale assessment of aquatic species and habitats. In press report of the Interior Columbia Basin Ecosystem Management Project.

Matthews, G.M. and R.S. Waples. 1991. Status review for Snake River spring and summer chinook salmon. U.S. Dep. Commer., NOAA Tech. Memo. NMFS F/NWC-200. 75 p.

McIntosh, B. A., J. R. Sedell, J. E. Smith, R. C. Wissmar, S. E. Clarke, G. H. Reeves, and L. A. Brown. 1994. Management history of eastside ecosystems: Changes in fish habitat over 50 years, 1935 to 1992. USDA Forest Service, Pacific Northwest Research Station, General Technical Report PNW-GTR-321. February.

Meehan, W.R., and T.C. Bjornn. 1991. Salmonid distributions and life histories. Pages 47-82 *in* W. Meehan, ed. Influences of forest and rangeland management on salmonid fishes and their habitats. American Fisheries Society Special Publication 19, American Fisheries Society, Bethesda, Maryland.

Mullen, J. W., K. Williams, G. Rhodus and others. 1992. Production and habitat of salmonids in mid-Columbia River tributary streams. Monograph 1, U.S. Fish and Wildlife Service, Portland Oregon.

National Marine Fisheries Service. 1991. Factors for decline. A supplement to the notice of determination for Snake River spring/summer chinook salmon under the Endangered Species Act. NMFS, Portland OR. 72 p.

National Marine Fisheries Service. 1995. Proposed Recovery Plan for Snake River Salmon, March.

National Marine Fisheries Service. 1996. Factors for decline. A supplement to the notice of determination for West Coast steelhead under the Endangered Species Act. NMFS, Portland OR. August. 83 p.

Perry, C.A. and T.C. Bjornn. 1991. Examination of the extent and factors affecting downstream emigration of chinook salmon fry from spawning grounds in the upper Salmon River. Unpublished report, Idaho Cooperative Fish and Wildlife Research Unit, University of Idaho, Moscow.

Quigley, T. M., and S. J. Arbelbide, tech. eds. 1997. An assessment of ecosystem components in the interior Columbia basin and portions of the Klamath and Great Basins. General Technical Report PNW-GTR-405, Volume III. Portland, OR: USDA, Forest Service, Pacific Northwest Research Station, Portland, Oregon.

Raleigh, R.F., W.J. Miller, and P.C. Nelson. 1986. Habitat suitability index models and instream flow suitability curves: chinook salmon. Biological Report 82(10.122). U.S. Fish and Wildlife Service.

Raymond, H. L. 1979. Effects of dams and impoundments on migrations of juvenile chinook salmon and steelhead from the Snake River, 1966 to 1975. Transactions of the American Fisheries Society 108:505-529.

Rhodes J. J., D. A. McCullough, and F. A. Espinosa, Jr. 1994. A coarse screening process for potential application in ESA consultations. Columbia River Intertribal Fish Commission. Prepared under NMFS/BIA Inter-Agency Agreement 40ABNF3. December.

Thurow, R. 1985. Middle Fork Salmon River fisheries investigations. Job Completion Report F-73-R-6. Idaho Department of Fish and Game, Boise, Idaho.

Thurow, R. 1987. Completion report: valuation of the South Fork Salmon River steelhead trout restoration program. USDI, Lower Snake River Fish and Wildlife Compensation Plan, Contract No. 14-16-0001-86505. Idaho Department of Fish and Game, Boise, Idaho.

Waples, R.S., O.W. Johnson, R.P. Jones Jr. 1991. Status review for Snake River sockeye salmon. U.S. Department of Commerce, NOAA Technical Memorandum NMFS F/NWC-195. 23 p.

Wissmar, R. C., J. E. Smith, B. A. McIntosh, H. W. Li, G. H. Reeves, and J. R. Sedell. 1994. Ecological health of river basins in forested regions of eastern Oregon and Washington. USDA Forest Service, Pacific Northwest Research Station, General Technical Report PNW-GTR-326.

U.S. Fish and Wildlife Service. 1993. Grizzly bear recovery plan. U.S. Fish and Wildlife Service, Missoula, Montana. 181 p.

U.S. v Oregon Technical Advisory Committee. 1998. Updated tables for the biological assessment of the impacts of anticipated 1996-1998 fall season Columbia River mainstem and tributary fisheries on Snake River salmon species listed under the Endangered Species Act. March 19. Portland, Oregon.

XI. Incidental Take Statement

Sections 4 (d) and 9 of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patters such as breeding, feeding, and sheltering. Harass is defined as actions that create the likelihood of injuring listed species to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. Incidental take is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary; they must be implemented by the USFWS so that they become binding conditions of any grant or permit issued to the applicant, as appropriate, in order for the exemption in section 7(o)(2) to apply. The USFWS has a continuing duty to regulate the activity covered in this incidental take statement. If the USFWS (1) fails to require the applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

An incidental take statement specifies the impact of any incidental taking of endangered or threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply in order to implement the reasonable and prudent measures.

A. Amount or Extent of the Take

The NMFS finds that the proposed action has a very low risk of causing take of listed salmon or steelhead over approximately the next 20 years. The action has a greater likelihood of resulting in take of listed salmon beyond the 20-year period, if the action is successful in re-establishing grizzly bears throughout the experimental population area and if salmon become substantially more abundant than they are currently but are still listed under ESA. The potential for take in the long term will be addressed in the reinitiation of consultation which is required 20 years into the project (see section IX., above). In the interim, it is possible that the grizzly bears may take listed salmon if the bears range substantially beyond the area predicted, and prey on salmon in areas such as those identified in tables 1 and 2, above. The risk of take of listed steelhead is also low, but for different reasons. The reintroduced bears will immediately occupy watersheds containing listed steelhead; however, the timing and other circumstances of steelhead spawning tend to minimize their availability to bears.

The NMFS cannot quantify the take which may occur from the proposed action. The NMFS does, however, with this Opinion authorize a very low level of take which may occur from the proposed action. To ensure that take, if it does occur, is kept to a very low level, NMFS (with input from USFWS) developed the reasonable and prudent measures and terms and conditions described below.

B. Reasonable and Prudent Measures

The NMFS believes that the following reasonable and prudent measures are necessary and appropriate to minimizing take of listed salmon and steelhead:

1. USFWS will monitor locations of radio-collared grizzly bears and, when possible, non-collared progeny of released bears.

2. Increase interagency coordination and intensify monitoring if bears move into areas where salmon are located.

3. Guided by interagency coordination per item 2, above, implement measures to minimize take of listed anadromous fish at sites of concern.

C. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, the USFWS must comply with the following terms and conditions, which implement the reasonable and prudent measures described above. These terms and conditions are non-discretionary.

1. USFWS will monitor locations of radio-collared grizzly bears and, when possible, non-collared progeny of released bears. This information would be used to validate that the growth and distribution of the grizzly bear population is within USFWS projections in the BA.

2. If monitoring indicates a grizzly bear has moved into an area where listed salmon occur and are vulnerable to capture (as indicated by the best available information[12]), then the bear would be monitored more frequently during the period salmon are expected to be vulnerable. During this period USFWS would notify NMFS of the bear's location, and NMFS and USFWS would coordinate[13] to obtain current information on timing and location of the vulnerable salmon run. Information sources would likely include redd surveys conducted by IDFG, Tribes, USFWS, BLM, and USFS, and monitoring of weirs and traps conducted by IDFG and Tribes.

3. If monitoring indicates a bear is taking listed anadromous fish, USFWS will contact NMFS as soon as possible and then implement measures the agencies deem necessary to ensure, to the best of USFWS' ability, that further taking is avoided. These measures may include electric fencing of these areas to limit grizzly bear access, hazing of bears with the aid of noise and other devices, or capture and relocation. Relocation would occur, where possible, for a bear not deterred by fencing or hazing. Relocated bears will be radio-collared and monitored to determine if they return to the site.

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[12]Best available information should include salmon distribution information USFWS submitted with the BA and NMFS summarized in this Opinion (Tables 1 and 2) updated with any new information on salmon distribution and actual or predicted fishing success of bears.

[13]As part of this coordination, the agencies should consider the immediate risk of take and the risk of not being able to minimize the take effectively. Factors to consider should include the bear's location and the vulnerability of the salmon at the site(s) of concern. If the bear's location is not closely monitored via a radio-collar, the agencies should discuss if it is necessary to collar the bear or if alternative locating or exclusion techniques should enable high likelihood of minimizing take at the site(s) of concern.

APPENDIX 10. MEMORANDUM REGARDING CONCEPT OF "HABITAT SECURITY" FOR GRIZZLY BEARS

Interim direction for the management of suitable but unoccupied grizzly bear habitat in the Bitterroot Ecosystem (BE) was issued by the Fish and Wildlife Service in a 6 November 1995 Memorandum. The memorandum was issued to the Clearwater, Nez Perce, and Bitterroot National Forests (Nez Perce letter is included as an example, see attached documents). Until an EIS for implementing recovery actions is completed, the following management direction is to be followed: "In the interim, the Forest Supervisors responsible for managing the Selway-Bitterroot evaluation area have agreed to protect suitable grizzly bear habitats by assuring that big game standards are in compliance with Forest Plans."

Standards and guidelines for the management of big game habitat that lies within the Bitterroot Evaluation Area (BEA) (see Figure 3-6) were taken from the Clearwater, Nez Perce, and Idaho Panhandle National Forests. The standards and guidelines for big game habitat management on the Clearwater Forest were reviewed by an interagency group of biologists on 4 May 1995. The group agreed that current standards and guidelines for wildlife and fisheries habitat management appeared adequate to protect bear habitat in the interim. This consensus was reached by reviewing current and projected road densities and limitations due to elk guidelines, bull trout, and other fisheries guidelines for the Clearwater Forest; the juxtaposition of management allocations per the Forest Plan; and known road density requirements for grizzly bear management. The same technique was also used to review the Nez Perce, Lolo, Bitterroot, and Panhandle National Forest lands within the BEA with the added road restrictions implemented for PACFISH direction for anadromous fisheries management. Management areas and road densities for the BEA are grouped and identified below (USFS unpubl. data; S. Blair and D. Davis, Pers. Comm. 1996) (Tables 6-13, 6-14, 6-15).

Table 6-13. Current estimates of road miles within the Nez Perce and Clearwater Forests portion of the BEA.

Management Area Type	Percent of Area (%)	Open Road (mi)	Restricted Road (mi)	Total Road (mi)
Roaded / developed lands (154,500 acres approx.)	8 (2/6)[a]	103 (38 / 65)	41 (21 / 20)	144 (59 / 85)
Unroaded / essentially undeveloped (629,456 acres approx.)	33 (10 / 23)	141 (25 /116)	60 (50 / 10)	201 (75 /126)
Wilderness & proposed lands (Selway-Bitterroot & Frank Church-RNRW) (1,118,024 acres approx.)	59 (49 / 10)	0	0	0

[a] Table data presented in format: Total for both Forests (Nez Perce Data / Clearwater Data).

6-14. Current estimates of road densities within the Nez Perce and Clearwater Forests portion of the BEA.

Management Area Type	Open Road (Mi/mi sq.)	Restricted Road (Mi/mi sq.)	Total Road (Mi/mi sq.)
Roaded / developed lands	0.43 (0.7 / 0.35)[a]	0.17 (0.38 / 0.10)	0.60 (1.08 / 0.45)[b]
Unroaded / essentially undeveloped	0.14 (0.08 / 0.17)	0.06 (0.16 / 0.01)	0.20 (0.24 / 0.18)
Wilderness & proposed lands (Selway-Bitterroot & FCRNRW)	0	0	0

[a] Table data presented in format: Total for both Forests (Nez Perce Data / Clearwater Data).
[b] A separate analysis determined the area of roaded / developed lands having greater than 2 miles / square mile total road density for each Forest. Nez Perce Forest = approximately 60 sections (38,400 acres): Clearwater Forest = approximately 12 sections (7,500 acres).

Table 6-15. Predicted maximum estimates of road densities assuming current Forest Plan standards and guidelines for the Nez Perce and Clearwater Forests portion of the BEA.

Management Area Type	Open Road (mi/mi sq.)	Restricted Road (mi/mi sq.)	Total Road (mi/mi sq.)
Roaded / developed lands (241.5 sq. mi. approx.)	0.28 (0.7 / 0.16)[a]	0.17 (0.38 / 0.10)	0.45 (1.08 / 0.26)
Unroaded / essentially undeveloped (983 sq. mi. approx.)	(UK / 0.04)	(UK / 0.05)	0.21 (0.48 / 0.09)
Wilderness & proposed lands (Selway-Bitterroot & FCRNRW)	0	0	0

[a] Table data presented in format: Total for both Forests (Nez Perce Data / Clearwater Data).

Predictions of maximum future road densities are based on the distribution of 25, 50, 75, and 100% elk objectives within each management allocation along with a reasoned estimate of probable road density thresholds and other likely influences of current Forest Plan standards and guidelines. Though no plans are in place to harvest timber from the "unroaded/essentially undeveloped" lands on the Nez Perce Forest at the present time, the estimate above provides a worst-case analysis for the purpose of this estimation only. However, the Clearwater Forest has plans to develop "unroaded/ essentially undeveloped" areas, and the above road densities are calculated to reflect those plans.

Other Forests within the BEA include the Lolo, Bitterroot, Panhandle, and Challis. Of these, the Bitterroot and Challis portions within the BEA are totally wilderness. The Lolo portion is the Great Burn proposed wilderness, which has 2.5 miles of seasonal road, and 1 mile of closed road. The Idaho Panhandle Forest portion of the BEA is contained within the St. Joe Ranger District, and is approximately 50% proposed wilderness (Mallard Larkins Pioneer Area, 78,500 acres) and semi-primitive recreation, and has few or no proposed roads. The remaining approximately 50% is designated as timber production land within important elk summer range, and thus has restricted road densities with long-term road closures. Road density estimates for this small area were not available.

Although much of the Primary Analysis Area for the DEIS lies outside the boundaries of the BEA, most concerns by grizzly bear biologists regarding road densities lie within the BEA. The area within the BEA, and the wilderness and immediately adjacent lands to the south, will probably be the predominant areas of use by grizzly bears within the first few decades following reintroduction. Therefore, the security for bears within the BEA will be paramount in assuring grizzly bear survival and reproduction during the critical initial stages of recovery. It is for these reasons that analyses were conducted for road densities within the BEA (Figure 6-4). And as a result, the USFWS and other agency biologists reached consensus that current Forest Plan standards meet or exceed present grizzly bear road density guidelines over much of the BEA, and therefore are adequate to assure security for grizzly bears within this landscape.

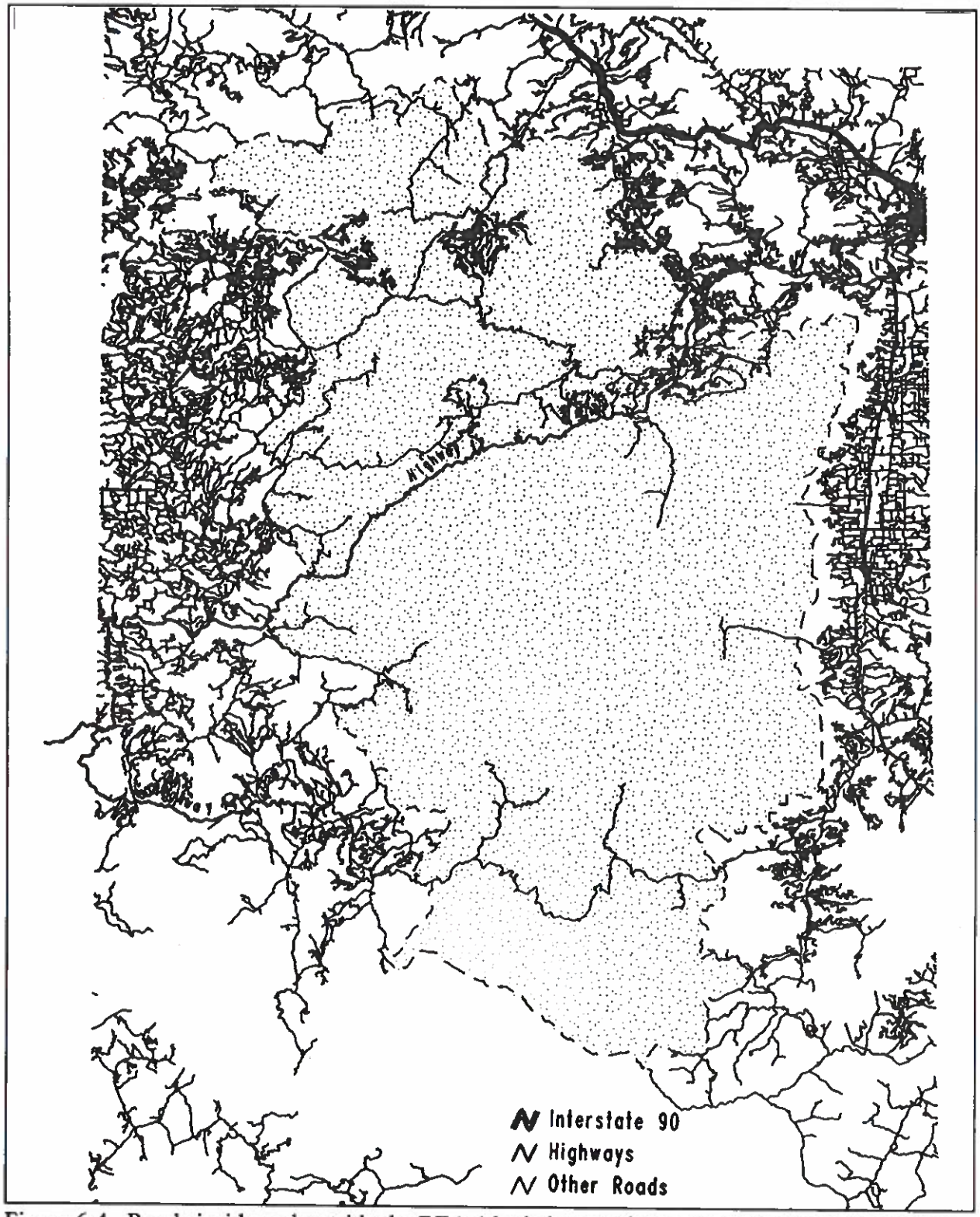


Figure 6-4. Roads inside and outside the BEA (shaded area) (from Davis and Butterfield 1991).

United States Department of Agriculture | Forest Service | Nez Perce National Forest | Rt. 2, Box 475 Grangeville, ID 83530

File Code: 2670-3
Route To: *

Date: March 4, 1996

Subject: Interim Direction for Grizzly Section 7 Consults on Nez Perce NF portion of Bitterroot Ecosystem

To: District Rangers

Enclosed please find a copy of a November 6, 1995 letter from Fish and Wildlife Service (FWS) concerning an interim approach for considering grizzly bear habitat management in or adjacent to the Selway-Bitterroot Ecosystem.

Until the EIS for implementing recovery actions for grizzly bears is completed and approved for the Bitterroot Ecosystem, I am issuing the following interim direction:

1. Continue to collect information on reported sightings of grizzly bears on the forest. Until occupancy can be confirmed and documented as permanent, consider suitable habitat within the Bitterroot Ecosystem boundaries to be "unoccupied".

2. Projects outside of the currently delineated boundary for the Bitterroot Ecosystem do not need to consider grizzly bear habitat as an issue in the NEPA process or in the Biological Assessment (BA).

3. Proposed projects within the Bitterroot Ecosystem should consider the effects to grizzly bear habitat as being incorporated into the analysis for big game habitat. As long as Forest Plan standards for big game are being met, and/or big game issues are sufficiently covered within the NEPA document, the project will be considered to be within compliance with Section 7(a)(1). For consistency purposes and to avoid confusion in the Section 7 informal consultation process, do not include a discussion on grizzly bear effects in the BA. In the interim, grizzly bear habitat will be incorporated into the effects analysis and management direction for big game habitat. If big game issues are properly dealt with in the NEPA process, then it will be assumed that grizzly bear habitat issues are also adequately addressed. This is consistant with the November 6, 1995 letter from FWS and 2670 FS Manual Direction.

If there are any questions concerning the implementation of this interim directive into on-going or future NEPA projects, please contact Steve Blair in the Supervisor's Office.

COY G. JEMMETT
Forest Supervisor

Enclosure

cc: District Wildlife Biologists

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Snake River Basin Office, Columbia Ecoregion
4696 Overland Road, Room 576
Boise, Idaho 83705

November 6, 1995

Michael King
Forest Supervisor
Nez Perce National Forest
(Attention: Steve Blair)
Route 2, Box 475
Grangeville, Idaho 83530

Subject: Level I Team Clarification Of Interim Approach For Considering Grizzly Bear Habitats In Or Adjacent To The Selway-Bitterroot Ecosystem. (File #106.0000)

Dear Mr. King:

The Nez Perce National Forest held their first Level I Section 7 Streamlining Team meeting in Grangeville, Idaho, on September 19, 1995. During that meeting, team members requested clarification from the U.S. Fish and Wildlife Service (Service) as to what level of consideration the team should give to projects within or adjacent to the grizzly bear habitat provided by the Selway-Bitterroot Ecosystem. This question was triggered as a result of the Service's July 18, 1975, listing of the grizzly bear as threatened species in accordance with the Endangered Species Act of 1973 (Act), as amended; and subsequent discussions of the Selway-Bitterroot Ecosystem by the September 10, 1993, Grizzly Bear Recovery Plan (USFWS, 1993). The purpose of this letter is to respond to the Level I team inquiry.

Section 7(a)(2) Compliance

Pursuant to the requirements of Section 7(a)(2) of the Act, Federal agencies such as the U.S. Forest Service, are to prepare a biological assessment (BA) for their decisions involving major construction if a listed species or critical habitat may be present in the action area. The Service has not designated critical habitat for the grizzly bear within the Selway-Bitterroot Ecosystem. Thus, for purposes of determining whether a BA is required, the U.S. Forest Service need only answer the question of whether grizzly bears may occupy the Selway-Bitterroot Ecosystem. A 5-year habitat and population evaluation was completed for the Selway-Bitterroot area in 1991 (Davis and Butterfield). Although there were a number of unconfirmed grizzly bear sightings noted, there was no information indicating that grizzly bears permanently occupy the Selway-Bitterroot area. The report did confirm that the area contained sufficient amounts of quality habitat to warrant grizzly bear recovery (Servheen et al., 1991). Thus, if the U.S. Forest Service determines that grizzly bears may occupy habitat within a project area, a BA should be prepared.

Otherwise, preparation of a BA for grizzly bears is not mandatory, although you may document your findings and request our review at your discretion.

Section 7(a)(1) Consistency

Section 7(a)(1) of the Act states that Federal agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of the Act by carrying out programs for the conservation of endangered and threatened species. Thus, in the event that the Forest Service determines that a project will occur in suitable yet unoccupied grizzly bear habitat, it is not mandatory that a BA be prepared. However, the Service encourages the Forest Service to discuss the project impacts to this habitat, either in a BA or National Environmental Policy Act (NEPA) document. Such documentation will help you make decisions that are consistent with Section 7(a)(1) of the Act, gives the Service information about how decisions might influence recovery, and allows us the opportunity to provide technical assistance to the Forest Service concerning conservation actions associated with such projects.

Although the Grizzly Bear Recovery Plan discusses the Selway-Bitterroot Ecosystem, the section dealing with implementation of recovery actions has not been finalized. The Service is currently gathering public input and preparing an Environmental Impact Statement in regard to implementing recovery actions in the Selway-Bitterroot Ecosystem. In the interim, the Forest Supervisors responsible for managing the Selway-Bitterroot evaluation area have agreed to protect suitable grizzly bear habitats by assuring that big game standards are in compliance with the Forest Plans (Servheen, 1995). In the event that a big game unit currently falls below Forest Plan standards within the Selway-Bitterroot Ecosystem, we encourage the development of projects that will improve the habitat conditions in these units. Supplemental information may be required by the Level I Team concerning the status of potential grizzly bear habitats provided by these units if big game standards are not met after implementation of projects involving habitat enhancements. We encourage you to document compliance in the project area, either in BAs or NEPA analysis.

Thank you for your inquiry into this matter. If you need further assistance please feel free to contact Bob Kibler or Alison Beck Haas of my staff at (208) 334-1931.

Sincerely,

Susan B. Martin

Acting Supervisor, Snake River Basin Office

Enclosure

cc: USFWS-ES, Missoula (Servheen)
USFWS-ES, Denver (Stevens)
USFWS-FFA, Portland (Diggs)
USFWS-ES, Portland (Finn)
USFS-Clearwater NF, Orofino (Davis)
USFS-Bitterroot NF, Hamilton (Torquemada)

Literature Cited

Davis, D. and B. Butterfield. 1991. The Bitterroot grizzly bear evaluation area: a report to the Bitterroot Technical Review Team. Interagency Grizzly Bear Committee, Denver, CO. 56 pp.

Servheen, C., A.N. Hamilton, R. Knight, B.N. McLellan. 1991. Evaluation of the Bitterroot and North Cascades to sustain viable grizzly bear populations. Report to the Interagency Grizzly Bear Committee. Boise, ID. 9 pp.

Servheen, C. 1995. October 13, 1995, electronic mail reply to Mr. Dan Davis in regard to forwarded Section 7 grizzly bear update and telephone conversation. U.S. Fish and Wildlife Ecological Services Office. Missoula, MT. 1 pp.

U.S. Fish and Wildlife Service. 1993. Grizzly bear recovery plan. Missoula, MT. 181 pp.

APPENDIX 11. RISK TO HUMAN SAFETY FROM GRIZZLY BEAR RESTORATION IN THE BITTERROOT ECOSYSTEM

Background

Grizzly bears occasionally kill and injure humans. Because of this fact, opposition to recovery of bears in some areas is keen. A recent scientific survey of 311 residents located in and near the Bitterroot Ecosystem (BE) suggested that although 64% of the respondents supported grizzly bear recovery in the BE, of those opposed 48% listed danger to humans as the main reason for their opposition (Duda and Young 1995). It is important therefore to explore these risks, and clarify many reticent facts and common misconceptions often repeated among the general public. Techniques to reduce the chances of a negative human-grizzly bear encounter will also be discussed.

Historical Injury Rates in Wilderness and Other Non-Park Areas

Although risks of encounters with bears resulting in injury do exist, they are frequently exaggerated. Risks in the BE after bear recovery (50-110+ years) would probably mimic those incurred in the NCDE (outside of Glacier National Park). Grizzly populations in the NCDE at 325 bears (minimum estimate) are presently about one-and-one-half times the levels expected in the BE within 50-110 years. In the NCDE, only two known bear inflicted injuries have occurred since 1950 outside of Glacier Park. In the Bob Marshall Wilderness in 1956, a hunter shot and injured a grizzly bear that responded by mortally injuring the hunter. In 1985, a bird hunter in the Mission Valley shot and wounded a grizzly that responded by injuring the hunter. National Forests keep some statistics of visitor use called Recreational Visitor Use Days (RVDs). RVDs estimated for the Bob Marshall Wilderness since the last injury occurred in 1956, indicate that the chance of injury in the Bob Marshall Wilderness would be a maximum estimate of 1 injury per 4.5 million RVDs (1956-1994). If it were possible to consider the Scapegoat and Great Bear Wilderness, and all other occupied grizzly bear habitat in the NCDE outside of Glacier Park, the number of injuries per RVD would easily be well over 1:100 million.

Some conflicting evidence arises from the Yellowstone Ecosystem (YE) outside of Yellowstone National Park. There has been an increase in bear-related injuries outside the Park in the last 2 decades. Available data (Gunther et al. 1998) indicates 22 human injuries due to grizzly bears have been recorded in the 3 national forests; 7 in the Gallatin, 6 in the Shoshone, and 9 in the Bridger-Teton National Forest. Eighteen of the 22 have occurred since 1990. Twenty of these injuries have were related to hunting activities, 2 were campsite-related injuries, and no injuries were inflicted to other recreational users. Additionally, 3 injuries occurred on private land in 1996 and 1997. In the last 159 years however, only 3 people were mortally injured in the ecosystem outside Yellowstone Park (Whittlesey 1995, Gunther et al. 1998). Some evidence suggests that a combination of factors has lead to the increase in injuries over the last few years. Monitoring has indicated an increase in grizzly populations, an increase in human habitation and pressures surrounding the park, and an apparent increase in elk hunting pressure around the Park. Whitebark pine nuts, a favorite fall grizzly food in the YE, are cyclic in nature. Many bears not able to find local concentrations of whitebark pine may be moving greater distances, obtaining unsecured human food (Gunther et al.

1996), securing and defending hunter elk carcasses, or confronting camouflaged hunters imitating elk (Puchlertz, pers. comm. 1996). Likewise, food stress periods have been implicated in increased bear-human conflicts in Glacier Park (Nadeau 1987). Chances of injury when confronting a grizzly bear in Glacier Park were greatest in September and late July, during two known food-stress periods when bears moved great distances in search of alternate foods. Also, Gunther and others (1996) indicate that a preponderance of problems have resulted from grizzly bears obtaining unsecured human food and becoming food-conditioned, and subsequently causing problems and injuries. Five of the 7 people injured during 1997 outside Yellowstone Park were hunters. Gunther (pers. comm. 1998) indicated that bears and elk were concentrating in timber stands remaining after the 1998 Yellowstone fires, as were the hunters. Bears were finding and protecting ungulate carcasses and viscera piles left from hunter kills.

The Selkirk (SE) and Cabinet/Yaak (CYE) Ecosystems presently have low populations of grizzly bears, estimated to be less than 50 bears in each ecosystem. The SE and CYE both are partly included in Idaho. There have been no recorded injuries in the last 20 years in either of these ecosystems. Similar injury rates would be expected in the BE until bear and human densities increased beyond those presently occurring in the SE and CYE.

Historical Injury Rates in National Parks

Grizzly bears injure and kill humans at varying rates and frequency depending upon location, time of year, density of bears and people, and activity being conducted (Herrero 1985, Herrero and Fleck 1990, Nadeau 1987). These rates can vary from rare (1:500,000) for people using the backcountry in Canadian Parks, to one in 1,078,967 for seven U.S. and Canadian Parks that had data for all visitors (Herrero and Fleck 1990). Herrero (1985) reported 126 grizzly bear-inflicted injuries that occurred in 12 National Parks in Alaska, Canada, Wyoming and Montana (Yellowstone and Glacier) from 1900 through 1979. Most of these were roadside panhandler bear-related injuries. In Glacier Park according to historical records, a person is 5 times more likely to drown as get killed by a bear, 3 times as likely to die of a heart attack or car wreck, and 2 times as likely to die in a climbing accident (Table 6-16). To further place this in perspective, in Yellowstone National Park as many people have died from lightning, avalanches, or falling trees as from grizzly bear attacks. Also in the history of Yellowstone, more people have died from horses, Indian battles, or horse drawn wagons than from grizzly bears (Table 6-17).

The National Park Problems: Habituation and Food-Conditioning

A number of problems discussed below complicate and increase the chance of bear-human encounters in national parks. Because grizzly bears are protected within the boundaries of the national parks where hunting is not allowed, bear mortality is usually either natural, caused by management actions, or by accident. Most of the grizzly bear-human encounters within parks result in no infliction of negative stimuli to the bear, thereby resulting in loss of the bear's fear response to humans. This is termed habituation (Petrinovich 1973). The attraction of bears to human-related food sources, and the resultant learning that human-use areas are productive places to find food is

called food-conditioning. A bear can become habituated without becoming food-conditioned, or vise-versa. However, habituation can lead to an increased likelihood of bears investigating humans for food, which in turn may cause the bear to become food-conditioned. Most recorded injuries to humans in national parks have been caused by food-conditioned and habituated bears (Herrero 1985, Herrero and Fleck 1990). Habituated or food-conditioned bears are much more likely to be killed by hunters outside a national park, thereby selecting for a more shy and retiring bear, as well as less dense populations of bears (Jonkel and Servheen 1977, Herrero 1985). Habituation in and by itself may not increase chances of injuries to humans in a park setting, but may actually decrease injury rates as long as human use is predictable (Jope 1982, Nadeau 1987). However, habituation should increase chances of mortality to the bear outside a park by increasing the likelihood of a confrontation with someone carrying a weapon.

Table 6-16. Ranked cause of death in Glacier National Park, 1913-1995.

Rank	Cause of Death	Number of Deaths	Visitor	Employee	Park Service
1	Drowning	48	34	10	4
2	Heart attack	27	23	1	3
3	Vehicle accidents	26	17	4	5
4	Fall while hiking	21	16	5	0
5	Climbing accident	18	13	5	0
6	Natural death	9	7	1	0
7	Killed by bear	9	4	5	0
8	Avalanche fatality	8	5	1	4
9	Airplane accident	6	6	0	0
10	Falling object	6	3	3	0
11	Unclassified accident	5	3	1	1
12	Died from exposure	4	3	1	0
13	Suicide	4	4	0	0
14	Missing/ presumed dead	4	4	0	0
15	Fell while riding horse	3	3	0	0

Inaccurate Comparisons - National Parks vs. Bitterroot Ecosystem

It is not appropriate to compare the potential for grizzly bear-inflicted injuries from a recovering grizzly population in the Bitterroot Ecosystem to the potential for injuries in or near a national park setting which has a greater density of bears and people, and has the associated problems of habituation and food-conditioning. The recovered population of grizzly bears in the BE may reach between 100-300 bears in about 50-110 years, and constitute a population density range of one bear per 25 to 75 square miles. This is below the density estimates for both Glacier and Yellowstone National Parks (8 and 30 sq. miles per bear respectively), and slightly less than the Bob Marshall Wilderness (30 square miles per bear) (IGBC 1987). In comparison, black bear densities in one

study area within the BE were estimated to be about 1 square mile per bear (Beecham and Rohlman 1994). Annual visitation to Glacier and Yellowstone combined, presently is over 5 million people (National Park Service, pers. comm. 1996). Based on USFS wilderness records, annual visitation to the Selway-Bitterroot and Frank Church-River of No Return Wilderness Areas totals approximately 50,000 annual visitors (including river runners), which is 1% of the national park annual visitation levels. Clearly, the opportunity to encounter a bear is greater in a national park where a high concentration of both bears and humans exist.

Table 6-17. Causes of deaths among people in Yellowstone National Park, 1839-1994.[a]

Cause of Death	Number	Cause of Death	Number
Drowning	101	Bear attacks	5
Falls	24	Lightning	5
Airplane crashes	20	Stagecoach	4
Burns from hot springs	19	Falling rocks	3
Suicides	15	Structural fires	3
Hypothermia "freezing"	9	Bus Wrecks	3
Wagons, horse-drawn	9	Bison	2
Indian battles	7	Poisonous plants	2
Horses	7	Explosions	2
Accidental shooting	7	Fights	1
Carbon monoxide poisoning	7	Diving	1
Murder	5	Cave-in	1
Missing/presumed dead	5	Forest fire	1
Falling trees	5	Poisonous gas	1
Avalanches	5	Earthquake near park	(28)

[a] Deaths from natural causes such as heart attacks and traffic accidents are excluded except for bus wrecks. Based on Park Service reports, vehicle accidents and heart attacks are the most common causes of mortality in Yellowstone. In addition to earthquakes, there were 20 reported mortalities near Yellowstone, 3 of which were from bear attacks. These figures were compiled by Yellowstone Park Historian Lee Whittlesey, 1995.

The Bitterroot Situation

Under Interagency Grizzly Bear Committee (IGBC) guidelines, grizzly bears posing problems to camps, cabins, individuals and stock may be relocated or removed. Other potential management options also may be used, such as aversive conditioning techniques designed to train individual bears to avoid humans or human properties. People would be allowed to kill grizzly bears in self-defense. Radio telemetry collars would be placed on all bears released in the wilderness. This would allow for; surveillance of the animals' movements, frequent updates to the public who wish to avoid the areas where the bears are, and for preemptive management actions should a bear be in an area where it could get into trouble with humans. A proactive information and education program would

increase the awareness of the general public and backcountry users about grizzly bears, allowing for improved and safer food storage and use of stock in and around hunting, fishing, and other recreational campsites. These monitoring controls should further reduce the risk factors to humans using the wilderness and surrounding national forest lands. Whether grizzly bears would be recovered as an experimental population or a threatened population would also dictate management flexibility.

There is no doubt that risks of injury resulting from grizzly bear-human encounters in the BE would be extremely low (1 in several million). Based on known injury rates in the NCDE and the YE, at **recovered** bear population levels and at human use levels expected in 50-110+ years in the BE, there would likely be between 0 and 1 injury per year and one bear-induced mortality every few decades. A combination of factors usually increases likelihood of injury. These factors frequently can be predicted, identified, and reduced or eliminated. This alone does not necessarily reduce human fear or perception of risk. It does, however, provide perspective to assist in deciding the level of risk that is acceptable. Most people who recreate in habitat occupied by grizzly bears incur some level of fear generated alertness, as well as some level of comfort. The level of comfort is usually dictated by type and quality of information received about bears, as well as the individual's experience with and firsthand knowledge of bears. Some individuals would wish to never see a grizzly bear in the wild, and others would feel their experience was greatly enhanced by the encounter. Likewise for some people, the risk of one in several million of losing one human life is not acceptable under any circumstance, whereas for others the benefits outweigh the risks.

There are many ways to reduce the risk of encounter, and the subsequent risk of injury. Two additional techniques that have proven effective to reduce chances of injury include the use of bear bells or other forms of making noise, and pepper spray. Jope (1982) found that hikers using bear bells alerted bears of their approach, thereby reducing the surprise encounter that was most frequently associated with human injury. Herrero (1985) summarized case incidents of the use of pepper spray to repel bear attacks. He found that the use of the spray did not increase the intensity or severity of the injury. Instead the severity of injuries in the majority of the attacks appeared to be reduced as a result of the spray. Also, Nadeau (1987) found that grizzly bear-human confrontation sites can be predicted to a high degree of accuracy by using a combination of habitat factors and season of use. This method of predicting confrontation sites can be used to reduce the risk of encounter.

Much has been learned regarding living in grizzly bear country, and by the time bear populations would reach recovered numbers in the Bitterroot Ecosystem, many more techniques would be available. Most outdoor enthusiasts would find adequate information to assimilate and further reduce their likelihood of negative encounters with bears.

Literature Cited

Beecham, J. and J. Rohlman. 1994. A shadow in the forest; Idaho's black bear. Idaho Dept. Fish and Game, Boise, and Univ. Idaho Press, Moscow. Northwest Naturalist Books. 245pp.

Duda, M. D. and K. C. Young. 1995. The public and grizzly bear reintroduction in the Bitterroot Mountains of Central Idaho. Responsive Management, Harrisonburg, Virginia. 141 pp.

Gunther, K., M. Bruscino, S. Cain, T. Chu, K. Frey, and R. Knight. 1996. Grizzly bear-human confrontations, and management actions in the Yellowstone Ecosystem 1995. Interagency Grizzly Bear Committee Yellowstone Ecosystem Subcommittee Report. Compiled by Yellowstone National Park. 39pp.

Gunther, K., M. Bruscino, S. Cain, T. Chu, K. Frey, and R. Knight. 1998. Grizzly bear-human confrontations, and management actions in the Yellowstone Ecosystem 1997. Interagency Grizzly Bear Committee Yellowstone Ecosystem Subcommittee Report. Compiled by Yellowstone National Park. 45pp.

Herrero, S. M. 1985. Bear attacks - their causes and avoidance. Winchester Press, Piscataway, New Jersey. 287pp.

_____ and S. Fleck. 1990. Injury to people inflicted by black, grizzly, or polar bears: recent trends and new insights. Int. Conf. on Bear Res. and Manage. 8:25-32.

_____ and A. Higgins. 1998. Field use of capsaicin sprays as a bear deterrent. Ursus 10:533-537.

Interagency Grizzly Bear Committee. 1987. Grizzly bear compendium. U.S. Fish and Wildl. Serv., Missoula, Mont. 540pp.

Jonkel, C. J. and C. Servheen. 1977. Bears and people: a wilderness management challenge. Western Wildlands 4:22-25.

Jope, K. 1982. Interactions between grizzly bears and hikers in Glacier National Park, Montana. M. S. Thesis, Oregon State Univ., Corvalis. 100pp.

Nadeau, M. S. 1987. Habitats, trails, and campground situations associated with grizzly-human confrontations in Glacier National Park, Montana. M.S. Thesis, Univ. of Mont., Missoula. 98pp.

Petrinovich, L. 1973. A species-meaningful analysis of habituation. Pages 141-162 *In* H. V. S. Peeke and M. J. Herz, eds. Habituation. Academic Press, New York.

Whittlesey, L. H. 1995. Death in Yellowstone, accidents and foolhardiness in the first national park. Roberts Rinehart Publishers, Boulder, Colo. 276pp.

Personal Communications Cited:

Gunther, K. 1998. Wildlife Research Biologist, Interagency Grizzly Bear Study Team, Yellowstone National Park. Mammoth, WY. Personal communication with Steve Nadeau.

Puchlertz, T. 1996. Deputy Forest Supervisor, Bridger-Teton National Forest, Jackson, WY. Personal communication with Steve Nadeau. Unpublished data on grizzly bear injuries. April, 1996.

APPENDIX 12. ADVANTAGES OF NONESSENTIAL EXPERIMENTAL GRIZZLY BEAR REINTRODUCTION

Questions & Answers About Experimental Populations Under Section 10 (j) of the Endangered Species Act

Q: What is an Experimental Population?
A: The 1982 amendment to the Endangered Species Act (ESA) that established the experimental population designation [Section 10 (j)] defined an experimental population as:

> "Any population (including any offspring arising solely therefrom) authorized by the Secretary for release under paragraph (2), but only when, and at such times as, the population is wholly separate geographically from nonexperimental populations of the same species."

Further in the amendment it is made clear that the term applies to populations that are derived from endangered or threatened species for which the Secretary of Interior has determined that a release will further the conservation of that species. The experimental population designation denotes flexible management for introduced endangered species.

Q: Can the Secretary of Interior take a listed species from one area and move it to a separate geographic area and release it as an experimental population?
A: Yes, under Section 10(j) of the ESA, the Secretary may do so. Specifically, the ESA states:

> "10(j)(2)(A) The Secretary may authorize the release (and the related transportation) of any population (including eggs, propagules, or individuals) of an endangered or a threatened species outside the current range of such species if the Secretary determines that such release will further the conservation of such species.
>
> (B) Before authorizing the release of any population under subparagraph (A), the Secretary shall by regulation identify the population and determine, on the basis of the best available information, whether or not such population is essential to the continued existence of an endangered species or a threatened species."

For further explanation of Experimental Populations under Section 10(j) of ESA refer to 50 CFR 17.80 (Code of Federal Regulations).

Q: Why would anyone want to designate a reintroduced population of an endangered species as "experimental"?
A: The answer lies in the potential impact to an area of having a listed species introduced there (in terms of Sections 7 and 9 of the ESA). Before 1982 the USFWS could reintroduce threatened and endangered species into unoccupied historical range; however, many attempts to do so were

fervently resisted. The USFWS was not able to assure other federal agencies, state and local governments, and private landowners that transplanted populations would not disrupt their future land-management options due to the "jeopardy" prohibition of Section 7 and/or the taking prohibition of Section 9 of the ESA. Such resistance caused the USFWS to abandon plans to reintroduce endangered red wolves to Kentucky and Tennessee in 1984. In an effort to encourage acceptance of reintroductions, Congress amended the ESA in 1982 to include a new Section 10(j) that allowed the Secretary of Interior the opportunity to designate reintroduced populations as "experimental." Section 10 (j) gives the USFWS more flexibility for the management of these populations by providing that all experimental populations shall be treated as threatened species regardless of the status of the donor population. Special rules concerning prohibited acts must be written by the USFWS. Basically, the writing of special rules provides the USFWS the opportunity to tailor the reintroduction of an experimental population to specific areas and specific local conditions, including specific opposition.

Q: What is the "essential" vs. "non-essential" distinction all about?
A: Experimental populations must be designated either "essential" or "non-essential." "Essential" refers to a reintroduced population whose loss would be likely to reduce the likelihood of the survival of the species in the wild. Essential populations receive the full protection of Section 7, meaning that federal agencies must formally consult with the USFWS on actions that may affect the species in order to insure that their actions are not likely to jeopardize the continued existence of the species. "Nonessential" refers to an experimental population whose loss would not be likely to appreciably reduce the likelihood of the survival of the species in the wild. Except in national wildlife refuges or national parks, "non-essential" populations are treated under Section 7(a)(2) (other than for subsection (a)(1)) as "proposed species." Thus, federal agencies must only confer with the USFWS on activities that the agencies believe might jeopardize the species. Moreover, the agencies would be under no obligation under Sec. 7(a)(2) to avoid actions likely to jeopardize the species. Congress expected that most experimental populations would be considered "non-essential."

Q: What do we mean by "Experimental Population Area"?
A: Designating an experimental population must include a description of the area in which the species will be found and where it will be identified as experimental. This establishes, in effect the experimental population area. Outside those boundaries the grizzly bear in the lower 48 United States is protected as a threatened species. The experimental population area must be geographically separate from existing grizzly bear populations. If the experimental population area were drawn so large that it overlaps with a natural population on certain occasions, then grizzly bears in the overlap area would be considered threatened. In other words, individual grizzlies from the experimental population that move outside the experimental population area are treated under the ESA as if they are a part of the population listed as threatened.

In a zone management system the outer perimeter of the outermost zone could define the limits of

the "experimental population area." One approach would be to circumscribe a very large area to allow management flexibility over all areas in which grizzly bears might be expected to stray. Some regulations to designate an experimental population may also authorize special activities designed to contain the population within the original boundaries set out in the regulation. In the red wolf project, it was decided that the regulations would apply over a four-county area, which included much land outside the refuge, and that animals that left the refuge would be retrieved.

Q: What is the Process for Designating a Population as "Experimental"?
A: Before designating a population as "experimental" the Secretary of Interior must determine through the rulemaking process: that the reintroduction will further the conservation of the species, the geographic location of the population, and if such a population is essential or nonessential. Designation would include the development of proposed special rules to identify geographically the location of the experimental population, procedures for its management--possibly including special activities designed to contain the population--, and compliance with the Administrative Procedures Act which involves publishing the above in the Federal Register and public review and comment on the rulemaking.

Q: What are the advantages of designating reintroduced grizzly bears as nonessential, experimental in the Bitterroot Ecosystem?
A: Designating grizzly bears reintroduced to the Bitterroot Ecosystem as nonessential, experimental would contribute to the recovery and conservation of grizzly bears in the northern Rocky Mountains. Effects of grizzly bears on land uses, big game populations, human safety, and livestock were some of the major issues identified by the public during scoping and development of this proposal. Under the experimental population alternative (Alternative 1), special management activities are proposed to reduce perceived or real effects grizzly bears might have on human activities. Examples of proposed management activities include: a citizen management committee, and elimination of consultation by USFWS on land management activities.

Nonessential experimental status would be accompanied by citizen-based management. Management is to be overseen by a 15-member Citizen Management Committee to be appointed by the Secretary of Interior following consultation with the governors of Idaho and Montana, and the Nez Perce Tribe. This committee would be authorized management implementation responsibility by the Secretary of Interior, in consultation with the governors of Idaho and Montana, and the Nez Perce Tribe, for the Bitterroot grizzly bear experimental population. The members would serve six-year terms and would consist of seven individuals appointed by the Secretary of Interior based on the recommendations of the governor of Idaho, five members appointed by the Secretary of Interior based on the recommendations of the Governor of Montana, one member appointed by the Secretary of Agriculture or his/her designee, and one member appointed by the Secretary of Interior or his/her designee. Members recommended by the Governors of Idaho and Montana would be based on the recommendations of the interested parties and would include at least one representative each from the appropriate state fish and wildlife agencies. The CMC is to consist of a cross-section of interests

reflecting a balance of viewpoints, be selected for their diversity of knowledge and experience in natural resource issues, and for their commitment to collaborative decision making. The CMC would be selected from communities within and adjacent to the recovery and experimental population areas. The Secretary of Interior would solicit recommendations from the Nez Perce Tribe and would appoint one member from the Nez Perce Tribe.

Grizzly bear management would allow for resource extraction activities to continue without Section 7 consultation or Section 9 "takings" provisions under the ESA. Existing USFS Forest Plan direction for big game, other wildlife, and anadromous and resident fisheries management is currently thought to be sufficient for grizzly bear recovery on public lands. The CMC would be responsible for developing land-use restrictions as necessary for grizzly bear management.

A responsive bear management program that addresses conflicts between bears and people or bears and livestock reduces the degree of livestock depredation and nuisance bear problems with people. A complete management program would address prevention of problems and education in addition to harassment or capture after an offense has occurred. These programs can increase public acceptance of grizzly bears through prompt actions when problems are encountered. It is the intention of the USFWS proposal to promote grizzly bear recovery in areas where their presence is most compatible with other resource activities and this would most likely occur on public lands having few livestock, public lands with big game management emphasis, unroaded public lands, and designated wilderness. Permitted harassment may act as a form of aversive conditioning and may reduce the need for future control actions. This permitted harassment could aid grizzly bear recovery as private citizens have recourse to ward off potential problems which might reduce landowner frustration and prevent or reduce unnecessary killing of bears.

Reintroduction of grizzly bears into the Bitterroot Ecosystem would enhance bear metapopulation viability in the northern Rockies by increasing genetic diversity, and potentially increasing genetic interchange among populations if bears immigrate or emigrate. It would also accelerate achievement of recovery goals through reintroduction over natural recovery. Numerous public comments and positions of elected local, state, and federal government officials indicated they would repeatedly and fervently resist attempts to reintroduce grizzly bears without assurances that current uses of public and private lands would not be disrupted by recovery activities and that grizzly bears that attack livestock would be controlled. Such assurances can be made under nonessential experimental population designation.

Reintroduction of grizzly bears designated as nonessential experimental populations into the Bitterroot Ecosystem would substantially enhance the conservation and recovery of the species in the northern Rocky Mountains because: 1) the public would resist efforts toward reintroduction or recovery of grizzly bears without assurances that local land uses would not be adversely affected; 2) provisions of the experimental rule would allow for grizzly population growth and address legitimate concerns of local residents through citizen-based management; 3) grizzly bear population viability in the lower 48 states would be enhanced and accelerated by reintroduction in the Bitterroot Ecosystem; 4) the proposed action would not hinder the growth of populations in other ecosystems.

APPENDIX 13. INFORMATION REGARDING: ENDANGERED SPECIES ACT, FINAL RULE 10(j), ESTABLISHMENT OF A NONESSENTIAL EXPERIMENTAL POPULATION OF GRIZZLY BEARS IN THE BITTERROOT AREA OF IDAHO AND MONTANA

NOTE: The Proposed Rule, *"Establishment of a Nonessential Experimental Population of Grizzly Bears in the Bitterroot Area of Idaho and Montana"* was published in the Federal Register on July 2, 1997 (62 FR 35762), concurrently with the public release of the *Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem.* A public comment period for both documents was open from July 2, 1997 through December 1, 1997, which included two extensions resulting from public requests for additional time. Public comments received on the Proposed Rule were reviewed by the USFWS and will be incorporated, where possible, into the Final Rule if the preferred alternative (Alternative 1) is selected. The Final Rule is undergoing internal review and will be signed and published separately in the Federal Register after this Final EIS is published. The Final EIS Chapter 2 discussion of Alternative 1, and the Chapter 5 section containing USFWS responses to public comments on the Draft EIS, both contain information regarding changes that will be made to the Final Rule in response to public comments, if the preferred alternative (Alternative 1) is selected. The Final Rule will be consistent with the changes indicated in this FEIS. Implementation of actions described in this Final EIS will not occur until after the rule is published in the Federal Register.

APPENDIX 14. BITTERROOT ECOSYSTEM RECOVERY PLAN CHAPTER - SUPPLEMENT TO THE GRIZZLY BEAR RECOVERY PLAN

Grizzly Bear Recovery Plan

Supplement: Bitterroot Ecosystem Recovery Plan Chapter

(Original Recovery Plan Approved: January 29, 1982)

Prepared by: Dr. Christopher Servheen
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Approved:

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Regional Director, U.S. Fish and Wildlife Service

September 11, 1996
Date

BITTERROOT ECOSYSTEM GRIZZLY BEAR RECOVERY PLAN CHAPTER

TO BE APPENDED TO GRIZZLY BEAR RECOVERY
PLAN REVISED SEPTEMBER 10, 1993

BACKGROUND ON THE BITTERROOT ECOSYSTEM

The Bitterroot Ecosystem (BE) is one of the largest contiguous blocks of Federal land remaining in the lower 48 United States. The core of the BE contains theSelway-Bitterroot Wilderness and Frank Church-River of No Return Wilderness. Together these two wilderness areas make up the largest block of wilderness habitat in the Rocky Mountains. The BE also contains significant areas of multiple use lands where wildlife and fisheries values coexist with resource use and recreation. The BE formerly contained grizzly bears, but they are gone today due to excessive human-caused mortality. The demise of the grizzly from the BE was due to the actions of humans. Bears were actively killed for their fur, for sport, and to eliminate possible threats to humans and domestic livestock. The killing of bears for livestock protection reached its highest level in the early 1900's when domestic sheep grazing in what is now the Selway-Bitterroot Wilderness and Frank Church-River of No Return Wilderness reached its peak. The last bears were killed in the north end of the BE. Bud Moore, who was born in the Bitterroot Valley and was a former District Ranger for the Powell Ranger District of the Clearwater National Forest, has written an account of the last grizzlies of the BE (Moore, in press). He interviewed more than 25 old outfitters, hunters, trappers, and users of the ecosystem for his book. The last verified grizzly bears were seen in the 1940's. Since that time, there have been no verified sightings, verified tracks, accidental kills of grizzlies by black bear hunters, trapping of grizzlies by the Idaho Department of Fish and Game as part of their black bear research, sightings of grizzlies on annual aircraft wildlife surveys, or verified photos of grizzlies at baited cameras placed by management agencies.

The last verified death of a grizzly bear in the BE occurred in 1932 and the last tracks observed by Moore were in 1946 (Moore 1984). Although occasional unverified reports of grizzly sightings persist in the BE (Melquist 1985), no verified tracks or sightings have been documented in more than 50 years since the 1940's. A limited 2-year remote-sensitive camera study in the Clearwater region did not detect the presence of grizzly bears (Servheen et al. 1990, Kunkel et al. 1991). This lack of any verified evidence for more than 50 years is evidence that there are no grizzly bears in the BE today. Based upon the best scientific evidence available, there are no grizzly bears in the BE at this time.

RECOVERY OF GRIZZLY BEARS IN THE BITTERROOT

The BE is unique among the six established grizzly bear recovery areas in the United States in that there are no grizzly bears. Recovery of grizzly bears in the BE through natural recolonization is considered a remote possibility because of the lack of movement or dispersal by grizzly bears in the

northern Rocky Mountains. Therefore, grizzly bear recovery will require reintroduction of bears from other areas.

A variety of reintroduction alternatives could be feasible. These include reintroduction under its current classification done as a fully threatened species; reintroduction as experimental, nonessential under section 10(j); and reintroduction under experimental essential status under section 10(j). Experimental, essential status would be legally the same as being listed as a threatened species. Section 10(j) allows the Fish and Wildlife Service to reintroduce animals into former range that is currently unoccupied and to develop special management rules for the reintroduced bears by publication in the Federal Register. These special management rules can be crafted to the specific situation of the reintroduction area and they can be written to allow additional management flexibility. This management flexibility can add to acceptance of the reintroduction by accommodating local conditions and needs and thereby increase the possibility of success of the effort. A possible application of this increased management flexibility under section 10(j) status would be the use of a citizen management committee which would allow local interests to participate in the management of the experimental population. No section 7(a)(2) reviews of Federal actions are necessary within the reintroduction area under experimental nonessential status, except for actions on National Wildlife Refuges and National Parks within the reintroduction area (no National Wildlife Refuges or National Parks exist within the BE). All bears reintroduced under experimental, nonessential status would be protected under the Endangered Species Act from illegal take, but the take requirements are only those specified in the Special Rule for that experimental population. A Federal Register publication of a Final Special Rule would establish, for a nonessential experimental population of bears, their experimental, nonessential status, define the experimental area within which this status will apply, and establish any special management provisions such as sanitation on public lands, public education efforts, or habitat management that will apply within the experimental area.

To comply with the National Environmental Policy Act (NEPA), an appropriate NEPA document must be prepared on any proposed Special Rule published in the Federal Register. An environmental impact statement (EIS) will examine the social, economic, and environmental consequences of a full range of grizzly bear recovery alternatives for the BE, including no action. Alternatives should include no reintroduction, release of bears classified as essential, and release of some grizzly bears as an experimental, nonessential population under section 10(j) authority. Considerations of an area for recovery would be centered upon a core area identified in the evaluation process, with adjacent lands considered, as necessary, to achieve the objectives of grizzly bear recovery. Any proposed Special Rule will be published in the Federal Register simultaneously with the release of the draft EIS. Comments on both the Proposed Rule and the draft EIS will be solicited. After comments have been received and considered, any Final Rule and final EIS would then be followed by a signed Record of Decision which will determine what action, if any, to implement.

This chapter contains tasks that address the five factors in section 4(a)(1) pertaining to the listing or

delisting of any species under the Endangered Species Act. These factors must be addressed in any rule published in the Federal Register to list or delist a species. The details of which tasks address which factors are presented in Table 6-18.

RECOMMENDATIONS FOR MANAGEMENT ACTION DURING THE FIRST 5-YEAR PERIOD OF RECOVERY ARE AS FOLLOWS: (references to chapter sections are identified in parentheses)

1. Publish a Proposed Rule in the Federal Register to designate grizzly bears reintroduced into the BE as a nonessential experimental population to achieve recovery. Evaluate the impacts of the Proposed Rule by preparing an EIS which will analyze the impacts of the Proposed Rule and alternative courses of action, including no action. The Proposed Rule and draft EIS will be published simultaneously. Solicit public comments on both the Proposed Rule and the draft EIS for at least 60 days. Finalize documents based on public comment and publish Final Rule or a Withdrawal Notice in the Federal Register detailing the action and release final EIS to be followed by a signed record of decision.

2. Initiate a public information program designed to inform the public on grizzly bear recovery efforts. (B6)

3. Develop during the NEPA process a schedule for implementation of appropriate management measures. (Bl33, B21144, B221--B225, B23)

4. Continue to evaluate reported sightings of grizzly bears in the BE. (B12, B33, B34, B41)

5. At the end of the first 5-year period, revise as necessary the subgoals and review a plan of action for the second 5-year period.

FUTURE TASKS FOR ACHIEVING AND MAINTAINING RECOVERY ONCE THE METHOD FOR RECOVERY OF GRIZZLY BEARS IN THE BE HAS BEEN DETERMINED THROUGH THE RULE MAKING AND EIS PROCESSES:

Subgoal: For the BE, 14 females with cubs over a running 6-year average, subject to revision as more information becomes available; delineation and occupancy of Bear Management Units (BMU's) will be determined at a future date; the subgoal for known, annual human-caused mortality remains zero until at least 90 grizzly bears are established. At that time, known, human-caused mortality is not to exceed 4 percent of the minimum estimate based on the most recent ar sum of females with cubs; furthermore, no more than 30 percent of this mortality limit shall be females.

B1. Establish Objective for Recovery and Identify Limiting Factors According to the Rules and Procedures Established for Grizzly Bears in the BE. The long-term subgoals stated above for grizzly bear recovery are tentative and may be altered as more information becomes available. Subgoals were established to ensure that sufficient numbers of grizzly bears exist throughout the BE to allow for a self-sustaining number of bears. The subgoals are based on the three key items monitored females with cubs, occupancy of BMU'S, and known, human-caused mortality, and indicate the status of the grizzly bears in the BE.

At this time, approximately 280 grizzly bears is the tentative long-term recovery objective for the BE (see item No. 3 below). This number would not be reached for perhaps 40-50 years. This number is based on the size of the evaluation area, the relative quantity and quality of grizzly bear habitat, and the reported densities of grizzly bears in studies of similar habitats in British Columbia and the United States. The evaluation area is about 14,200 square kilometers (km^2) in size (5,500 square miles (mi^2)) (Figure 6-6), so a recovered number of bears would equate to about one bear per 50 km^2 within this area (one bear per 20 mi^2).

There is no information on historical grizzly bear habitat use or historical density in the BE. Therefore, the subgoals detailed in this chapter are based on reasonable extrapolations of knowledge gained through grizzly bear research conducted in other areas and should be revised as additional information becomes available. Provisional recovery subgoals for the BE were developed using the following assumptions and methods:

1. Recovery of grizzly bears in the BE depends upon verification of meeting the criteria for a recovery. A recovered number of grizzly bears is defined as one that:

   (a) Can sustain the existing and anticipated level of known and unknown, unreported, human-caused mortality that exists within the BE, and,

   (b) Is well distributed throughout the recover area in the BE

2. There is a relationship between the sustainable human-caused mortality level and the number of unduplicated females with cubs. Therefore, the number of females with cubs can be useful in establishing acceptable levels of mortality.

3. As grizzly bears in the BE recover, it is expected that the grizzly density could reach at least one bear per 50 km^2 (one bear per 20 mi^2). This estimate is based on an average of density estimates from grizzly research in British Columbia, the Northern Continental Divide Ecosystem (NCDE), and the Yellowstone Grizzly Bear Ecosystem. Habitat within the BE varies in quality from highly productive sites to poor quality habitat. Density potentials are based on habitats in other ecosystems with habitats similar to those in the BE. Based on habitat information provided in the Bitterroot

Evaluation Area study (Davis and Butterfield 1991), habitat within the BE has been divided into three equal parts. Division criteria are moisture and subsequent vegetation types, road densities, and availability of spring range. Grizzly bear density for the best habitat was estimated to approach one bear per 29 km^2 (one bear per 11 mi^2), one bear per 58 km^2 (one bear per 22 mi^2) for moderate habitat, and one bear per 138 km^2 (one bear per 53 mi^2) for poor habitat. Based on 4,677 km^2 (1,805 mi^2) in each of the divisions, the minimum number of bears the BE could support is 163 in the high density area, 81 in the moderate, and 34 in the low. This suggests that the BE could sustain an average of at least 278 grizzly bears, or approximately one bear per 50 km^2 (one bear per 20 mi^2).

4. As the BE grizzly bears approach recovery, human-caused grizzly mortalities will occur at some long-term rate due to inevitable interactions between bears and people throughout the BE. Grizzly bear mortality will probably increase as numbers of bears increase and bear-human interactions increase.

5. The reporting efficiency for female grizzlies is 60 percent in selected areas of the NCDE in Montana (Aune and Kasworm 1989). Until better data are available, a 60 percent reporting efficiency will be used in estimates of the number of grizzly bears in the BE. Thus, of all females with cubs in the BE in a given year, it is assumed that on average 60 percent will be detected/seen and reported. This is a conservative estimate of females with cubs. Because of the unroaded and densely forested nature of much of the BE, the reporting efficiency is most likely lower than 60 percent, but this figure is used to err toward a minimal estimate. The calculated minimum number of females with cubs based on a 60 percent reporting efficiency will underestimate the actual number. As more information is obtained in the BE, specific goals based on better data will be developed.

6. On average, 33 percent of adult females (at least 5 years old) will be with cubs each year. This is based on an average 3-year reproductive interval for adult females. Thus, the annual average number of females with cubs can be multiplied by 3 to estimate the minimum number of adult females in the area.

7. As is common in other grizzly bear ecosystems, the numbers of grizzlies in the BE is expected to be 50 percent adults and 50 percent subadults (Interagency Grizzly Bear Committee, 1987, pp. 47-59).

8. As common in other grizzly bear ecosystems, the sex ratio of both adults and subadults is expected to approximate 1:1 (Interagency Grizzly Bear Committee, 1987. pp. 47-59).

9. The maximum human-caused grizzly bear mortality level that can be sustained without decline with the above-assumed characteristics is 6 percent when no more than 30 percent of these mortalities are females (Harris 1984).

10. Unknown, unreported, human-caused mortality will occur each year at some level as the BE grizzly bear population approaches recovery.

11. A running 6-year average of unduplicated females with cubs is based on a 3-year reproductive cycle and will allow at least 2 years when each adult female alive can be reported with cubs. A running 6-year tally also will stabilize the average and make it less sensitive to annual changes in reporting efforts.

12. Using the facts and assumptions about the grizzly bears in the BE as stated above, and assuming that approximately 280 bears is a reasonable objective based on the size of the ecosystem and the quality of grizzly habitat within the recovery area, the subgoal for the minimum number of unduplicated females with cubs on a running 6-year average is 14 verified reports, both inside and within 10 miles of the recovery area boundary.

    The subgoal of 14 females with cubs is sufficient to indicate a <u>minimum</u> of at least 276 bears (using method of Knight et al. 1988):

    Fourteen females with cubs seen divided by 0.6 (sightability correction factor) = 23 total females with cubs; 23 X 3 = 69 adult females; 69 divided by 0.25 (the assumed proportion of adult females, see items No. 7 and No. 8 above) = a minimum of 276, or approximately 280, grizzly bears in the BE.

13. A <u>minimum</u> of 280, as indicated by recovery subgoals, could sustain a <u>maximum</u> human-caused mortality level of 6 percent per year without decline, or:

    280 X 0.06 = 17 human-caused bear mortalities

14. <u>The current</u> human-caused mortality subgoal to facilitate recovery of the grizzlies in the BE is zero. In reality, this goal may not be realized because human-bear conflicts are likely to occur at some level within the BE. Management should strive to prevent all human-caused mortality in the BE.

15. The annual subgoal should remain zero <u>known, human-caused mortalities</u>. The female mortality subgoal <u>should remain zero</u> until the 3 key parameters indicate a minimum of at least 90 grizzly bears. Management should strive to prevent all human-caused mortality within and surrounding the BE. If control action is deemed absolutely

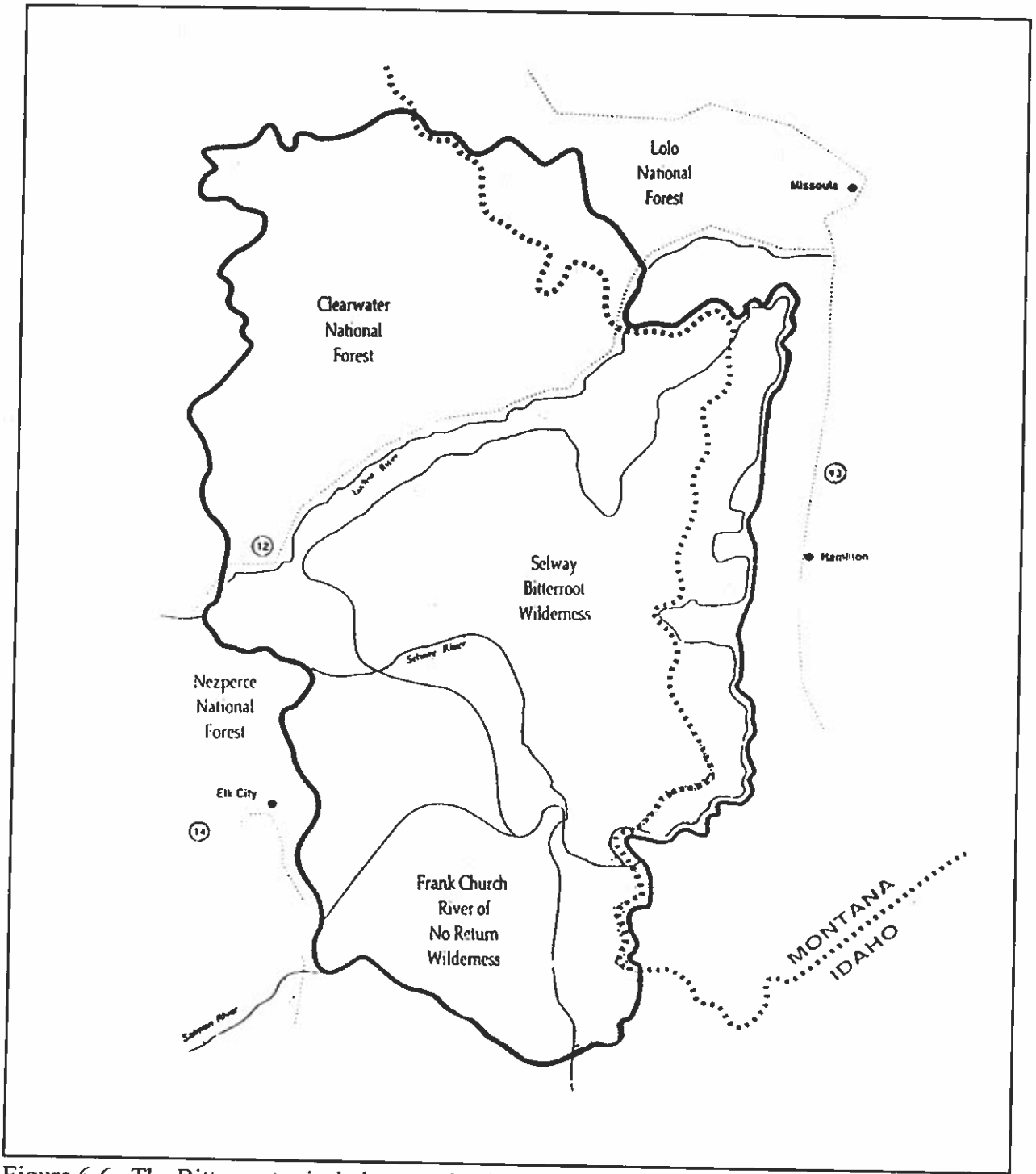


Figure 6-6. The Bitterroot grizzly bear evaluation area. This area was determined to be suitable grizzly bear habitat as a result of a 5-year habitat evaluation. This area is the core of grizzly bear habitat in the Bitterroot Ecosystem and will be the foundation for the future delineation of a recovery area.

necessary, the bears probably would not experience overall decline if human-caused mortality remains less than 4 percent. For instance, at least 86 grizzly bears could theoretically sustain a total of three mortalities or one female mortality annually (86 X 0.04 = 3, and 3 X 0.30 = 1). Twenty-five grizzly bears could theoretically sustain only-one male mortality annually (25 X 0.04 = 1). However, these calculations do not account for demographic, genetic, or other problems that can be dramatically amplified in such small numbers of bears.

In the future, to facilitate recovery of grizzly bears in the BE, and to allow for both error in minimum estimates of the number of bears and for unknown, unreported mortality, the maximum allowable human-caused mortality for the BE grizzly bears should be 4 percent of the minimum estimate, 30 percent of which may be females. In order to account for changes in numbers of grizzly bears, and to establish a link between grizzly bear numbers and allowable known, human-caused mortality, the allowable mortality level should be recalculated annually using the most recent 3-year sum of females with cubs as described in N1, item No. 8 (above). This allowable human-caused mortality is conservative because:

(a) It is applied to a minimum estimate of the number of bears based on the number of females with cubs seen in the BE, corrected by a conservative sightability factor (as detailed in Bl, item No. 5). It is recognized that the actual total number of bears is likely higher than the estimate.

(b) According to Harris (1984), a grizzly bear population can sustain 6 percent human-caused mortality without experiencing a decline.

For the subgoal of 14 females with cubs, which indicates a minimum of 280 bears, 4 percent annual, known, human-caused mortality is equivalent to:

280 X 0.04 = 11 total known human-caused bear mortalities,
or 11 X 0.30 = 3 known human-caused female bear mortalities.

B11. Determine Conditions at Which the Species is Viable and Self-Sustaining. Reevaluate and Refine Criteria as New Information Becomes Available. Grizzly bears in the BE will be viable when monitoring efforts indicate that recruitment and mortality are at levels supporting a stable or increasing number of bears, and reproducing females are distributed throughout the recovery area. The BE grizzly bear population should be judged as meeting recovery requirements when, as determined through systematic monitoring throughout the recovery area, it meets each of the following criteria:

(a) The average number of unduplicated female grizzly bears with cubs is at least 14 annually on a running 6-year average (this number is subject to revision as new information becomes available).

(b) At this time no BMU's have been delineated. Delineation and occupancy of BMU's will be determined at a future date as data on home range size and habitat use becomes available.

(c) The female mortality subgoal for this ecosystem is zero until the 3 key parameters monitored indicate at least 90 bears. At that time, the known, human-caused mortality level is not to exceed 4 percent of the number of bears based on the most recent 3-year sum of females with cubs, minus known adult female mortality. Additionally, no more than 30 percent of known, human-caused mortality shall be females.

B111. Determine Monitoring Methods and Criteria According to the Rules and Procedures Established for Grizzly Bears in the BE. The maintenance of a secure and robust number of grizzly bears will require ongoing careful monitoring. This monitoring should provide data to allow reasonable assurance that the numbers of bears are secure. The greater the number of parameters monitored, the greater the assurance that the information is representative of the status of the bears.

With this in mind, a system has been developed to monitor a wide range of parameters, with three being of primary importance. These include: unduplicated number of females with cubs seen annually, the distribution of females with young throughout the ecosystem, and the annual number of known human-caused mortalities. Other factors also should be monitored to increase the confidence in the information, but these three parameters should be the key criteria used to judge the status of the bears. The subgoal of distribution by females with young is designed to demonstrate adequate dispersion of the reproductive cohort within the recovery area. Distribution of reproducing females also provides evidence of adequate habitat management assuming that successful reproduction indicates habitat sufficiency. Finally, adequate distribution of family groups can indicate future occupancy of these areas because grizzly bear offspring, especially female offspring, tend to occupy habitat within or near the home range of their mother after weaning.

B112. Establish Reporting Procedures and Systems to Gather and Evaluate Information on Numbers of Bears According to the Rules and Procedures Established for Grizzly Bears in the BE. All cooperating agency personnel should report females with cubs of the year on a standard form. Agency personnel should be assigned to and responsible for one or more BMU's to ensure consistency in collection of reporting information. It should be the responsibility of such personnel to submit an annual report of the number of verified females with cubs for their respective BMU's to the appropriate reporting point by December 1 for compilation.

To eliminate duplicate reports, all sightings and track data should be reviewed by agency representatives at an annual meeting. A running 6-year average of unduplicated females with cubs should be calculated using the annual report data. All unduplicated females with cubs outside the recovery area line but within 10 airline miles of the line shall be counted as part of the total number seen within the recovery area during that year. Additionally, observations of females with young should be plotted annually for a running 6-year cumulative total for determination of occupancy.

B12. Determine Current Conditions on the Number and Status of the Bears According to the Rules and Procedures Established for Grizzly Bears in the BE. The last documented death of a grizzly bear in the BE occurred in 1932. Although occasional reports of grizzly sightings persist in the BE (Melquist 1985), no verified tracks or sightings have been documented in recent years. A limited 2-year remote-sensitive camera study in the Clearwater region did not detect the presence of grizzly bears (Kunkel et al. 1991). Based upon the best scientific evidence available, there are no grizzly bears in the BE.

B121. Gather Information on Behavior, Physiological Condition, Distribution, Density, Food Habits, Home Range, Reproduction, Survivorship, Denning Activities, Genetic Diversity, and Disease. There is no biological information on grizzly bears in the BE because no studies were conducted before grizzly bears were extirpated and because there are no grizzly bears presently in the BE. Information on grizzly bears in other regions has been gathered since the 1960's through various research studies sponsored by universities; the Idaho Department of Fish and Game; Montana Department of Fish, Wildlife, and Parks; Wyoming Department of Fish and Game; National Park Service; Fish and Wildlife Service; and the Forest Service. These data are presented in biological journals and in annual project reports. If bears are reintroduced, these biological factors should be monitored in the BE.

B13. Identify the Man-Related Limiting Factors. Mortality from direct and indirect sources within and surrounding the recovery area must be addressed if grizzly bears are to recover.

B131. Identify Sources of Direct Mortality. Sources of direct mortality include illegal killing, accidental deaths and management-associated removals. Accidental deaths include mistaken identities by black bear hunters and other big game hunters, and road kills (automobiles, trains, etc.) or handling error when bears are captured for management or research. Mortality also can result from control actions by private citizens such as livestock operators, apiarists, outfitters, and resort operators, for protection of property, and by hunters defending their kills. Direct mortality also may occur during agency control of nuisance bears for livestock conflicts, property damage, or situations threatening to human life. Live removal of a grizzly to a zoo or another ecosystem also is considered a mortality because the bear is lost from the BE. Mortality occasionally results from actions of private citizens for self- defense or defense of others.

B132. Identify Sources of Indirect Mortality. Sources of indirect mortality are those actions that bring bears and people into conflict such as road use, land development, and recreation.

B133. Determine Effects of Human Activities on Bears and Bear Habitat and Incorporate the Results Into Management Plans and Decisions on Human Activities According to the Rules and Procedures Established for Grizzly Bears in the BE. Conduct research and monitor to document the effects of timber harvest, road use, oil and gas exploration, hard rock mining, and recreation on behavior, physiological condition, distribution, density, food habits, home range, reproduction, survivorship, and denning activities.

B2. Redress Limiting Factors on Numbers Should Bears be Reintroduced According to the Rules and Procedures Established for Grizzly Bears in the BE.

B21. Reduce Sources of Direct Mortality According to the Rules and Procedures Established for Grizzly Bears in the BE. Recommended annual human-induced grizzly bear mortality subgoal for expediting species recovery is zero. This mortality subgoal may not be achieved because some level of human-bear conflict within the BE is inevitable, but every effort should be made to limit mortalities to zero in the initial phases of recovery when the numbers of bears will be low.

Known, human-caused mortalities in excess of a level sustainable at a given number of unduplicated female with cubs reports could result in decline while mortalities below this level would likely result in an increase in numbers of bears. As numbers of grizzlies increase, the number of sustainable, known, human-induced mortalities also increases. The number of known females with cubs should be used to calculate what is believed to be a conservative estimate of the number of bears present. Therefore, the projected limit of known, human-caused mortalities set at less than 4 percent of this number is conservative.

However, in the near term after the initial reintroductions, there will be insufficient numbers of bears in the BE to sustain even very low levels of human-caused mortality. Management should strive to prevent all human-caused mortality.

B211. Reduce Illegal Killing Should Bears be Reintroduced According to the Rules and Procedures Established for Grizzly Bears in the BE. Use all methods possible to minimize illegal kills.

B2111. Coordinate State, Federal, and Tribal Law Enforcement Efforts According to the Rules and Procedures Established for Grizzly Bears in the BE. Provide a concerted law enforcement effort by designating a specially trained law enforcement team coordinated by the Fish and Wildlife Service to minimize the illegal kill of grizzly bears. One or more persons representing the Fish and Wildlife Service, Forest Service, State of Montana, and State of Idaho should be appointed. Each member should receive specialized training to work on illegal kills of grizzly bears. The team should be trained initially by the Montana Department of Fish, Wildlife, and Parks; Fish and Wildlife Service; Idaho Department of Fish and Game; and other biologists in such matters as distribution, home ranges of identifiable bears, movements by season, mating habits, current location of radio-marked bears and other biological information that may be helpful to the team. Representatives from the Forest Service should be encouraged to obtain training in order to more ably assist in gathering field evidence.

All incidents of grizzly bear kills, suspected illegal activities and rumors of kills should be communicated between the enforcement team and their respective agencies on a daily basis or as often as is practical.

The Enforcement Team Leader should keep all members of the enforcement team, the Idaho Department of Fish and Game, and Montana Department of Fish, Wildlife, and Parks informed and should organize coordination meetings and protocol as needed. Special emphasis should be directed at covert operations which may be operating commercially.

The Enforcement Team should operate through an interstate, interagency agreement under the direction of the Fish and Wildlife Service.

It is imperative that the group leader establish a line of communications and rapport with all field personnel, field office staff and local law enforcement agencies in order that he may be notified immediately on a violation or threat of a violation.

Public assistance should be solicited in reporting suspected or known illegal kills. Persons furnishing information which leads to a finding ofcivil violation or a conviction of a criminal violation of 50 CFR, Part 17.40 regarding grizzly bears, can be rewarded up to one-half of the fine or civil penalty.

States having toll free numbers for reporting violations or for information should publicize their numbers as means of reporting grizzly problems and grizzly bear deaths.

B2112. Reduce Mortality Associated with Big Game Hunting and Mistaken Identity Killing by Black Bear Hunters According to the Rules and Procedures Established for Grizzly Bears in the BE. State conservation agencies should provide information to big game hunters to avoid conflicts with grizzly bears, including camp sanitation, food storage, and game retrieval. Agencies will continue to make information available to all black bear hunters to assist them in distinguishing between black and grizzly bears. State agencies should issue special warnings to black bear hunters and other big game hunters using areas frequented by grizzly bears. Black bear hunting regulations should be modified as appropriate to reduce areas of significant conflicts or time periods of conflict. Special attention should be given to evaluate and modify, as necessary, bear baiting and the use of hounds for bear hunting in the recovery area.

B2113. Investigate and Prosecute Illegal Killing of Grizzly Bears. The special enforcement team should investigate all grizzly bear mortalities and recommend prosecution when appropriate.

B2114. Reduce Accidental Deaths According to the Rules and Procedures Established for Grizzly Bears in the BE. Minimize those activities that result in attraction of bears to sites of potential conflict and management error that might result in losses.

B21141. Increase Efforts to Clean Up Carrion and Other Attractants in Association With Roads, Human Habitation, and Developed Areas Within Recovery Areas According to the Rules and Procedures Established for Grizzly Bears in the BE. All agencies should evaluate and improve warning signs along highways and roads in high-use grizzly bear areas. All agencies should increase efforts to clean up carrion and other attractants along highways and other routes within occupied grizzly bear range.

B21142. Reduce Losses Due to Handling of Bears During Research and Management Actions According to the Rules and Procedures Established for Grizzly Bears in the BE. To reduce losses due to handling of bears (e.g. an overdose of immobilizing drugs or improper handling), only experienced personnel that are certified by a sponsoring unit having the required permits and knowledge in the application of capture techniques, immobilizing drugs, transportation of drugged animals, and scientific data collection should handle grizzly bears. Only the safest, most effective drugs available should be used. A detailed manual for trapping, immobilizing, transporting and handling grizzly bears has been prepared for use by all agencies as a training and reference manual.

B21143. Reduce Losses Due to Predator and Rodent Control and Ensure That Such Control is Accomplished According to the Rules and Procedures Established for Grizzly Bears in the BE. Agencies responsible for licensing, conducting, or in any way overseeing rodent damage control

programs, using toxic substances in occupied grizzly bear habitat, should try and minimize the potential for grizzly bears to consume poisoned rodents or bait.

B21144. **Ensure That Control of Nuisance Bears is Accomplished According to the Rules and Procedures Established for Grizzly Bears in the BE.** All management control actions should be carried out according to the Special Rule for grizzly bears in the BE. The law enforcement team should carefully investigate every case of grizzly bear mortality including those alleged to be self-defense or defense of others.

B212. **Appoint a Grizzly Bear Mortality Coordinator for the BE.** The Fish and Wildlife Service should appoint an employee of the Idaho Department of Fish and Game as grizzly bear mortality coordinator for Idaho. His/her duties should include the tabulation of annual grizzly bear mortalities for all grizzly bear ecosystems in Idaho, and assuring that all cooperating agencies and the public have current mortality data. The coordinator should maintain key contacts with all agencies and keep detailed records of all conditions surrounding each grizzly bear death. A standard form meeting the needs of all agencies should be used. All reports of mortalities from Idaho should be sent to the Interagency Grizzly Bear Committee (IGBC) grizzly bear mortality coordinator for central record keeping.

B22. **Identify and Reduce Sources of Indirect Mortality According to the Rules and Procedures Established for Grizzly Bears in the BE.** Ongoing human actions in grizzly habitat contribute to bear-human conflicts that often result in bear deaths. Management of these activities in consideration of the needs of bears will reduce indirect mortality.

B221. **Ensure That Livestock Grazing is Accomplished According to the Rules and Procedures Established for Grizzly Bears in the BE.** Applicable guidelines regarding spatial and habitat requirements for grizzly bears will be addressed during development of the EIS. On Federal lands, Forest Plan standards and guidelines for other resources (fisheries, watershed, elk) will be adhered to. On State and private lands, agencies and field personnel of agencies involved in grizzly bear management should strive to educate grazers about ways to minimize potential conflicts with grizzly bears through a cooperative extension effort.

B222. Ensure That Timber Harvest and Road Building are Accomplished According to the Rules and Procedures Established for Grizzly Bears in the BE. Applicable guidelines regarding spatial and habitat requirements for grizzly bears will be addressed during development of the EIS. On Federal lands, Forest Plan standards and guidelines for other resources (fisheries, watershed, elk) will be adhered to. On State and private lands, agencies and field personnel of agencies should adhere to applicable state forest practices and water quality laws.

B223. Ensure That Mining and Oil and Gas Exploration and Development is Accomplished According to the Rules and Procedures Established for Grizzly Bears in the BE. On Federal lands, Forest Plan standards and guidelines for other resources (fisheries, watershed, elk) will be adhered to. On State and private lands, agencies and field personnel of agencies should adhere to applicable state forest practices and water quality laws.

B224. Ensure That Recreation is Accomplished According to the Rules and Procedures Established for Grizzly Bears in the BE. On Federal lands, Forest Plan standards and guidelines for other resources (fisheries, watershed, elk) will be adhered to. On State and private lands, agencies and field personnel of agencies involved in grizzly bear management should communicate ways to minimize bear-human conflicts as a cooperative extension effort.

B225. Coordinate With State and County Governments to Provide Information on How Land Development and Land Use Decisions Can Be Made Compatible with Grizzly Bear Habitat Needs According to the Rules and Procedures Established for Grizzly Bears in the BE. Land management agencies, State regulatory agencies, county commissioners, and county zoning boards should be encouraged to give consideration to the needs of grizzly bears in any actions requiring their approval. When homes, summer homes, cabins, camps, farm operations, dog kennels, pig farms, garbage dumps and other attractants, and livestock carcass disposal sites are allowed within habitat occupied by grizzly bears, they will directly or indirectly effectively reduce the space and habitat necessary for bear survival. On private lands, wildlife managers should give consideration to contacting local landowners about sanitation practices to minimize conflicts and to purchase, lease or obtain easements if habitat components are necessary to the survival of the species.

B23. Coordinate, Monitor and Report on Activities Relating to Redressing Limiting Factors According to the Rules and Procedures Established for Grizzly Bears in the BE. This should be accomplished through the activities of the Recovery Coordinator and the management system outlined in the Special Rule for the BE. Actions should be taken by the management committee as necessary to address needs and to ensure implementation of the Bitterroot Grizzly Bear Recovery Plan Chapter and procedures established for grizzly bears in the BE.

B3. Establish the Habitat Based Recovery Criteria Required for a Recovered Number of Grizzly Bears According to the Rules and Procedures Established for Grizzly Bears in the BE. Careful definition of the experimental population area will allow agencies and the public to know where grizzly bears and grizzly habitat will be managed. Information on range and the biology of bears as well as the nature and quality of habitat is necessary to ensure that habitat is properly managed and that the habitat delineated has sufficient quality and quantity to support a viable population.

B31. Define the Experimental Population Area Within Which the Grizzly Bear Will be Managed According to the Rules and Procedures Established for Grizzly Bears in the BE if Designation of an Experimental Population Under Section 10(j) is Selected Through the EIS Process. In 1986, the grizzly habitat evaluation area for the BE was delineated by members of the Northwest Ecosystem Management Subcommittee of the IGBC (Figure 6-6). This was a geographic evaluation area delineated to ensure a timely and critical examination of a central core area in the Bitterroot Mountains. Because of limited data, the evaluation area did not include potentially suitable habitat south of the Salmon River or north along the Idaho-Montana border. The results of this evaluation demonstrated that there exists a core area of 14,200 km^2 (5,500 mi^2) that is suitable grizzly bear habitat. The habitat evaluation did not extend beyond the area shown in Figure 6-6 and it is probable that suitable grizzly bear habitat exists beyond both the northern and southern boundaries of this initial evaluation area. It is proposed that the experimental area be designated as part of the EIS process and during the development of the Bitterroot Grizzly Bear Special Rule. Considerations of the area for recovery would be centered upon the core area identified in the evaluation process, with adjacent lands considered, as necessary, to achieve the objectives of grizzly bear recovery.

B32. Delineation of BMU's According to the Rules and Procedures Established for Grizzly Bears in the BE. Delineation of BMU's will be determined when data on home range size and habitat use are available or existing data are deemed applicable to the BE.

B33. Conduct Research to Determine the Extent of Grizzly Bear Range According to the Rules and Procedures Established for Grizzly Bears in the BE. A concerted effort is needed by cooperating agencies to conduct studies on home range and range expansion of grizzly bears within the Bitterroot Recovery Area after reintroduction should that be the approach selected through the EIS process.

B34. Conduct Research to Determine Habitat Use, Food Habits, Home Range Size, and Seasonal Habitat Preference According to the Rules and Procedures Established for Grizzly Bears in the BE. These data should be used to ensure that habitat values are available and that ongoing management actions do not significantly degrade these habitat values. Research should be conducted as needed by cooperating agencies. Results are to be used to judge the effectiveness of management policies. Policies should be adjusted as necessary when research demonstrates the need to do so according to the rules and procedures established for grizzly bears in the BE.

B35. Conduct Research to Determine the Relationship Between Habitat Values, Physiological Condition of Bears, and the Ability of the Habitat to Sustain a Bear Density Necessary to Achieve Viable Size After Reintroduction Should That Be the Approach Selected Through the EIS Process. Research should be conducted as needed by cooperating agencies. Results are to be used by management agencies to judge the effectiveness of management policies. Policies should be adjusted as necessary when research demonstrates the need to do so.

B4. Monitor Numbers of Bears and Habitat. Monitoring is necessary for determination of status and to assess the success of conservation efforts associated with recovery. An increasing number of bears validates ongoing management efforts, while a decreasing number indicates a failure to address problems.

B41. Monitor Bears During and After Reintroduction, Should That Be the Approach Selected Through the EIS Process, According to the Rules and Procedures Established for Grizzly Bears in the BE. Develop and apply techniques to ensure the number of bears is carefully monitored.

B411. Develop and Conduct an Intensive Monitoring System to Measure the Annual Number of Females with Cubs, Family Groups, and Number of Human-Caused Mortalities According to the Rules and Procedures Established for Grizzly Bears in the BE. (The method is detailed in B11 and B111.)

B412. Develop a System of Agency Responsibilities to Collate, Analyze, and Report Annual Information on Number of Bears According to the Rules and Procedures Established for Grizzly Bears in the BE. (The system is detailed in B112.)

B413. Standardize Observation Report Forms and Methods, and Develop Training Methods for all Persons Involved in Reporting Sightings of Females With Cubs and Family Groups According to the Rules and Procedures Established for Grizzly Bears in the BE. (Reporting system detailed in B112.) Training methods should involve identification materials to enable all individuals involved to be able to identify the bear species seen or to be able to report unknown species. Training methods should be distributed to all agency reporting personnel and should be formally presented in training sessions to seasonal and staff personnel at the beginning of each year in order to ensure quality observation data.

B42. Monitor Habitat Before, During, and After Recovery According to the Rules and Procedures Established for Grizzly Bears in the BE. Develop and apply techniques to ensure the habitat is carefully monitored and that habitat is sufficient to sustain a recovered number of grizzly bears.

B421. Report Management Activities Used to Successfully Manage Habitat According to the Rules and Procedures Established for Grizzly Bears in the BE. To be completed as part of the ongoing business of the management agencies, the Bitterroot Ecosystem Management Committee, and the Recovery Coordinator. Standards for report content and format should be developed.

B422. Develop a System to Ensure Habitat Monitoring and Monitoring of Bear Numbers That Will Continue in Force After Recovery According to the Rules and Procedures Established for Grizzly Bears in the BE. To be completed as status data indicate attainment of the recovery targets. The purpose of this is to ensure proper habitat and monitoring so that the species will remain recovered without protection under the Act.

B5. Manage Populations and Habitat According to the Rules and Procedures Established for Grizzly Bears in the BE. Apply the best management techniques to achieve recovered populations.

B51. **Refine Procedures for Relocation of or Aversively Conditioning Nuisance Grizzly Bears According to the Rules and Procedures Established for Grizzly Bears in the BE.** Develop and coordinate procedures to expedite the relocation of nuisance bears, review and update interagency agreements. Relocate bears within 24 hours and continue searches for new release areas. Research and develop methods to deal with problem bears and test and develop aversive conditioning of bears, if possible.

B52. **Develop and Test Procedures for Reintroducing Grizzly Bears Into the BE According to the Rules and Procedures Established for Grizzly Bears in the BE, If That Alternative is Selected as Part of the EIS Process.** Sources of bears would be ecosystems with larger populations, including those in Canada. If reintroduction of bears was selected, initially a small number of bears would be released over a period of several years. This is due to logistic concerns and the need to evaluate the reintroductions before any further reintroductions would be considered. Both male and female bears would be released to establish the basis for a breeding population. Only bears with no history of human conflict would be selected.

Public safety and maximizing the probability of the success of the effort would be primary considerations in selecting reintroduction sites and the types of bears that would be moved. Therefore, reintroduced bears would be released into high quality habitat in back-country areas in the Selway-Bitterroot Wilderness where the potential for human-bear conflict would be minimal. All reintroduced bears would be closely monitored. Strict interagency guidelines and agreements would be developed to allow for the aversive conditioning, relocation, or removal of any reintroduced bear that came into conflict with people.

B53. **Manage Populations and Habitats on Private and State Lands According to the Rules and Procedures Established for Grizzly Bears in the BE.** Review existing grizzly bear standards and guidelines utilized by the Forest Service and other agencies and landowners. Develop and apply management actions prior to recovery that maintain or enhance habitats. Recommend land use activities compatible with grizzly bear requirements for space and habitat; minimize potential for human/bear conflicts. Implement cooperative efforts with State lands agencies and private land owners to assist in application of methods and actions sensitive to grizzly bear habitat needs. Cooperative efforts between county, State, and Federal land management agencies would facilitate this.

B6. Develop and Initiate Appropriate Information and Education Programs According to the Rules and Procedures Established for Grizzly Bears in the BE. Managing human-caused grizzly mortalities is a major factor in effecting the recovery of the grizzly bear. Therefore, it is crucial to the recovery effort that the public understands reasons for actions in order to generate favorable or tolerant attitudes toward the bear. The IGBC has appointed an Information and Education subcommittee to work on the development of education programs and information dissemination. Private conservation organizations interested in the recovery of grizzly bears could be of assistance by including appropriate information in their publications and news releases.

B61. Evaluate Public Attitudes Toward Grizzly Bear Management, Grizzly Habitat Protection and Maintenance, Land Use Restrictions, Mitigating Measures, Relocation of Bears, Hunting, Nuisance Bear Control Actions, and Habitat Acquisition or Easement According to the Rules and Procedures Established for Grizzly Bears in the BE. Public attitudes are a major part of the success or failure of grizzly bear recovery efforts. Understanding of these attitudes and the basis for public sentiment is important. Research surveys designed by qualified scientists experienced in such sampling should be initiated. The basic questions and attitudes of interest should be formulated by the management subcommittee members. The data would be useful in designing public outreach programs to foster public support for recovery programs.

B62. Formulate Ways to Improve Public Attitudes Toward Grizzly Bears and the Grizzly Bear Recovery Program According to the Rules and Procedures Established for Grizzly Bears in the BE. Agencies should use the data on public attitudes to formulate public relations and information and education (I&E) programs through the respective I&E offices of each agency and the I&E subcommittee of the IGBC. Agencies having the authority and responsibility for control actions should institute and carry out information and education programs. Citizens who live in or near grizzly habitat should be kept informed of the appropriate agency contacts for assistance should a bear-human conflict arise.

B7. Ensure That Regulations are Consistent and Up To Date According to the Rules and Procedures Established for Grizzly Bears in the BE, and that International Cooperation and Communication are Maintained with all Other Countries Where Brown Bears are Being Managed.

B71. Recommend Revisions in Federal and State Regulations, as Necessary According to the Rules and Procedures Established for Grizzly Bears in the BE. Regulations may be revised to ensure regulatory adequacy. These regulations include CFR regulations, and national forest regulations regarding sanitation. State regulations involved include regulations on the taking of bears.

B72. Coordinate and Exchange Information and Expertise Concerning Bear Research and Management with Canada and Other Countries. This Will Increase Information Exchange of the State-Of-The-Art in Bear Research and Management, Promote International Cooperation, Improve Management, and Facilitate Recovery Efforts. All agencies and the Grizzly Bear Recovery Coordinator should exchange information and expertise concerning recovery activities with Canada and other countries managing bears. This exchange will promote international cooperation and improve management and recovery efforts. International cooperation is important to the success of the grizzly bear recovery effort. Four grizzly populations span the United States/Canada border and the cooperation and involvement of Canadian management authorities will facilitate conservation of grizzlies in the United States. Management authorities from British Columbia and Alberta need to be full participants in all aspects of the recovery program. Research conducted in Canada on grizzly bears is applicable to situations in the United States and cooperation in funding such research, cooperative efforts involving personnel from both countries, and sharing of research results is vital. Joint United States/Canadian management of bears and bear habitat is necessary for the four ecosystems that lie along the United States/Canada border, as well as for international cooperation to obtain bears for reintroduction into the BE.

B8. Ensure That the Bitterroot Chapter Recovery Tasks Address the Five Factors in Section 4(a)(1) of the Endangered Species Act. The five factors in section 4(a)(1) of the Endangered Species Act are: (1) the present or threatened destruction, modification, or curtailment of habitat or range, (2) over utilization for commercial, recreational, scientific, or educational purposes, (3) disease or predation, (4) inadequacy of existing regulatory mechanisms, and (5) other natural or manmade factors affecting the continued existence of grizzly bears in the BE. There is overlap between the five factors and the tasks in this chapter. Many tasks address several of the factors. To simplify the relationships, Table 6-18 presents a matrix of the relationships between the tasks and the factors. All tasks are in this Bitterroot grizzly bear recovery chapter.

The tasks in this chapter address these five factors as follows:

Table 6-18. The relationship between the five factors in section 4(a)(1) and the tasks in this chapter.

FACTOR	RECOVERY PLAN BITTERROOT CHAPTER TASK NUMBER
1. Present or threatened destruction, modification, or curtailment of habitat	B1, BII, BIII, B12, B121, B131, B132, B133, B21141, B21143, B22, B221, B222, B223, B224, B225, B3, B31, B32, B33, B34, B35, B4, B42, B421, B422, B5, B53
2. Over-utilization[1]	B1, BII, BIII, B112, B12, B13, B131, B132, B133, B2, B21, B211, B2111, B2112, B2113, B2114, B21141, B21142, B21143, B21144, B212, B22, B221, B222, B223, B224, B225, B4, B41, B411, B412, B413, B5, B51, B6, B61, B62
3. Disease or predation[2]	BII, BIII, B121, B211, B2111, B2112, B2113, B2114, B21141, B21143, B21144
4. Inadequacy of regulatory mechanisms[3]	BI, BIII, B112, B132, B133, B2, B21, B211, B2111, B2112, B2113, B2114, B21141, B21142, B21143, B21144, B212, B22, B221, B222, B223, B224, B225, B23, B413, B4, B42, B421, B422, B53, B6, B61, B62, B7, B71, B72
5. Other factors	B21144, B51, B52, B7, B71, B72

[1] Over-utilization is related to grizzly bear mortality and the factors causing mortality.

[2] Disease or predation are treated here as factors that cause the death of bears by predation by humans, as in illegal killing, as well as factors that may cause physiological stress from either habitat-related food stress, or human-caused physiological stress related to disturbance.

[3] Regulatory mechanisms are those factors related to ensuring systems and responsibilities to monitor habitat or numbers of bears and requiring actions to make human activities compatible with grizzly bear recovery.

LITERATURE CITED

Aune, K. and W. Kasworm. 1989. Final report East Front grizzly bear study. Montana Department of Fish, Wildlife, and Parks. Helena, Montana. 332 pp.

Davis, D. and B. Butterfield. 1991. The Bitterroot grizzly bear evaluation area. A report to the Bitterroot Technical Review Team. Interagency Grizzly Bear Committee, Denver, Colorado. 56 pp.

Harris, R. 1984. Harvest age structure as an indicator of grizzly bear population status. M.S. Thesis, University of Montana, Missoula. 204 pp.

Interagency Grizzly Bear Committee. 1987. Grizzly bear compendium. U.S. Fish and Wildlife Service, Missoula, Montana. 540 pp.

Knight, R.R., D.J. Matson, and B.M. Blanchard. 1984. Movements and habitat use of the Yellowstone grizzly bear. Unpublished report to the Interagency Grizzly Bear Committee. National Park Service, Forestry Sciences Lab., Montana State University, Bozeman. 177 pp.

Knight, R.R., J. Beecham, B. Blanchard, L. Eberhardt, L. Metzgar, C. Servheen, J. Talbot. 1988. Equivalent population size for 45 adult females. Report of Yellowstone Grizzly Bear Population Task Force. Unpublished. National Park Service, Bozeman, Montana. 7 pp.

Kunkel, K.E., W.E. Clark, G. Servheen. 1991. A remote camera survey for grizzly bears in low human use areas of the Bitterroot Grizzly Bear Evaluation Area. Draft Report, Idaho Fish and Game, Boise. 11 pp.

Melquist, W.E. 1985. A preliminary survey to determine the status of grizzly bears (Ursus arctos horribilis) in the Clearwater National Forest of Idaho. Idaho Coop. Fish and Wildlife Research Unit, University of Idaho, Moscow. 54 pp.

Moore, W. 1984. The last of the Bitterroot grizzly. Montana Magazine. (November-December): 8-12.

Moore, W. 1996. The Grizzly Bear in the Bitterroot. In press.

Servheen G., M. Nadeau, and C. Queen. 1990. A survey for grizzly bears in the Bitterroot Grizzly Bear Evaluation Area. Idaho Department of Fish and Game. Unpublished Report. Boise, Idaho. 11 pp.

APPENDIX 15. PLAN FOR DETERMINING GRIZZLY BEAR NUISANCE STATUS AND FOR CONTROLLING NUISANCE GRIZZLY BEARS

I. Preamble

THE INTERAGENCY GRIZZLY BEAR COMMITTEE RECOGNIZES THAT:

WHEREAS, it is mutually recognized that it is necessary to:

A. Comply with Section 7 of the Endangered Species Act which requires Federal agencies to protect the grizzly bear (Ursus arctos horribilis), a threatened species, and its habitat.

B. Comply with Fish and Wildlife Service rules and regulations relating to the removal of nuisance bears (FEDERAL REGISTER, Vol. 40, No. 145 - Monday, July 28, 1975).

C. Comply with Fish and Wildlife Service rules and regulations relating to interagency cooperation under the Endangered Species Act with emphasis on formal consultation related to management actions affecting grizzly bears (FEDERAL REGISTER, Vol. 43, No. 2 - Wednesday, January 24, 1978).

D. Identify the responsibilities of the respective agencies for determining grizzly bear nuisance status and for controlling nuisance grizzly bears.

E. Provide a mutually developed and mutually acceptable plan which contains a uniform interagency approach for management of grizzly bears and their habitat and for determining grizzly bear nuisance status and for controlling nuisance grizzlies.

F. Provide for an Aggregate Consultation on all management actions related to grizzly bears specified in the IGBC Guidelines, including nuisance bear control measures.

NOW, THEREFORE, in consideration of the above premises, the parties hereto agree as follows:

A. To accept the "Guidelines" as the primary source for management decisions involving grizzly bears and their habitat and not to determine grizzly bear nuisance status or control nuisance bears without assistance of other appropriate parties to the agreement.

B. The Forest Service, as the public land administering agency on National Forests, shall:

Coordinate all actions and participate in decisions relating to the determination of grizzly bear nuisance status and controlling nuisance grizzly bears on National Forest lands. Coordination means requesting assistance and participation of the Fish and Wildlife Service, the Departments, and, in some cases, the Park Service.

C. The Fish and Wildlife Service, as advisor to the Federal land management agencies in matters pertaining to fish and wildlife management, shall:

In those cases when the Fish and Wildlife Service is aware of the grizzly-human conflict situation first, initiate the coordination process by notifying the Departments and the Federal land management agency and participate in the determination of grizzly bear nuisance status, and shall provide necessary expertise required for the control of nuisance grizzly bears.

D. The Departments as the agencies responsible for the management of the States' wildlife resources, shall:

In those cases when the Departments are aware of the grizzly-human conflict situation first, initiate the coordination process by notifying the appropriate Federal land management agency and the Fish and Wildlife Service and otherwise participate in the determination of grizzly bear nuisance status and shall contribute necessary expertise, operational services or other acceptable methods for the control of nuisance grizzly bears.

E. The Park Service, as the agency responsible for the management and administration of all resources in the National Parks shall:

Govern the taking of grizzly bears in National Parks. Park Service Personnel shall be invited to participate in the determination of grizzly bear nuisance status and to participate in the relocation of those bears judged to be potentially suitable for relocation into National Parks.

F. It is Mutually Agreed and Understood By and Among the Said Parties that:

1. All IGBC agencies will exchange phone contact lists of designated representatives assigned to implement these provisions and to decide on nuisance bear status.

2. All IGBC agencies will make an effort to have permittees notify the land management agency of all grizzly bear associated problems and to notify the respective State wildlife agencies when property damage occurs.

3. Relocations of bears between grizzly bear ecosystems will be done in accordance with State and Federal laws, regulations, and policy.

4. Amendments to this Plan may be made at any time with written concurrence of the IGBC and appropriate consultation.

5. Each IGBC agency and the Bureau of Indian Affairs (BIA) (Tribes) will coordinate its respective grizzly bear control procedures in full accordance with this Plan.

6. This plan will become effective on the publication of the final notice in the Federal Register on the Interagency Grizzly Bear Guidelines. This Plan shall automatically be renewed annually and remain in force until revoked or amended.

7. Any IGBC agency may terminate participation in this Plan upon 120 days written notice to each of the other agencies.

8. The attached Plan provides operational guidelines for determining grizzly bear nuisance status and for controlling nuisance grizzly bears in the conterminous United States. Handling and control of nuisance grizzly bears will be governed by the grizzly bear special rule (50 CFR 17.40) and per discussions and/or resulting agreements between IGBC member agencies and APHIS (Animal and Plant Health Inspection Service) animal damage control.

9. The "Guidelines and a "Plan" have been submitted to the Fish and Wildlife Service as a formal aggregate consultation since the projects, activities, and programs are logically grouped, their effects should be similar and such an aggregate consultation should greatly economize consultation activities related to and required for grizzly management.

The purpose of this document is to:

1. Document management direction agreed upon by participating agencies with respect to determination of grizzly bear nuisance status, and the capture, translocation, release and/or disposal of nuisance grizzly bears.

2. Guide managers in making rapid, effective, and responsible decisions and initiating action regarding grizzly bear control actions.

II. Guidelines for Determining Grizzly Bear Nuisance Status

These guidelines apply to the Management Situation Areas defined in *Interagency Grizzly Bear Guidelines* (IGBC 1986). In Management Situations Areas 1 and 2, grizzlies must be determined to be a nuisance by specific criteria before they can be controlled. In Situation Areas 3 and 5, any grizzly involved in a grizzly-human conflict situation is considered a nuisance and will be controlled. Control must be compatible with Grizzly Bear Recovery Plan objectives for limiting man-caused grizzly mortality and with Federal and State laws and regulations.

A grizzly bear may be determined to be a nuisance if any or all of the following conditions apply:

Condition A. The bear causes significant depredation to lawfully present livestock or uses unnatural food materials (human and livestock foods, garbage, home gardens, livestock carrion, and game meat in possession of man) which have been reasonably secured from the bear resulting in conditioning of the bear or significant loss of property.

Condition B. The bear has displayed aggressive (not defensive) behavior toward humans which constitutes a demonstrable immediate or potential threat to human safety and/or a minor human injury resulted from a human/bear encounter.

Condition C. The bear has had an encounter with people resulting in a substantial, human injury or loss of human life.

The following are considerations in determining grizzly nuisance status under Condition A:

Unnatural foods were reasonably secure from grizzlies. Reasonably secure means all steps were taken to comply with guideline objectives (a) Maintain and Improve Habitat and (b) Minimize Grizzly-Human Conflict Potential. The following are examples of reasonably secure conditions:

(1) sight and/or smell of edibles and/or garbage was not dominant (i.e., food was canned or in other sealed containers) and edibles and/or garbage was made unavailable (hung out of reach or secured in a solid-sided-bear-proof structure). Livestock use did not occur in habitat components critically important to grizzlies in time or space;

(2) livestock and wildlife carcasses were removed destroyed or treated so that the material would not reasonably be expected to attract grizzlies.

(3) game meat was stored at least 100 yards from any sleeping area;

(4) no baits were placed for purposes of sport hunting black bears, nor did any artificial feeding of bears occur.

The following are considerations in determining grizzly nuisance status under Condition B:

The bear has displayed aggression toward man. Sound evidence must be available to establish that the bear acted aggressively without provocation (not defensively), and that such behavior constituted a threat to human safety and/or a minor human injury occurred as a result of a nondefensive grizzly attack.

The following are considerations in determining grizzly nuisance status under Condition C:

> An encounter with people which resulted in a serious human injury or loss of human life. A bear that is involved in an accidental encounter with people, defense of young, or in a provoked attack (the bear acted defensively not aggressively) which results in a minor human injury should not be considered a nuisance under this condition.

If information is insufficient to clearly establish the above requisites under Conditions A, B, and C, then the involved bear(s) probably should not be determined a nuisance under that condition. The criteria in Table 6-19 should be used to guide control actions.

Preventive Action:

Certain specific grizzlies have known behavioral patterns, which, when combined with location, time and other factors, indicate that an incident is highly probable. In such situations, direct preventive action designed to safely remove the bear(s) from the situation (prior to an occurrence which would result in nuisance status and possible loss of the bear(s) to the ecosystem) can be implemented regardless of the Management Situation involved. Human activities must be in compliance with applicable guidelines to minimize potential for grizzly-human conflicts for that Management Situation. Control actions should be designed to capture and remove the specific target bear(s).

In other situations, a bear may move into a visitor use or residential area without causing an incident, but there is indication that due to its persistent use of the area, it may become overly-familiar with humans and may become habituated. The animal may be relocated if a suitable release site (free of circumstances similar to the capture site) is available. This is an action to prevent a possible incident or habituation of the bear. It does not count as an offense when determining the disposition of the bear (using Table 6-19), should the bear be recaptured in a future control action.

III. Grizzly Bear Control Action

1. If a grizzly bear is not determined to be a nuisance after consideration of criteria in Section II, no control action will be initiated.

2. Capture of nuisance grizzly bears outside National Parks is the primary responsibility of the State Fish and Game Agency in conjunction with the U.S. Fish and Wildlife Service. The National Park Service is responsible for bear capture within National Parks. Data forms for recording information about the captured bear(s) and the control action are provided in the Appendix. Nuisance bear forms should be completed by the onsite official and forwarded to the Grizzly Bear Recovery Coordinator for subsequent distribution.

3. Nuisance grizzlies that are sick or injured beyond a point where natural recovery is likely will be removed from the population. Other nuisance grizzlies will be controlled according to the guidelines in Table 6-19.

4. After a bear has been captured during a control action, the decision on where to relocate the bear or whether to kill it must be made within 24 hours of its capture. The relocation must be made as expeditiously as possible after the disposition of the bear is determined. Bears will not be held in a snare but will be immobilized, marked, and placed in an appropriate holding facility (can be a culvert trap).

   With due consideration of mortality risk associated with immobilization grizzly bears released should be marked with numbered ear tags, lip tattoo and functioning radio transmitters. Monitoring will be a cooperative effort between State and Federal agencies. On-site release may be accomplished if the bear taken is: (a) determined not to be a nuisance bear or; (b) on a first offense when the bear cannot be relocated because of terrain, weather, or inaccessibility to a relocation site. Females with cubs, where relocation is identified in the above table, will be released on-site if relocation is not feasible for previously stated reasons or if the cubs cannot also be caught and relocated with the female. An on-site release will not be conducted in developed areas. On-site releases will be accomplished after approval of the land management agency if the release is monitored in such a way to determine its success or failure with respect to bear survival and conflict resolution.

5. If a bear is to be killed, the action will be completed only by authorized State or Federal or Tribal employees. A grizzly bear mortality report form should be completed and the carcass forwarded to the Montana Department of Fish, Wildlife and Parks lab in Bozeman, Montana, for examination and subsequent disposition.

6. The initiating agency may "take back" a relocated bear, according to case-by-case agreements.

7. The State Fish and Game Regional Office will be the principal coordination point for all control actions, unless specified other-wise in the initial discussions on a particular incident.

   The public and news media are extremely interested in all operations involving grizzly bears. To insure that they receive the proper information, it is critical that information be shared between all involved agencies in an accurate and timely manner. Planned news releases will be the responsibility of the State Fish and Game agency in close consultation with the administering land management agency (or Tribe) and the Grizzly Bear Recovery Coordinator.

Table 6-19. Guidelines for Grizzly Bear Control Action (see Footnotes)

TYPE OF GRIZZLY	NO OFFENSE/ OFFENSE	CONDITION A			CONDITION B		CONDITION C
		1st	2nd	3rd	1st	2nd	1st
FEMALES							
Orphaned Cub***	RLS/REL*						
Cub		REL	REL	REM**	REL	REM	REM
Yearling		REL	REL	REM	REL	REM	REM
Subadult		REL	REL	REM	REL	REM	REM
Prime Adult with Young		REL	REL	REM (Adult)	REL	REM (Adult)	REM (Adult)
Old Adult		REL	REM	---	REM	---	REM
Old Adult with Young		REL	REL	REM (Adult)	REL	REM (Adult)	REM (Adult)
MALES							
Orphaned Cub***	RLS/REL*						
Cub		REL	REL	REM	REL	REM	REM
Yearling		REL	REM	---	REM	---	REM
Subadult		REL	REM	---	REM	---	REM
Prime Adult		REL	REM	---	REM	---	REM
Old Adult		REM		---	REM	---	REM

*REL = Relocate **REM = REMOVE FROM POPULATION ***RLS = RELEASE ON SITE
(Nuisance grizzlies that are sick or injured beyond a point where natural recovery is likely will be removed.)

Cub = Young of the Year
Yearling = 12 to 24 months old
Subadult = 24 to 48 months old

Young = Cub, yearling, or subadult accompanying mother.
Old = Indicates advanced age and deteriorated physical state, indicators are tooth wear and physical appearance.

Literature Cited: Interagency Grizzly Bear Committee. 1986. Interagency grizzly bear guidelines. U.S. For. Serv., Washington, D.C. 100pp.

APPENDIX 16. GRIZZLY BEAR RECOVERY IN THE BITTERROOT ECOSYSTEM - SCOPING OF ISSUES & ALTERNATIVES BROCHURE



Grizzly Bear Recovery in the Bitterroot Ecosystem

Central Idaho and
Western Montana

Scoping of Issues and Alternatives

Nearly 200 years after the Lewis and Clark expedition camped with the Salish and Nez Perce Indians, the Bitterroot Ecosystem of central Idaho and western Montana still supports a broad diversity of wildlife.

Yet one part of the Bitterroot Ecosystem is missing — the grizzly bear.

After a century of excessive killing by people, the once common grizzlies were eliminated from the Selway-Bitterroot area by the late 1930's. Ample habitat still exists here, however, for a healthy population of grizzly bears.

People differ in their views of grizzly bears. For some, the grizzly symbolizes the essence of wild America and strikes images of power, freedom, and beauty. They recognize it as a native species that is missing from much of our public lands. Many Native Americans have great respect for the grizzly as a spirit symbol. Some people express fear and intimidation at the mention of grizzly bears. Others worry more about government regulations than they do about bears.

The challenge is how to pioneer new ways of melding the interests of people with the needs of the grizzly bear. ***Public participation — especially by local citizens — in crafting a sound and acceptable grizzly bear recovery strategy is essential. We want to hear your views about options for grizzly bear recovery in the Bitterroot Ecosystem.***

> "The grizzly bear is the last great symbol of our wildlands in North America. I think it's important that we talk to each other, we learn what our common values are, we come to sensible consensus on compromise, and we continue to preserve this wonderful wildlife and these wild places that we have in this great country of ours."
>
> *- General H. Norman Schwarzkopf, U.S. Army (Retired)*
> *National Spokesperson for Grizzly Bear Recovery Program*

Need and Purpose of the Proposed Action

For thousands of years, grizzly bears lived in a variety of habitats throughout most of western North America. More than 50,000 grizzlies roamed the American West prior to European settlement. Due to loss of habitat and killing by people, grizzly bears have been eliminated from virtually all of their historic range in the contiguous United States.

Today, only 800 to 1000 grizzlies remain in a few isolated populations in Montana, Idaho, Wyoming, and Washington. Many people believe that the long-term future of grizzly bears in the lower 48 states is in jeopardy. Why? Because wildlife species like the grizzly bear are most vulnerable when confined to small portions of their historic range and limited to a few, small populations in isolated areas.

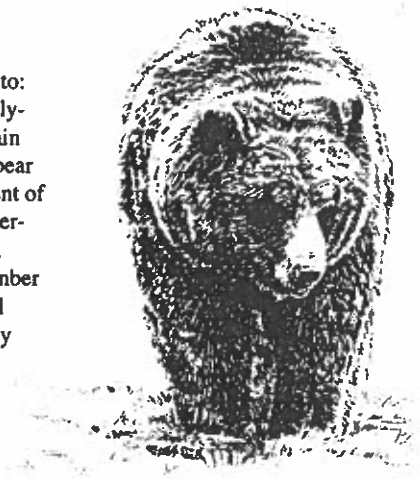
Only two grizzly bear populations (in the Glacier/Bob Marshall and Greater Yellowstone areas) have several hundred individuals. The others have 5-30 grizzly bears each, and room for expansion is limited. The only way of boosting the long-term prospects for grizzly bears in the contiguous United States is to develop a third major population over time. The Bitterroot Ecosystem of central Idaho and western Montana offers one of the last, best places for recovering grizzly bears.

The action proposed here is to reintroduce 20-30 grizzly bears over a 5-year period from which a population could grow over time. The purpose is to help recover the grizzly bear and restore the integrity of the Bitterroot Ecosystem by reintroducing this species to a small portion of its historic range.

What do grizzly bears need?

- minimal mortality caused by humans
- sufficient space and isolation from human developments
- diversity of habitats that provide key foods during different seasons

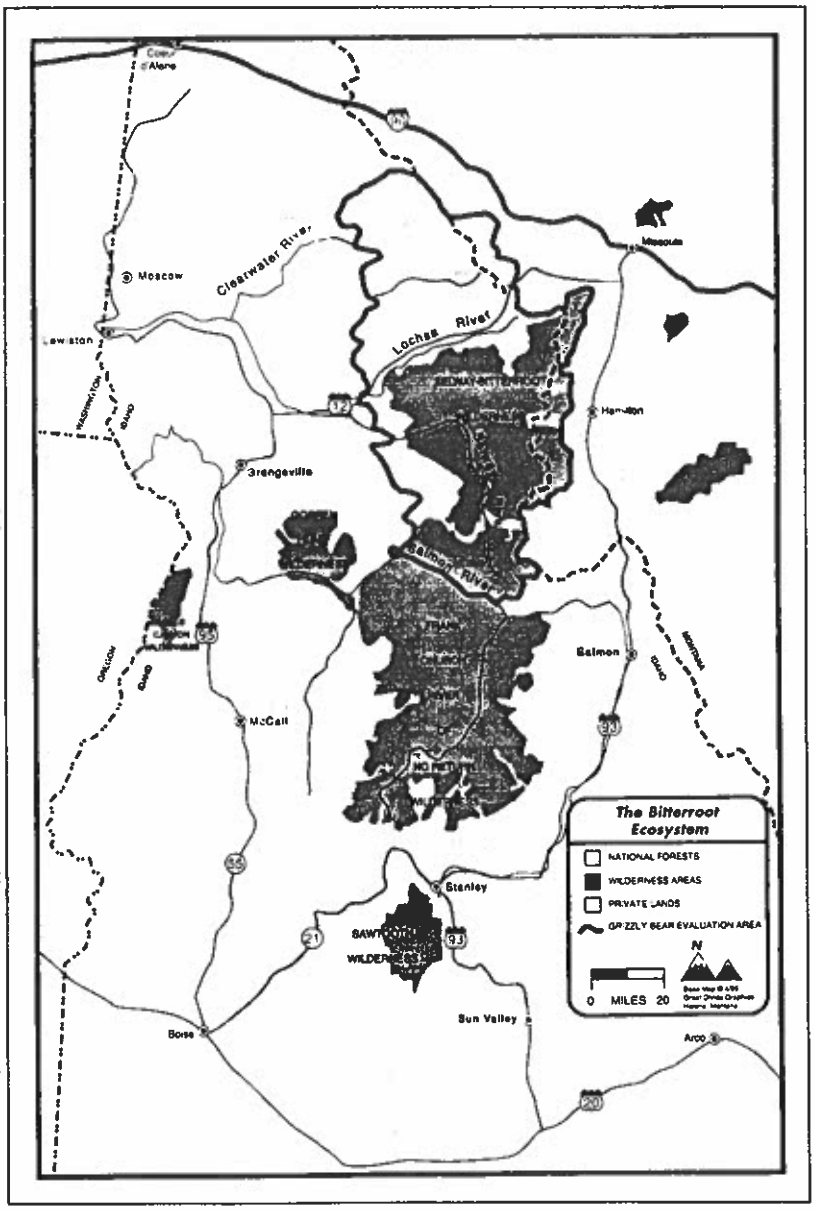
The primary objectives for grizzly bear management in the Bitterroot Ecosystem would be to: (1) minimize potential for grizzly-human conflicts, and (2) maintain quantity and quality of grizzly bear habitat. Successful establishment of grizzly bears in the Selway-Bitterroot area will depend upon high survivorship of an adequate number of colonizers. This, in turn, will hinge upon acceptance of grizzly bears on public lands by local citizens whose interests are addressed in a fair and objective manner.





Bitterroot Ecosystem of Central Idaho and Western Montana

A 5500-square mile evaluation area extends from the Salmon River north to include the North Fork of the Clearwater River (see map). Approximately 97% of this area is public land managed by the Forest Service; the remainder is owned by timber corporations. About half of the area is located in the Selway-Bitterroot and Frank Church River of No Return Wildernesses designated by Congress. (Other portions of the River of No Return Wilderness south of the Salmon River have not been assessed for grizzly recovery. Satellite images, supplemented by field checking, have revealed a diversity of grizzly habitat in the Bitterroot Ecosystem. Due to geographical patterns of precipitation, it appears that habitats north of the Lochsa River may be more productive of bear foods than those farther south. Current National Forest plans emphasize habitat security for elk on non-wilderness lands there. One paved highway bisects the area. No cattle or sheep grazing occurs in the evaluation area at present. The potential for oil, gas, and mineral development appears low. Far fewer people visit the Selway-Bitterroot area compared to Glacier or Yellowstone National Parks or the Bob Marshall Wilderness. Thus, there is a large core of remote country with a diversity of bear habitats.



History of Grizzly Bear Recovery in the Bitterroot Ecosystem



1938 - Last kill of a grizzly bear in the Bitterroot Mountains recorded.

1975 - Grizzly bear listed as a *threatened* species in the contiguous U.S.

1982 - Grizzly Bear Recovery Plan calls for evaluation of Selway-Bitteroot country as a potential recovery area

1986 - Status report concludes that a resident population of grizzly bears was eliminated from the Selway-Bitterroot area 50 years ago.

1991 - Based upon a 5-year study of the Bitteroot Ecosystem, independent bear scientists estimate that area eventually could support 200+ grizzly bears. Interagency Grizzly Bear Committee (IGBC) endorses the Bitterroot Ecosystem as a grizzly bear recovery area.

1993 - An interagency task force, working with a citizen's involvement group, drafts a chapter on grizzly bear recovery in the Bitterroot Ecosystem. In response to public comments from local communities of central Idaho and western Montana, several changes are made in the final chapter. It calls for an Environmental Impact Statement (EIS) to evaluate a full range of recovery alternatives.

1995 - The Fish & Wildlife Service continues public involvement and assembles an interdisciplinary team to begin the EIS process. Team members include specialists from the Fish & Wildlife Service, Forest Service, Idaho Department of Fish and Game, Montana Department of Fish, Wildlife, and Parks, and the Nez Perce Tribe. Dr. John Weaver brings 12 years of grizzly bear research and management experience to job as team leader.

Preliminary Issues

During scoping meetings concerning the chapter on the Bitterroot Ecosystem for the Grizzly Bear Recovery Plan and the Notice of Intent to complete an EIS, the public identified several issues.

* recovery options and legal classification of grizzly bears
* possible restrictions on human uses of public lands
* geographic boundaries for recovery
* location and cost of a reintroduction program
* illegal killing of grizzly bears
* participatory role of citizens in grizzly bear recovery
* concern for human safety
* control of nuisance grizzly bears



Preliminary Alternatives

1 No-Action (Natural Recolonization)

Grizzly bears would be allowed to expand from their current range in north Idaho and northwestern Montana southward into central Idaho and western Montana. The likelihood of such natural recolonization appears very low because grizzly bears do not move far into new areas. If grizzlies did disperse, they would be protected as a threatened species under the Endangered Species Act wherever they occurred. Consultation with the U.S. Fish & Wildlife Service would be mandated for all human activities (such as logging, recreation, etc.) that may affect grizzly bears. Additional annual or seasonal restrictions on public access could be implemented to provide habitat security especially for grizzlies. The Fish & Wildlife Service would have management authority for all aspects of grizzly bear recovery.

2 Reintroduction of an Experimental Population (Proposed Action)

For a period of 5 years, 4-6 grizzly bears from British Columbia (and perhaps recovered populations in the U.S.) would be captured per year and reintroduced to wilderness areas of central Idaho. No bears with any known previous conflicts with humans would be reintroduced. Released bears would be designated as an experimental, non-essential population under section 10(j) of the Endangered Species Act. The purpose of this ESA amendment was to promote local acceptance of reintroductions by allowing greater management flexibility. The 5500-square mile evaluation area would provide the core of a larger "experimental population area" wherein consultation for land uses would not be required. Land-use allocations, standards, and guidelines under current Forest Plans appear adequate for habitat security of grizzly bears. Appropriate sanitation practices would be encouraged through information and education and various incentives. The Fish and Wildlife Service would retain management responsibility for capture and reintroduction of grizzly bears. Under state or tribal management plans approved by the Fish and Wildlife Service, a state or tribal bear management specialist could be assigned to the reintroduction area. Reintroduction and monitoring would cost about $160,000 a year. Citizen participation in the development and implementation of the special rule for grizzly bear management in the Bitterroot Ecosystem would be encouraged. A rulemaking for the experimental population would be presented as part of the draft EIS. Estimated time to recovery would vary between 40 and 60 years, depending upon how many of the released bears survive. Results of the experimental program would be monitored annually, with a complete evaluation at the end of 5 years.

3 Accelerated Reintroduction of a Standard Population

For a period of 5 years, 10 grizzly bears from British Columbia (and perhaps recovered populations in the U.S.) would be captured per year and reintroduced as a fully protected (threatened) species under the Endangered Species Act. Grizzly bears would be released in suitable habitat, including areas outside of the wilderness. No bears with any known previous conflicts with humans would be released. A 9000-square mile area from Interstate 90 south to the south end of the River of No Return Wilderness would be delineated as a recovery zone. The Fish and Wildlife Service would lead grizzly bear reintroduction and management at an annual cost of about $300,000 a year. As in other grizzly bear recovery areas, consultation would be mandated for all human activities (such as logging, recreation, etc.) that may affect grizzly bears. Estimated time to recovery would vary between 25 and 40 years, depending upon how many of the released bears survive. Results would be monitored annually, with a complete evaluation at the end of 5 years.

** **Under all alternatives** - Regulations under the Endangered Species Act allow killing of a grizzly bear in defense of human life. Under existing IGBC guidelines, grizzly bears that frequent areas of high human use, act aggressively toward humans, or kill livestock would be relocated to remote areas or killed by authorized personnel from state, tribal, or federal agencies. Information would be provided on (1) common-sense hiking and camping practices to avoid surprising or attracting grizzly bears, and (2) identification of bears in the field to avoid accidental shooting of a grizzly bear.



How you can become involved

The Bitterroot Grizzly Bear EIS will be prepared according to provisions of the National Environmental Policy Act (NEPA). The purpose of NEPA is to ensure that the public and decision makers have quality information on the effects of different alternatives prior to making a decision. The EIS will follow this schedule:

June-July 1995	**Identify issues and alternatives**
December 1995	Evaluate effects of alternatives in Draft EIS
January 1996	Public review of draft EIS
April-May 1996	Public review of final EIS
June 1996	Record of Decision on EIS

You are encouraged to provide ideas and comments throughout preparation of the Bitterroot Grizzly Bear EIS. Periodic updates will be mailed or reported in the media to keep the public informed of progress on the EIS.

OPEN HOUSES FOR SCOPING ISSUES AND ALTERNATIVES
Open houses will be held 4:00 to 8:00 p.m.

July 5, 1995	Grangeville, Idaho	
	Orofino, Idaho	
July 6, 1995	Hamilton, Montana	
	Missoula, Montana	MEETING SITES TO BE ANNOUNCED
July 10, 1995	Boise, Idaho	
	Helena, Montana	
July 11, 1995	Salt Lake City, Utah	

There are several ways that grizzly bears can be recovered. How bears are managed will determine what positive and negative effects grizzly bear conservation may have on people and the environment. It is important that we know what new or modified alternatives that you wish the Bitterroot Grizzly Bear EIS Team to consider. Thank you.

PUBLIC COMMENTS ON ISSUES AND ALTERNATIVES
DUE JULY 20, 1995

BITTERROOT GRIZZLY BEAR EIS,
P.O. BOX 5127
MISSOULA, MT 59806



APPENDIX 17. EXPLANATION OF EXISTENCE VALUE CALCULATIONS FROM CHAPTER IV ECONOMIC ANALYSES

The economic analysis of the Chapter IV alternatives includes a calculation of "existence values" associated with the proposed alternatives. This appendix is intended to provide an explanation of what existence values are and how they are calculated. A parallel, more technical explanation of this subject is included in the discussion of economic effects associated with Alternative 1. It should be noted that the following description of existence values and their calculation within this analysis is intentionally general and non-technical, and is intended simply as a layman's description of the techniques used in this report for those not familiar with the concept of existence values.

Conservation and other advocacy organizations demonstrate that individuals in the economy attach an economic value to such things as preserving endangered species, open spaces, and wilderness areas. This economic value is demonstrated through the simple fact that individuals are willing to donate money to organizations working towards these goals. Some of this demonstrated value is due to the fact that people anticipate "using" the resources they are paying to help preserve through activities such as hiking, hunting, or wildlife viewing. This portion of the value is known in economics as "use value". Some people, however, may never intend to make any direct use of a resource, but still attach a value to the preservation of that resource. They may hold this value for a number of reasons: 1) they may want to preserve the resource for future generations (bequest value); 2) they may want to hold open the option to use the resource in some way in the future although they have no immediate plans to do so (option value); or 3) they may simply feel that preservation of a resource is the "right" thing to do, and thus attach a value to it (existence value). The term existence value as used in this analysis collectively includes existence, option, and bequest values, but does no include any aspect of use value.

People demonstrate their existence values in the marketplace by contributing to organizations such as the Nature Conservancy, Ducks Unlimited, or Defenders of Wildlife. However, whether people enjoy existence values of resources is not contingent upon whether they donate money to support a cause. The fact that some individuals are willing to donate money is just the most obvious manifestation of these existence values.

Given the fact that existence values exist, the problem facing economists is how to measure these values without actually collecting the monetary equivalent of these values. The technique used in this analysis, contingent valuation, is the only method available to economists to measure existence values. This method has been used in hundreds of applications worldwide in the past two decades. Contingent valuation is recognized by governmental regulatory agencies such as the Department of Interior, and the National Oceanic and Atmospheric Administration as the appropriate tool for use in measuring non-use values such as existence value.

In measuring the existence value associated with grizzly reintroduction to the Bitterroot Ecosystem, a sample of respondents was contacted by phone and surveyed on their knowledge and attitudes

about grizzly bears and the grizzly reintroduction into the BE issue (Duda and Young 1995). One question in this survey asked respondents how much they would be willing to contribute to either support or oppose grizzly reintroduction in the BE. The average donation amount stated by the two distinct groups of respondents (those supporting and those opposing reintroduction), was used as a measure of existence value. When these average existence values were multiplied by the estimated number of people in the country who supported or opposed reintroduction, the result was an estimate of total existence values for those supporting reintroduction, and negative existence value for the group opposing reintroduction. The net economic existence value associated with grizzly reintroduction in the BE was calculated by subtracting the value for the group opposing reintroduction from the value for the group supporting reintroduction.

A necessary next step in the estimation of existence values was to make an adjustment to the stated values based on the understanding that people may *say* they are willing to contribute more to a cause than they are actually willing to contribute. To adjust for this probable overstatement, the net economic existence value estimates were reduced on the order of 70% to 75%. Finally, these lump-sum existence value estimates were annualized over a perpetual time horizon at a 7% rate. The resulting existence value was reported in the summary cost and benefits tables for the alternatives.

Literature Cited

Duda, M. D. and K. C. Young. 1995. The public and grizzly bear reintroduction in the Bitterroot Mountains of Central Idaho. Responsive Management, Harrisonburg, Virginia. 141 pp.

APPENDIX 17A. SURVEY QUESTIONS FROM, *"The Public and Grizzly Bear Reintroduction in the Bitterroot Mountains of Central Idaho" (Duda and Young 1995)* PERTINENT TO FEIS ECONOMIC ANALYSIS

The Idaho Department of Fish and Game as a member of the Interagency Grizzly Bear Committee contracted with Responsive Management in 1995 to perform a survey of public attitudes toward grizzly bear reintroduction in the Bitterroot Mountains. The study was carried out as part of the initial public involvement process for preparing an Environmental Impact Statement for grizzly bear recovery in the Bitterroot Ecosystem. The following questions were asked during a telephone survey performed by Responsive Management in June 1995. The data collected from the answers to these questions was used in a portion of the Economic Analysis for this FEIS (see FEIS Chapter 4, "*Economic Effect on the Value Potential Visitors Place on Grizzly Bears*"). The entire telephone survey questions and the results of the survey are documented in the report by Responsive Management, The Public and Grizzly Bear Reintroduction in the Bitterroot Mountains of Central Idaho (Duda and Young 1995).

USFWS Grizzly Bear Reintroduction Survey
Responsive Management

23. In general, do you support or oppose reintroducing grizzly bears to the Bitterroot Mountains?
(PROMPT FOR DEGREE)
(CHECK ONLY ONE ANSWER)
|__| 1. Strongly support
|__| 2. Moderately support
|__| 3. Neither support nor oppose
|__| 4. Moderately oppose
|__| 5. Strongly oppose
|__| 6. Don't know

43. Suppose that public funding for reintroduction of grizzly bears was very limited and private funds were essential for grizzly bear recovery. Donors would have the satisfaction of knowing grizzly bears have been restored in the Bitterroot Mountains, although reintroduction might require closing some logging roads in the area at certain times of year.

If this were the case, would you be willing to purchase a lifetime membership in a trust fund for $5 to support grizzly bear recovery in the Bitterroot Mountains?

We are not asking for donations we simply want to know if people would be willing to do that.
(CHECK ONLY ONE ANSWER)
|__| 1. Yes
|__| 2. No
|__| 3. Don't know

44. Suppose that public funding for reintroduction of grizzly bears was very limited and private funds were essential for grizzly bear recovery. Donors would have the satisfaction of knowing grizzly bears have been restored in the Bitterroot Mountains, although reintroduction might require closing some logging roads in the area at certain times of year.

If this were the case, would you be willing to purchase a lifetime membership in a trust fund for $10 to support grizzly bear recovery in the Bitterroot Mountains?
We are not asking for donations we simply want to know if people would be willing to do that.

(CHECK ONLY ONE ANSWER)
|__| 1. Yes
|__| 2. No
|__| 3. Don't know

45. Suppose that public funding for reintroduction of grizzly bears was very limited and private funds were essential for grizzly bear recovery. Donors would have the satisfaction of knowing grizzly bears have been restored in the Bitterroot Mountains, although reintroduction might require closing some logging roads in the area at certain times of year.

If this were the case, would you be willing to purchase a lifetime membership in a trust fund for $25 to support grizzly bear recovery in the Bitterroot Mountains?

We are not asking for donations we simply want to know if people would be willing to do that.
(CHECK ONLY ONE ANSWER)
|__| 1. Yes
|__| 2. No
|__| 3. Don't know

46. Suppose that public funding for reintroduction of grizzly bears was very limited and private funds were essential for grizzly bear recovery. Donors would have the satisfaction of knowing grizzly bears have been restored in the Bitterroot Mountains, although reintroduction might require closing some logging roads in the area at certain times of year.

If this were the case, would you be willing to purchase a lifetime membership in a trust fund for $50 to support grizzly bear recovery in the Bitterroot Mountains?

We are not asking for donations we simply want to know if people would be willing to do that.
(CHECK ONLY ONE ANSWER)
|__| 1. Yes
|__| 2. No
|__| 3. Don't know

47. Suppose that public funding for reintroduction of grizzly bears was very limited and private funds were essential for grizzly bear recovery. Donors would have the satisfaction of knowing grizzly bears have been restored in the Bitterroot Mountains, although reintroduction might require closing some logging roads in the area at certain times of year.

If this were the case, would you be willing to purchase a lifetime membership in a trust fund for $100 to support grizzly bear recovery in the Bitterroot Mountains?

We are not asking for donations we simply want to know if people would be willing to do that.
(CHECK ONLY ONE ANSWER)
|__| 1. Yes
|__| 2. No
|__| 3. Don't know

48. Would you be willing to purchase a lifetime membership in such a trust fund if it cost $1?
(CHECK ONLY ONE ANSWER)
|__| 1. Yes
|__| 2. No
|__| 3. Don't know

49. What is the main reason you would NOT support a trust fund to help re-establish grizzly bears?

_____

52. Suppose that, private funds were essential to oppose grizzly bear recovery. Donors would have the satisfaction of knowing there would be no grizzly bears in the Bitterroot Mountains, although other wildlife populations will not get the benefits reintroduction of grizzly bears might provide.

If this were the case, would you be willing to purchase a lifetime membership in a trust fund for $2 to oppose grizzly bear recovery in the Bitterroot Mountains?

We are not asking for donations we simply want to know if people would be willing to do that.
(OTHER WILDLIFE BENEFITS BECAUSE CLOSING SOME LOGGING ROADS AT CERTAIN TIMES OF YEAR REDUCES HUMAN CONTACT WITH WILDLIFE)
(CHECK ONLY ONE ANSWER)
|__| 1. Yes
|__| 2. No
|__| 3. Don't know

53. Suppose that, private funds were essential to oppose grizzly bear recovery. Donors would have the satisfaction of knowing there would be no grizzly bears in the Bitterroot Mountains, although other wildlife populations will not get the benefits reintroduction of grizzly bears might provide.

If this were the case, would you be willing to purchase a lifetime membership in a trust fund for $5 to oppose grizzly bear recovery in the Bitterroot Mountains?

We are not asking for donations we simply want to know if people would be willing to do that.
(OTHER WILDLIFE BENEFITS BECAUSE CLOSING SOME LOGGING ROADS AT CERTAIN TIMES OF YEAR REDUCES HUMAN CONTACT WITH WILDLIFE)
(CHECK ONLY ONE ANSWER)
|__| 1. Yes
|__| 2. No
|__| 3. Don't know

54. Suppose that, private funds were essential to oppose grizzly bear recovery. Donors would have the satisfaction of knowing there would be no grizzly bears in the Bitterroot Mountains, although other wildlife populations will not get the benefits reintroduction of grizzly bears might provide.

If this were the case, would you be willing to purchase a lifetime membership in a trust fund for $10 to oppose grizzly bear recovery in the Bitterroot Mountains?

We are not asking for donations we simply want to know if people would be willing to do that.

(OTHER WILDLIFE BENEFITS BECAUSE CLOSING SOME LOGGING ROADS AT CERTAIN TIMES OF YEAR REDUCES HUMAN CONTACT WITH WILDLIFE)
(CHECK ONLY ONE ANSWER)
|__| 1. Yes
|__| 2. No
|__| 3. Don't know

55. Suppose that, private funds were essential to oppose grizzly bear recovery. Donors would have the satisfaction of knowing there would be no grizzly bears in the Bitterroot Mountains, although other wildlife populations will not get the benefits reintroduction of grizzly bears might provide.
If this were the case, would you be willing to purchase a lifetime membership in a trust fund for $25 to oppose grizzly bear recovery in the Bitterroot Mountains?

We are not asking for donations we simply want to know if people would be willing to do that.

(OTHER WILDLIFE BENEFITS BECAUSE CLOSING SOME LOGGING ROADS AT CERTAIN TIMES OF YEAR REDUCES HUMAN CONTACT WITH WILDLIFE)
(CHECK ONLY ONE ANSWER)
|__| 1. Yes
|__| 2. No
|__| 3. Don't know

56. Suppose that, private funds were essential to oppose grizzly bear recovery. Donors would have the satisfaction of knowing there would be no grizzly bears in the Bitterroot Mountains, although other wildlife populations will not get the benefits reintroduction of grizzly bears might provide.

If this were the case, would you be willing to purchase a lifetime membership in a trust fund for $50 to oppose grizzly bear recovery in the Bitterroot Mountains?

We are not asking for donations we simply want to know if people would be willing to do that.
(OTHER WILDLIFE BENEFITS BECAUSE CLOSING SOME LOGGING ROADS AT CERTAIN TIMES OF YEAR REDUCES HUMAN CONTACT WITH WILDLIFE)
(CHECK ONLY ONE ANSWER)
|__| 1. Yes
|__| 2. No
|__| 3. Don't know

57. Suppose that, private funds were essential to oppose grizzly bear recovery. Donors would have the satisfaction of knowing there would be no grizzly bears in the Bitterroot Mountains, although other wildlife populations will not get the benefits reintroduction of grizzly bears might provide.

If this were the case, would you be willing to purchase a lifetime membership in a trust fund for $100 to oppose grizzly bear recovery in the Bitterroot Mountains?

We are not asking for donations we simply want to know if people would be willing to do that.
(OTHER WILDLIFE BENEFITS BECAUSE CLOSING SOME LOGGING ROADS AT CERTAIN TIMES OF YEAR REDUCES HUMAN CONTACT WITH WILDLIFE)
(CHECK ONLY ONE ANSWER)
|__| 1. Yes
|__| 2. No
|__| 3. Don't know

58. Would you be willing to purchase a lifetime membership in such a trust fund if it cost $1?
(CHECK ONLY ONE ANSWER)
|__| 1. Yes
|__| 2. No
|__| 3. Don't know

59. What is the main reason you would NOT support a trust fund to OPPOSE re-establishing grizzly bears?

_____

APPENDIX 18. EXPECTED TIMELINE TO COMMENCE IMPLEMENTION OF THE PREFERRED ALTERNATIVE AND INITIAL IMPLEMENTATION-ASSOCIATED SANITATION EFFORTS TO MINIMIZE CONFLICTS

The USFWS vision for the implementation of Alternative 1 includes a "phase-in" period to establish the Citizen Management Committee, implement sanitation standards, install sanitation equipment, and perform public outreach information and education activities. This first year of implementation would be a joint effort of the CMC and management agencies and would serve to lessen social impacts and potential conflicts from the reintroduction of grizzly bears to the BE.

Figure 6-7 illustrates an expected timeline for the implementation of this alternative. During the first year, the CMC would be organized after the Record of Decision is signed and the NEPA process is completed. Information and education efforts would commence immediately. A broad outreach program would be initiated to inform the public about plans to reintroduce grizzly bears to the BE, and to educate the public about grizzly bears and their management. A voluntary sanitation program would be implemented during the first year of the program. The CMC would review sanitation needs and make recommendations regarding the sanitation improvements for the BE during approximately the first six months. Placement of the first reintroduced bears is expected to occur between June-August of the second year. This reintroduction would likely be in the Selway watershed of the Selway-Bitterroot Wilderness Area. Before the placement of the first bears, CMC sanitation improvements would begin to be made in the Clearwater and Selway watersheds. Education and outreach activities to improve sanitation for all species would begin in the first year, and continue for the remainder of the reintroduction phase. Placement of the second group of reintroduced grizzly bears would occur in the third year in the Selway watershed of the Selway-Bitterroot Wilderness. The CMC would continue to monitor and make management recommendations to improve sanitation, and insure the success of the reintroduction program. Reintroductions of grizzly bears would continue per guidance of the special rule.

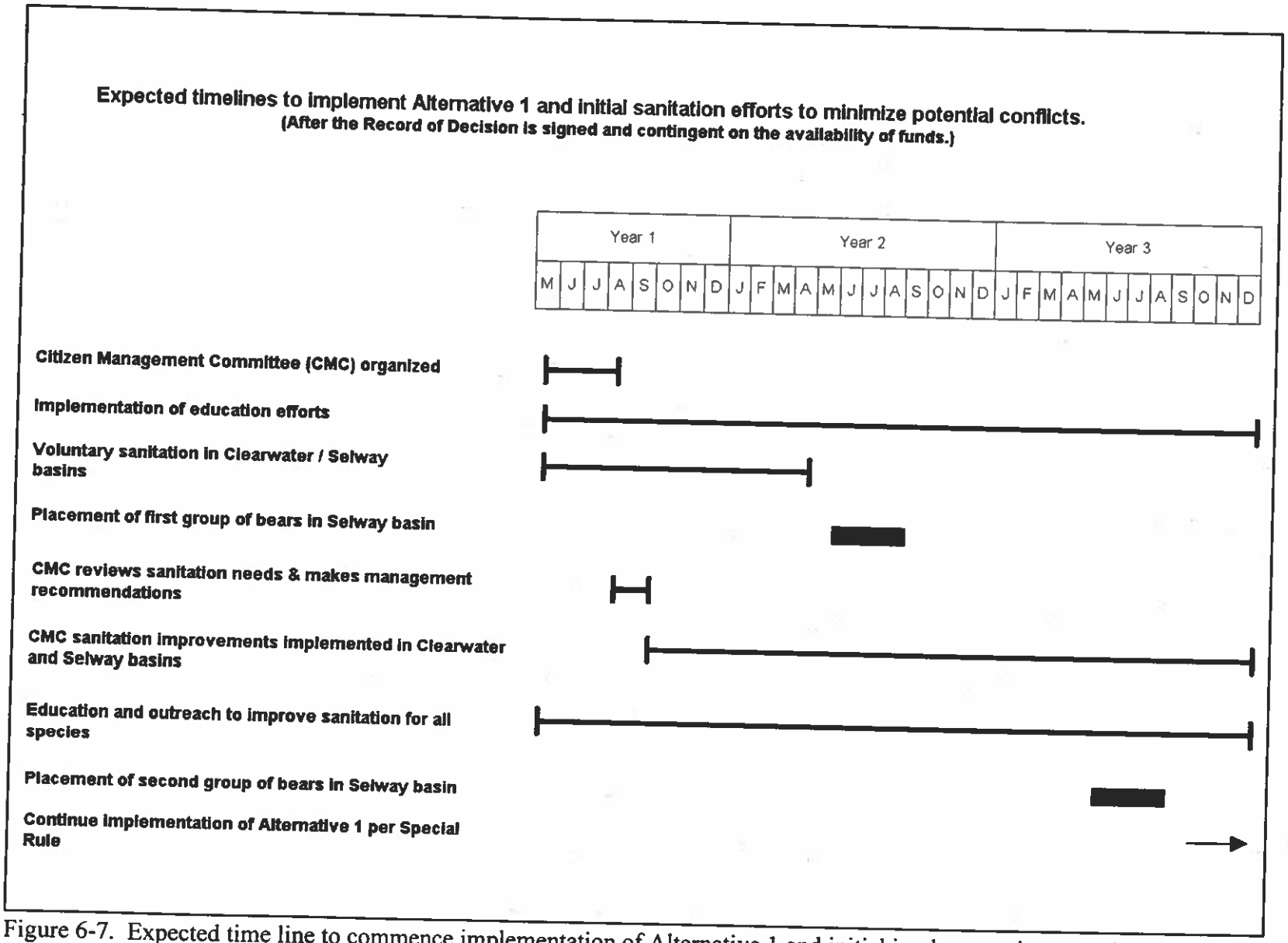


Figure 6-7. Expected time line to commence implementation of Alternative 1 and initial implementation-associated sanitation efforts to minimize conflicts.

APPENDIX 19. EXCERPTS FROM THE REPORT: "SUMMARY OF PUBLIC COMMENTS ON THE SCOPING OF ISSUES AND ALTERNATIVES FOR GRIZZLY BEAR RECOVERY IN THE BITTERROOT ECOSYSTEM" -- USFWS, SEPTEMBER 1995

CHAPTER 1 - INTRODUCTION

This report summarizes public responses to identify issues and to suggest management alternatives for the development of an Environmental Impact Statement (EIS) for the reintroduction of grizzly bears to the Bitterroot Mountains of central Idaho and western Montana.

Public Involvement

In 1993 an interagency task force, working with a citizens' involvement group, drafted a chapter to the Grizzly Bear Recovery Plan. This chapter outlines reintroduction as the proposed method for recovery. In response to public comments from local communities of central Idaho and western Montana, several changes were made in the final chapter. In 1995 the Fish & Wildlife Service continued public involvement and assembled an interdisciplinary team to begin the EIS process. Team members include specialists from the Fish 8 Wildlife Service, Forest Service, Idaho Department of Fish and Game, Montana Department of Fish, Wildlife, and Parks, and the Nez Perce Tribe.

A public Notice of Intent was published in the Federal Register on January 9, 1995 (Vol. 60,. No. 5) on pages 2399-2400. The notice was furnished as required by the National Environmental Policy Act (NEPA) Regulations (40 CFR 1501.7) to obtain input from other agencies and the public on the scope of issues to be addressed in the EIS. The preliminary issues identified in March 1995 were:

* recovery options and legal classification of grizzlies
* possible restrictions on human uses of public lands
* geographic boundaries for recovery
* location and cost of a reintroduction program
* illegal killing of grizzly bears
* participatory role of citizens in grizzly bear recovery
* concern for human safety
* control of nuisance grizzly bears

Three preliminary alternatives were also identified and published in a Scoping of Issues and Alternatives brochure. This brochure was sent to 1100 people and distributed at seven open houses in July 1995. The scoping brochure detailed the EIS process, provided background information, identified preliminary issues and alternatives, and described the purpose and need of the proposed action.

Seven public scoping open houses were held in Grangeville, Orofino, and Boise in Idaho; in Missoula, Helena and Hamilton in Montana; and in Salt Lake City, Utah in early July (July 5-11) with a 45-day public comment period on the proposal ending July 20. Over 300 people attended these scoping sessions and offered comments on the proposal, the preliminary issues and alternatives, and voiced their opinions on grizzly bears and reintroduction.

On July 25, 1995 Dr. John Weaver, team leader for the U.S. Fish & Wildlife Service, announced a 30-day extension of the public comment period to August 21. This extension was requested by numerous public interests with varied opinions on this complex topic.

Written comments on the preliminary issues and alternatives were received from over 3,300 individuals, organizations and government agencies. These comments arrived in over 565 letters, open house meeting notes, six petitions, and six form letters or postcards.

This analysis of the public's responses describes what people have said as completely and directly as possible without assigning weights or recommendations. The system used was objective, reliable and traceable. All responses received

by the U.S. Fish and Wildlife Service by the close of the extended comment period (August 21, 1995) were considered in the production of this summary. Comments received after the close of the comment period will be considered by the U.S. Fish & Wildlife Service in the development of the Draft Environmental Impact Statement; however, will not be reflected in this report.

It is important to note this analysis is not based on vote-counting. The public involvement efforts of the National Environmental Policy Act (NEPA) are intended to gather information and ideas from the public on the purpose and need for the proposal, the preliminary issues & alternatives, and to identify any new issues and alternatives for development of the Draft EIS, not to simply count votes. While quantitative information is gathered and is important in assessing demographic information, that is only part of the information analyzed. It is the reasons for people's concerns, preferences and criticisms that are sought in this process. Therefore, one will find little mention of total numbers in this summary, but rather more qualitative information indicating trends in public opinion.

THE PUBLIC COMMENT ANALYSIS PROCESS

The analysis method used for this project provides a means of categorizing each person's comments into separate subjects, then grouping like subjects together so that the public's comments can be more thoroughly examined. It displays public concerns and support on preliminary issues and alternatives with selected quotes to reinforce similar comments. It provides a traceable, visible system for displaying public comments without injecting interpretation or judgment.

Responses were received in the form of letters or postcards, petitions, form letters, and open house meeting notes. Each response was first given a unique identification number. A coding system was developed to assign demographic information to each respondent and to record opinions related specifically to this strategy. Demographic information included identification of who the respondent represents, the medium used for responding, and where the respondent lives (geographically).

Respondents were classified in one of the following categories, referred to in the coding system as 'Organization Types':

> Individual Citizens; Professional Scientific Organizations; Organized Groups; Schools or Universities; Youth; Federal Agencies; State Government/Agencies; County Government; Congressional/legislative representatives; or Tribal Government.

Next, substantive comments that supported or opposed particular provisions of the various alternatives were coded, along with particular reasons for support of, or opposition to, that alternative. New alternatives were also described along with opinions from various factions on those new alternatives. Substantive comments pertaining to particular issues were likewise coded. All substantive comments, accompanied by the appropriate codes and demographic information, were then entered into a computer database for easier sorting and retrieval.

At all times, objectivity and fairness were stressed in this public comment analysis. All respondents' values, perceptions and opinions were recorded, including those based on misinformation. The exact words of each respondent were used rather than summaries of the person's words to insure accuracy and objectivity. All letters were read at least three times by the 'content analysis team.' A coder first read the entire response to gain an overall understanding of the respondent's viewpoint, then re-read the response, highlighting and coding substantive comments. To maintain accuracy and consistency, a coding supervisor or another coder would then check the coded response. If questions arose, they would discuss the response and come to an agreement on the appropriate coding.

Comments on technical or complex letters were coded and included in the database, and also "red-flagged" because of their length and detail. Copies of all the documents have been provided separately to the U.S. Fish & Wildlife Service

for more in-depth review.

Any respondent's substantive comments can be found in the database; the original letters and coded copies have been filed for reference. A cross-reference file lists each respondent alphabetically and by a unique identification number, thus original letters and coded copies, which are filed numerically, can be located.

The content analysis team consisted of 9 people. They were employees from the U.S. Forest Service and the U.S. Fish and Wildlife Service. A list of team members is in Appendix C of the original document (project file). The analysis took place in Missoula, Montana, and was completed in about 14 days.

DEMOGRAPHIC SUMMARY OF RESPONDENTS

This section presents demographic information of the responses received. Information displayed includes *who* responded (individuals, organizations, agencies, etc.), *how* they responded (letter, hearing, etc.), and *where* they responded from (in general terms).

WHO RESPONDED

Organization Type	Number of Signatures
Individual Citizens	3,168
Businesses	13
County Officials	3
Organized Groups	45
Congressional / Legislative Elected Officials	4
City / municipal / local government	2
State Government / Agencies	4
Schools, Universities	4
Youth	2
Tribal Government	2
Total	3,247

HOW THEY RESPONDED

Response Type	**Number of Responses**	**Number of Signatures**
Letter or Post Card	565	1,311
Open House Attendees	306	306
Petitions	6	809
Form Letters	6	821
Total	883	3,247

WHERE RESPONDENTS ARE FROM

Geographic Area	Number of Written Responses
LOCAL: MT Counties of Ravalli, Mineral, Missoula; ID Counties of Clearwater, Idaho, Lewis, Nez Perce, & Shoshone.	399
REGIONAL: Rest of counties in Idaho & Montana. Adjacent States of WA, OR, NV, UT & WY.	173
NATIONAL: Rest of U.S. and International	125
TOTAL	697

*This figure doesn't account for names on petitions or form letters, the people who attended open house meetings, or for those who did not give an address.

FORM LETTERS AND PETITIONS

Form Letters

As letters were received, noticeable trends and similarities amongst them became apparent. Six different form letters were detected totaling 821 signatures. The individual comments on the form letters are reflected in the issues and alternatives chapters of this report. Four of the six form letters were against reintroduction of the grizzly bears with human safety being a big concern. A post-card generated by Alliance for the Wild Rockies was received from 779 individuals (431 local; 100 regional; and 248 national). These postcards support the Conservation Biology Alternative (as outlined by Mike Bader for the Alliance for the Wild Rockies) and ask that it be incorporated into the Draft EIS. This alternative would:

** Reintroduce grizzlies as an augmentation to the existing population, with full status as a threatened species under the provisions of the Endangered Species Act.

** Expand recovery zone to include all of Frank Church-River of No Return Wilderness and adjacent roadless lands (total of 15,800 square miles).

** Create linkage corridors of protected habitat to ensure genetic exchange for population viability.

** Translocate bears only from unthreatened populations.

** Complete research on habitat types, quality and distribution throughout expanded recovery area.

** Combine the reintroduction with active wildland recovery efforts (road obliteration and revegetation) to restore grizzly habitat and linkage areas.

** Establish habitat management standards including limits on open and total road densities.

** Provide for full involvement of the independent scientific community in all aspects of reintroduction.

Petitions

Six different petitions were received containing 809 signatures. Most of the petitions were from local individuals; however, two were generated in Colorado and California in support of the Alliance for the Wild Rockies' form letter described above. A summary of the petitions' major concern(s); area of the highest percentage of signatures; and total number of signatures follows:

SUMMARY OF PETITIONS

Issues / Concerns	Number of Signatures	Area where petition was generated
#31 - Oppose reintroduction; human / livestock safety & orchard / crops concerns.	42	Local; Ravalli & Missoula Counties.
#32 - Oppose reintroduction & request withdrawal from proposed rule making.	40	Local; Ravalli & Missoula Counties.
#33 - Oppose reintroduction; concerned with closing Magruder Corridor; cost to implement; and effects to humans and domestic animals.	47	Local; Ravalli County.
#34 - Support reintroduction & Conservation Biology Alternative described in Form Letter discussion above.	13	National; mostly Colorado.
#35 - Support reintroduction & Conservation Biology Alternative described in Form Letter discussion above.	48	National; generated in Pasadena, California.
#36 - Oppose reintroduction; feel it is threat to life & property and will restrict use of the area.	619	Local; Ravalli & Missoula Counties.
Total	809	

OPEN HOUSES FOR SCOPING ISSUES AND ALTERNATIVES

Open houses were held in July 1995 in seven different communities. The issues and concerns from each of these gatherings were very similar to those summarized in the Issues and Alternatives section(s) of this report. Some of the open houses raised site-specific concerns and those are identified below.

SUMMARY OF OPEN HOUSES

Date and Location of Open House	Number Attending	Site-Specific Questions / Concerns
July 5, 1995 Grangeville, Idaho	35	None
July 5, 1995 Orofino, Idaho	33	1. Wait until ESA changed before proceeding further with reintroduction efforts. 2. Broad support for coalition's "citizen management committee" alternative. 3. Why was Salt Lake City chosen as a regional city for these meetings, and not Spokane or Portland?
July 6, 1995 Hamilton, Montana	125	1. Noxious weeds - bears transporting weeds/seeds in fur. 2. Ravalli County Commissioners are opposed to reintroduction. 3. Who is responsible if someone is killed or maimed? 4. Irrigation users maintaining wilderness dams are concerned with danger of working near bears. 5. Was economic stability of this area considered? 6. Effects to outfitters/guides businesses? + and - 7. Why was the River of No Return deleted from the recovery area? 8. Fire suppression & its role in vegetation & therefore food for the bear hasn't been addressed. 9. Don't like this format for a meeting; should break into small groups & then report back. 10. Provide rental service for bear food containers. 11. There is no compensation fund for "registered livestock".
July 6, 1995 Missoula, Montana	65	1. Extend the comment period to allow for extensive public participation. 2. EIS must evaluate a habitat protection plan. 3. Concerned with conflicts with landowners in lowland spring habitat. Protect bears during spring migration to lowland creeks.
July 10, 1995 Boise, Idaho	31	
July 10, 1995 Helena, Montana	10	1. How many bears do we need in North Continental Divide, Yellowstone & Selway-Bitterroot Area for declassification? 2. Linkage zones between 3 areas? Do they work? 3. Is there enough food available in Selway to support healthy grizzly population? 4. Have science committee make recommendations to an Advisory Committee who advises the lead agency responsible for management.
July 11, 1995 Salt Lake City, Utah	7	1. People who are outdoor enthusiasts and supporters elsewhere are generally not in favor of reintroduction of grizzly into Selway-Bitterroots. Want one area in the Region without grizzlies.

CHAPTER 2 - COMMENTS ON THE ISSUES

INTRODUCTION: This section addresses each of the issues identified in the analysis of public comments. The issues are presented in order of the codes displayed in Appendix A, Content Analysis Code Lists, in the original report *(in project file)*. The code numbers were assigned during the analysis process as a tool for the content analysis team to categorize comments. Selected quotes from respondents are used to provide a flavor for the comments received on a particular issue.

100/101/102/103 - GENERAL COMMENTS ON STAGE OF PROCESS (PUBLIC INVOLVEMENT/NEPA PROCESS/RULEMAKING, ETC.)

100 - Stage of Process. Several respondents comment on this stage of the process as if it was a draft environmental impact statement rather than scoping for issues and alternatives. The comments reflect an overall concern with the limited number of alternatives and their narrow range, that the issues were not developed fully in the informational brochure, and a "need" is not clearly defined. Others note vague and contradictory facts and information including the meaning of "experimental population", how long this program will continue, numbers of bears, a missing report and, most notably, what happens if this entire effort is a failure.

> "It would be nice to have more than one viable option."

> "When making the Draft EIS please be less vague in the information provided so that a citizen may make informed comments. I would like to know more about what it means to be an experimental population, what is concerned and what will be done with the population should this introduction be deemed a failure. I also wondered if this program will be carried out longer than 5 years."

> "In the Need and Purpose section of the Proposed Action they want to introduce 20-30 grizzly bears over a five year period, but in the alternatives their numbers are different, which ones are correct?"

> "The pamphlet distributed by the Bitterroot EIS Team, The History of Grizzly Bear Recovery in the BE, states that in 1986 a 'status report concludes that a resident population of grizzly bears was eliminated from the Selway-Bitterroot area 50 years ago'. In my extensive research of materials relating to the Bitterroot Grizzly I have not come across this status report."

Two new alternatives, which are discussed later in this report, were submitted during the comment period. They are:

> 1. The Citizen Management Committee Alternative submitted by a coalition of the National Wildlife Federation (NWF), Intermountain Forest Industry Association (IFIA), Defenders of Wildlife (DOF), and the Resource Organization on Timber Supply (ROOTS).

> 2. The Conservation Biology Alternative submitted by Alliance for the Wild Rockies.

The Conservation Biology Alternative has already gained many supporters.

> "I wholeheartedly support the plan from the 'Alliance for the Wild Rockies'."

> "...submit a Conservation Biology Alternative for inclusion in the Environmental Impact Statement."

> "I'm writing in support of the conservation biology alternative in the environmental impact statement."

Several respondents are concerned that this process will severely restrict their traditional uses of the forest. They feel they are receiving mixed messages on whether restrictions will come with the bears.

> "We [Bitter Root Back Country Horsemen] are skeptical when told that grizzly bears can be introduced in a manner that will not shut down the traditional uses of the forest...at a recent presentation to our club by a U.S. Fish and Wildlife representative, we were told that we should all be able to work together to prevent closures and other restrictions, even in problem areas. But in the bulletin...'Grizzly Bear Recovery in the Bitterroot Ecosystem - Answers to Citizens Questions', quoting a sentence on page 15, '...some road closures and/or seasonal restrictions may be necessary for grizzly bear security'."

101 - Public Involvement. Several people commented that the public did not receive adequate notice of the open houses, particularly "starting time and the location." A few commented that the open house format hindered input and that the facilitator was biased and did not allow equal time for both sides.

> "Inadequate notice was provided for this important hearing. Our office, and many other interested industry groups received no written notice."

> "Our knowledge concerning your plans to reintroduce grizzly bears (at this time) is limited to the "Missoulian" newspaper article, titled "Return of the Grizzly."

> "The first public input meetings articles in the paper did not give the time or place. A lot of working people didn't know about it until evening when they read their paper, then it was too late to go."

> "[The facilitator] allowed several anti-bear advocates to speak up to four times while pro-bear advocates were waiting to speak. Dividing the room tit-for-tat along ideological lines is not a democratic process...People divided into small groups, limited to brief time periods, and an agenda might have arrived at some modified assumptions and conclusions."

Many respondents commented that there was a need to extend the public comment period. After the decision was made to extend the public comment period, several respondents thanked the agency for doing so.

> "Please note that the press release notifying the public of your plans gives a very narrow window of response time. I suggest that you extend that response time so that news of your proposed project can reach more interested parties and give them time to respond."

> "We would like to request that the comment period be extended for 30 days in order to fully research this complex issue and to contact grizzly bear experts for their input."

The newspaper article in the Missoulian on July 7 quoting an official of the U.S. Fish & Wildlife Service as saying that most people who attend public hearings are "extremists". This generated a flurry of comments from those people attending the Hamilton open house as well as others who had read the alleged comment in the newspaper.

> "Since when is it extreme to voice one's opinion?"

> "I hope you will listen to the public and not assume that because we don't share your views we are "extremists", nor that those who don't voice opinions must share your ideas."

> "Your so-called expert....is talking through his hat when he claims the objectors are "extremists" and not representative of the people's voice. We haven't talked to a single person in favor...I know you will pay no

> attention to what the local residents want...and will go ahead with your plans, but it will further lower your reputation among the residents if you do."

A few people stated that they felt the decision for grizzly recovery is already made and the comment period is merely a mandatory step in the EIS process.

> "I feel expressing my views to you folks is a waste of time. I sincerely believe the biologists who are putting this together have already made a decision and are merely playing more of their silly games with the taxpayer, taxpayer dollars and federal lands. ..."

> "Much confusion exists regarding the place of public involvement in the decision process. Do the residents really have a vote on the final decision?"

Several local respondents feel their concerns should have more weight than comments made by people in other parts of the country. These local citizens feel they will be directly impacted by reintroduction of the grizzlies into the area because "we live here, our children live here, and our animals live here." Several respondents in the Salmon, Idaho and Challis, Idaho area felt their newspapers did not receive adequate notification for this project. Some of these folks also felt an open house should have been held in Salmon/Challis area rather than in Salt Lake City.

> "To those in the urban sites...the bears are being recovered into the Wilderness, when in fact they are being introduced into our backyard."

> "Eastern populations and bureaucrats should not be dictating what we Western folks have to contend with on a regular basis."

> "The bulk of the residents are opposed but feel the decision is already made, so why comment? Eastern money and pressure will get it done."

> "Why do you propose to introduce the grizzly into Central Idaho without putting any information in the local papers in Lemhi or Custer Counties in Idaho?"

A few people commented that they support involvement of the public and would like to create a citizen's oversight committee to review and monitor the grizzly bear plan.

> "Management plans must accommodate both the needs of the bears and human concerns. It is important that local people are not only involved in the current planning process but a local advisory committee should be formed to work with State and Federal agencies."

> "Provide for and elicit the full involvement of the independent scientific community in all aspects of reintroduction."

Several respondents in favor of reintroduction do not want the location of the reintroduced grizzly bears made available to the public or the press. Most feel this would not only jeopardize the bears' security and safety, but the press as well. Some local respondents wanted the location published in order to "stay away from those areas."

102 - Compliance with NEPA Process. Several respondents believe the decision has already been made, and outside of complying with the NEPA process (National Environmental Policy Act) they see little value in preparing an Environmental Impact Statement.

"Not only is your plan substantively flawed, but the fact that you essentially already have a plan in place but are only now starting the NEPA process suggests that you're just fulfilling the letter of the (NEPA) law, without any intention of taking public comment seriously."

103 - Rulemaking for Experimental Population to be presented as Part of draft EIS. No one commented on rulemaking in particular. However, most of the comments pertaining to an experimental population are covered in code 209.

200 - MANAGEMENT STRATEGIES

Management strategies were outlined briefly in the description of the alternatives provided in the scoping brochure for this project and the Question & Answer pamphlet. Most respondents see a "gap" in "how-to" manage the reintroduction as presented. Several specific suggestions are covered in the sub-category writeups for this subject (codes 201-211). The comments reflected below are more general in nature.

Some new alternatives were generated from various coalitions with numerous individuals rallying to support their favorite "new alternative" they want incorporated and analyzed in the Draft Environmental Impact Statement. Those alternatives are described in the New Alternatives section of the report and attached as Exhibits *(see original report in project file)* so the reader can fully grasp the intricacies of each. Overall, there was more support for these new alternatives and their management strategies than for those described in the scoping brochure and pamphlet.

1. Citizen Management Committee Alternative: See Exhibit 1, Letter #719 *(in project file)*. This alternative was submitted by a coalition of the National Wildlife Federation, Intermountain Forest Industry Association (IFIA), Defenders of Wildlife, and the Resource Organization on Timber Supply (ROOTS). This proposal contains four key elements:
(A) Reintroduction of a nonessential experimental population;
(B) Citizen management (through a Citizen Management Committee);
(C) Focus on the designated wilderness areas as the core for recovery; and
(D) Minimal social and economic impacts.

2. Conservation Biology Alternative: See Exhibit 2, Letter 714 *(in project file)*. This alternative was submitted by the Alliance for the Wild Rockies. The letter points out several problems with the proposed alternative and introduces their new Conservation Biology Alternative:
(A) The "Experimental, Non-essential" Designation is not a legal alternative;
(B) Grizzly Bears would receive less protection of their habitat;
(C) The Recovery Zone is artificially small;
(D) The population recovery goal is too small;
(E) Source Bears may not be available;
(F) More alternatives need to be developed;
(G) Need a Conservation Biology Alternative.

Several people commented on what they see as appropriate number of bears to bring in initially. Comments ranged from "ten bears per year to 'jump start' recovery" to "no bears because I don't support reintroduction..." Some people favoring the Conservation Biology Alternative question whether the source bears would even be available from southern B.C. due to effects on grizzlies from hunting in the area. Several people believe a remnant population already exists in the Bitterroot Ecosystem and this proposal would simply "augment that remnant population".

"Grizzlies taken from an area such as Canada, where there is an abundant food supply, both vegetation and fish, will not survive in an arid climate as the Selway-Bitterroot Wilderness Area and the Bitterroot mountains where

there is a decline in the available forage for Grizzly."

Some considerations for the draft E.I.S. were raised with the most frequent comment being a need for more alternatives. Still others feel habitat quality must be quantified.

"There was a reasonable presentation of the accepted history of the griz in the area, but no mention of current scientific thought. The recognized needs of a viable population were not discussed. The known parameters of individual bears in the given variance of habitat was not mentioned."

"Satellite map the vegetation of the recovery zone including the specific release site; and undertake the translocation project as a rigorous scientific experiment...A system for mapping vegetation should include vegetation classification based on plant succession...quantitative detailed ground truthing...a standardized color code for vegetation and terrain features...the "supervised" approach to computerized vegetation analysis."

201 - CAPTURING AND RELEASE METHODS

The major concern voiced by respondents is to translocate bears from unthreatened populations only, as documented by scientific data. Some were also concerned with the humane handling of bears, with many commenting "the bears are happy where they are so why move them!" Some commented that contact with humans during transportation should be minimized; only the team transporting the bears should be allowed in contact; and media footage should be limited to trained personnel only. Several feel the same team should accompany the bears on their entire journey. A few commented on where the bears should come from that will be released; most of these individuals do not support the bears coming from Canada, but rather prefer other areas such as Alaska.

"Its [reintroduction] unfair to the bears. They are drugged and removed from a familiar environment containing sufficient food sources and transported to an unfamiliar place containing food sources of questionable adequacy."

"It seems a cruel twist of fate for a program undertaken in response to the Endangered Species Act to result in actions that capture perfectly happy Grizzly bears, haul them to an unfamiliar area, hang a radio collar on them, and turn them loose to see if they can 'make it'. The bears are pawns in a social conflict and as such are undoubtedly expendable in this game of power politics."

"Alaska should be considered as a possible source for the grizzly bears because we cannot always look to the Canadians to supply us with species that we run out of...There are also economic reasons why the grizzly bears should be obtained in Alaska."

"The Fish and Wildlife Service should carefully choose its source area for getting bears for the reintroduction effort. Under no circumstances should bears be removed from an area if removal would imperil the population in that area."

202 - STRATEGIES TO CONTROL NUISANCE BEARS

Most respondents commenting on this topic feel that if bears wander out of the wilderness boundary they should not automatically be considered problem bears. Many feel the bears will move where there is an adequate food source and question whether the proposed site has enough food to keep the grizzly contained. Several respondents do support the concept of relocating or disposing of problem bears. Not surprisingly, people who support relocation or killing problem bears are local residents.

"Reintroduced bears that establish their territory outside of the wilderness boundaries should be left undisturbed

and not moved back to the wilderness unless they are becoming 'problem bears'."

"I do not want the Bitterroot Recovery Zone to become a mortality sink, acting only as a killing ground for "surplus" bears as appears to occur in the Cabinet/Yaak recovery zone."

"The food the bears used to survive on is now greatly depleted so the bears will be forced to migrate toward food--namely farms and ranches on the edge of the mountains...people will be out in force to hunt them down and kill the remaining bears."

"If the USFWS insists on reintroducing grizzly bears, over the objection of the State of Idaho, the following parameters must be included in the recovery plan: No restrictions or qualifications should be placed on citizens in the protection of themselves, their families, or their property."

203 - ILLEGAL KILLING OF GRIZZLY BEARS

Several people commenting on this issue feel the punishment for poaching should be tough and law enforcement surveillance increased. Their suggestions include higher fines, longer imprisonment, public humiliation, and zero tolerance for killing grizzly bears. Others had a different viewpoint because they feel killing grizzly bears in self-defense is acceptable as well as mistakenly killing grizzlies during the spring black bear season. Some respondents are unclear about the provisions of the Endangered Species Act (or the interpretation of the Act by the courts) when a person kills a grizzly in self-defense.

"If poachers kill any bears, the penalty should be tough...high fine, imprisonment & public humiliation...put their picture in the paper and name too."

"The killing of any grizzly, for whatever reason, should be cause for felony proceedings, all agency personnel included."

"An administrative law judge from the Department of the Interior has ruled that man cannot defend himself against a grizzly bear and then later claim self-defense, IF he "intentionally placed himself in the zone of imminent danger". Therefore, an individual who kills a grizzly in self-defense will still be subject to the civil penalty provisions of the Endangered Species Act. If the above doesn't cause butterflies in your stomach, you are not living close enough to the involved Reintroduction Area."

"Self-defense...is an issue that has to be addressed without a person being subject to a ridiculous fine."

"Potential conflicts with spring black bear hunting in the recovery area should be addressed to minimize the accidental killing and harassment of grizzlies."

204/205 - RECOVERY AREA (GEOGRAPHIC BOUNDARIES/SIZE/ AND RANGE)

Size of the Recovery Area Boundaries: Most of the respondents commenting on this particular issue provided their interpretation of what the boundaries should be. A popular comment was to "allow bear recovery on all of our public lands, not just designated wilderness areas". A few respondents feel 'buffer zones' of adjacent roadless areas which are not (yet) designated wilderness need to be included in the boundaries. Numerous folks feel the area should be expanded to include the "Frank Church River of No Return Wilderness" and another frequent suggestion was "lands north of the Lochsa River (Highway 12)".

A few people, on the other hand, feel the boundary needs to be restricted to only wilderness area boundaries. Several people who do not favor grizzly reintroduction take exception with the area boundaries, particularly around the

Bitterroot valley. Many site the difference in terrain between the Bitterroots and the Bob Marshall or Yellowstone.

> "Include in E.I.S.: Recovery area within the wilderness area only."

> "The western slopes of the Bitterroot are very steep, rocky and full of brush and blowdowns, not the wide trails and vistas of the Bob Marshall. You encounter a grizzly on these trails, and there is no where for you to go and the bear knows it."

> "I have lived in the Bitterroot for 36 years...The terrain in the mountains here is different than the Bob Marshall or Yellowstone areas. Meeting a grizzly on these trails would be a no-win situation...These canyons leave little room for people and bears to by-pass each other without incident."

Numerous respondents take the opinion that grizzlies should be left where they are but not purposely reintroduced anywhere. They feel "there are plenty of grizzlies in the Yellowstone Area, the Glacier area, the Canadian and Alaskan mountains" and they like the idea of having one place they can go that does not have grizzly bears. Several respondents provide creative places to reintroduce grizzlies such as Washington, D.C.; numerous cities in California; Central Park, etc. Emotions run high and there are strong feelings on not having grizzly bears, particularly from folks in the Bitterroot valley.

> "If these flower sniffing environmentalists...are so infatuated with saving these predators, then take them and your selves and go back to East L.A. California or whichever rat hole place you come from and transplant them there because we sure as hell don't want you or need you, your Grizzly Bears and/or wolves in Montana...I am speaking as a Native American, Native Montanan and as a fourth generation Native Bitterrooter and damn proud of it."

A local form letter included the following statement "...Dangerous grizzly bears belong in the Wilderness areas--NOT in the People areas of our National Forest!"

Positive Comments on the Boundaries: Not all comments were critical of the boundaries for the reintroduction. A few people said they thought the proposal was a good one. A few said, "The Bitterroot seems to be an obvious link between grizzly populations in Canada and the southern Rockies". Another respondent supports the concept by saying:

> "I have spent a lot of time in the Bitterroots and there are few places left that would suit the Grizzly bear better than the Bitterroot Ecosystem."

Confusion on the Boundaries: Several respondents were confused and/or misled on what the boundaries are and would like to have that clarified in the Draft E.I.S. The most frequent comment was "the public is being misled when your publications state that the introduction will be in the Selway-Bitterroot Wilderness, when in reality the boundaries encompass vastly larger areas of the National Forests."

> "There is confusion when the project materials are reviewed re the biogeography (maps of the various areas associated with the plan). The original range of grizzly bears is shown on a map, but we can't assume anything about local distributions, densities and seasonal movements of grizzlies within those range distributions. Also, the shading on several versions of the maps provided suggests the Bitterroot Ecosystem (BE) extends from south of Boise, ID, to somewhere north of Coeur d'Alene, ID & NE of Missoula, MT...collectively the boundaries of several R1 national forests in MT & ID. The size (sq miles) of the BE isn't given (100 miles X 200 miles = 20,000 sq. miles)? But our attention is then focused away from the very large BE area, to the smaller 5500 sq mile "Grizzly Bear Evaluation Area" which includes all of the Selway-Bitterroot Wilderness,

a large piece of the Clearwater Forest and northern end of the Frank Church-RNR Wilderness...Is the 20,000 sq mile BE area the target of the eventual 200+ grizzly bears, or is it the smaller 5500 sq mile area that's going to support the 200 bears?"

"Your map in the paper shows the recovery area ending at the Salmon River on the south but your accelerated reintroduction plan says you want to place them to the south end of the River of No Return Wilderness. That includes another 100 miles south of the area on your map. Why didn't you show that on your map in the paper? It seems like you don't want the public to be aware of what you are doing and the total area impacted."

Sufficient Critical Feeding Habitat: Of primary concern to several respondents is inclusion of sufficient low-elevation spring and fall feeding habitat. They feel enough habitat must be identified and included to insure the bears' survival during years when the bears' food sources might fail.

"Designation of the boundaries of the reintroduction zone must include sufficient critical feeding habitat for a viable population, including the examination of lands north of the Lochsa River."

"As grizzly populations grow, they must be allowed to expand their range into relatively low elevations. We have to get away from the idea that grizzly bears can only live in the mountains."

206 - RECOVERY TIME

A few people commented on the length of time recovery would take with those who favor grizzly bear reintroduction preferring the accelerated basis and those who do not want grizzly bears reintroduced preferring "no action". Several people wrote that while they support grizzly bears, they feel that the bears should come into an area on their own or 'let nature take its course' and do not agree with artificially reintroducing the grizzlies into an area.

207 - FAVOR TO SPECIAL INTERESTS (CAVING IN)

A modest number of respondents (less than 10) point fingers at other interests claiming they are waging undue influence in the process. Some claim the "environmentalists" are trying to "lock up" the woods to multiple-use by supporting reintroduction efforts. On the other side, there are claims that the "timber industry" is unduly influencing the process by restricting the boundary area to designated wilderness only.

"It appears the agencies have and are buckling under to timber industry pressure to restrict grizzly habitat to designated wilderness only."

"I believe this is a...transparent attempt by the federal government to gain more and more control over our lands and the activities on them - i.e. now that we have a few bears in the woods in central Idaho, we need to stop all logging so the bears will multiply better."

208 - MONITORING AND EVALUATION

The most popular comment on this issue was to solicit peer review during all aspects of reintroduction from the independent scientific community.

"Provide for and elicit the full involvement of the independent scientific community in all aspects of reintroduction".

"...qualified members of the scientific community needs to be an integral part of the recovery team and...offered the opportunity to bid on various aspects of the project...It would help to insure objectivity and lend credibility to both research and management results. Develop and apply new management and monitoring

techniques that are more precise and less intrusive on the populations than current ones."

One person commented that the problem with documenting the presence of grizzly bears in the Bitterroot Ecosystem comes with the criteria for judging reported observations.

> "According to current criteria "only trained biologists" are able to confirm observations. The idea that only a "trained biologist" can differentiate between a grizzly bear and a black bear is ludicrous...The current system for evaluating reported observations should be redesigned to more accurately reflect the ability of today's more sophisticated back country users."

209 - EXPERIMENTAL/NON-ESSENTIAL POPULATION & AREA

A significant number of people commented specifically on the experimental/nonessential designation proposed for alternative 2. There are as many respondents opposed to this classification as in support of it.

Supporters of the designation say it will provide more flexibility in management options and will win more local support for bear recovery.

> "Please register my support for reintroduction of the grizzlies as an experimental population. It is my belief that this option will restore bears effectively and has the greatest potential for winning local support."

> "I support the experimental, non-essential proposal that you have made because I believe that it will allow economic consideration in the region ...throughout the restoration process. It is critical to gain local support in order for the restoration to succeed."

> "ROOTS [Resource Organization on Timber Supply] supports reintroduction of an experimental, non-essential population under section 10(j) of the Endangered Species Act, the purpose of this section is to help accelerate recovery of a species in the wild but without all the consultation requirements of a natural population. In addition, this section promotes local acceptance of experimental populations because of it allows greater management flexibility."

> "We support nonessential experimental designation because this option ensures maximum flexibility for reintroducing and managing grizzly bears in the Bitterroot ecosystem. Under this designation, innovation is fostered and social and economic impacts can be minimized."

Those who are opposed say that designating the grizzly bears as experimental and nonessential would be in direct violation of Section 10(j) of the Endangered Species Act. They feel this would be contrary to the purpose of the ESA since this designation reduces the level of protection to the grizzly by treating it as a "proposed species" under Section 7 (because the recovery area is outside a national park or wildlife refuge). Several respondents feel if the bears are reintroduced they should be fully protected under the Endangered Species Act. The point is also raised that there are reports that grizzlies are already in the area, "so the non-essential experimental provision under ESA should be abandoned."

> "While I am a strong supporter of immediate reintroduction, I oppose "experimental, non-essential population" status. The bears should retain full ESA protection given that natural migration is also occurring."

> "The 'Experimental, non-essential' designation is not a legal alternative: Reports of grizzly bears are still received from the proposed recovery region. Reliable sources including grizzly bear researchers, believe a small population of grizzly bears still remain in this region. Thus, the...designation would not be legal under

section 10(j) of the ESA, which specifies that experimental populations must be wholly separate, both geographically and biologically, from other populations. According to the Fish and Wildlife Service's own maps, the Bitterroot area is less than 40 miles from an established grizzly bear population in the Cabinet Mountains."

"We think that viable linkages may exist between the Selway/Bitterroot, the GYE and the NCDE, making application of 10(j) inappropriate. The occasional sightings reported in scoping may be indicative of these linkages. Protections given species proposed for listing have proven ineffective. We do not think an expensive recovery effort should be jeopardized in this way. The inability to designate critical habitat would only threaten recovery objectives even more."

Some individuals feel the experimental designation is premature and potentially harmful to grizzly bear recovery because it is not supported by enough research. Some respondents feel more extensive monitoring is needed in the recovery area before the grizzly is given an experimental or nonessential designation.

210 - CONSULTATION WITH FISH AND WILDLIFE SERVICE

Two respondents support the consultation requirements under Section 7 of the ESA and feel it should remain in place for activities with potential effects on roadless and other habitat needed for full recovery.

211 - HABITAT PROTECTION REQUIREMENTS

Most respondents commenting on habitat protection requirements feel habitat should either be protected throughout the entire range or only within wilderness boundaries. Those who support reintroduction efforts prefer the entire recovery area and those who do not want grizzly bears in the area prefer that requirements do not occur at all or only in the wilderness. This latter group sees requirements for habitat protection as interfering with other uses of the forest, i.e. logging, building roads, access, etc.

"Habitat protection in the Greater Salmon-Selway ecosystem must be a priority for your agency if this reintroduction is to be more than a manipulation of a small population of grizzly bears in a too small recovery zone...We need complete protection, including Wilderness designation for all roadless Forest Service and Bureau of Land Management lands...including recovery of lands within the ecosystem back to wilderness condition."

Some individuals provide specific examples of what they would like to see included as habitat protection requirements.

"Initiate habitat recovery efforts in and around the recovery area to facilitate exchange of bears with populations in the Cabinet and Selkirk areas. Active wildland recovery efforts to restore grizzly habitat and linkage areas shall consist of extensive road obliteration and revegetation."

"Low-elevation spring habitat must receive special attention."

"The bears need security from roads and motorized recreation. Logging activities should be minimized."

"One individual expresses a distrust that Forest Plans provide adequate habitat protection."

"The current proposal would rely on Forest Plan management...court rulings have shown that the Forest Plans in this region do not provide adequate habitat protection for grizzly bears."

300 - LAWS, RESTRICTIONS, RIGHTS, AUTHORITY

A large number of respondents expressed the need for a local citizens management committee or local advisory committee. Several stated that management should remain with the USFWS, States and Tribes.

Develop Citizens Management Committee

> "I would recommend that local grizzly management concerns be addressed through a local advisory committee comprised of a broad cross section of interests. Overall and day-to-day management responsibilities should reside with the USFWS, the states and the tribes."
>
> "We are adamant in insisting that a citizens management committee be established and that authority for citizen involvement not be downgraded to an advisory status. This provision is absolutely key in gaining local support for a reintroduction plan."
>
> "A local working group should be established to develop a set of concerns with grizzly bear reintroduction."

Numerous individuals signing a petition request that reintroduction be withdrawn from proposed rule making. Several individuals, after seeing the coalition of the Citizen Management Committee, wrote that they were opposed to that groups' proposal to form a citizen management committee.

301 - FEDERAL, STATE, LOCAL & TRIBAL AUTHORITY

There were numerous comments regarding who should have jurisdiction over management of the grizzly. While several respondents support local citizen involvement, they also stated that overall day-to-day bear management responsibilities should reside with the USFWS.

> "Overall and day-to-day bear management responsibilities should reside with the USFWS, the state wildlife agencies, and the tribes. T he grizzly bear recovery program is, ultimately, a responsibility of the federal government, not of the states."
>
> "Local grizzly management concerns would be addressed through a local advisory committee comprised of scientists and others interested in the Bears recovery (not by local county commissioners or logging executives)."
>
> "Ongoing bear management responsibilities should be shared by a wide range of interests including local, state and tribal governments with the US Fish & Wildlife Service maintaining a predominant role."
>
> "A panel of scientists, biologists and ecologists, should have overall authority within the recovery effort. The 'political' or 'public' steering committee should act as an advisory body. This would allow the primary mission of grizzly bear recovery to drive the process while retaining the perspective of public concerns."
>
> "Local elected officials should not have management authority over the reintroduced grizzly bears! County, tribal and soil conservation district governments usually have no motivation or expertise in grizzly bear or grizzly bear habitat management and research..."

302 - RESTRICTIONS ON USE OF PUBLIC LANDS

One of the overriding reasons respondents oppose the reintroduction is fear that doing so would bring additional closures to access in the area. Most of these comments came from local residents who enjoy the amenities of the backcountry and feel that reintroduction of grizzly bears will effect them directly. Several feel this is just another way to 'lock up' forests to recreational use. They feel areas will be closed to protect the people as well as the bears and traditional uses

of the area will discontinue. Several respondents are concerned with the possible closure of the Magruder Corridor. Others who fear access restrictions say they favor the "no action" alternative.

> "As I look at the areas of the reintroduction the thoughts of area closures come to mind. Every year that new closure maps are published there are more road closures, trail closures (to motorized vehicles including trail bikes) and less access by outdoors enthusiasts. If this slow but steady closure program is continuing without reintroduction of the grizzly bear, it is only natural that most of these areas will be closed to human access as the bear is introduced and expands its range."

> "Putting aside such a huge amount of land as a recovery zone for grizzly bears is unbelievable to us. Our lands to hunt and fish on are already being more limited each year by more roads being blocked off."

> "...introducing grizzlies is like putting a "closed to hiking" sign on the entire area."

> "We [Bitterroot Back Country Horsemen] are skeptical when told that grizzly bears can be introduced in a manner that will not shut down the traditional uses of the forest...at a recent presentation to our club by a USFWS representative we were told that we should all be able to work together to prevent closures and other restrictions, even in problem areas. But in the Bulletin... "Grizzly Bear Recovery in the Bitterroot Ecosystem - Answers to Citizens Questions", quoting a sentence on page 15, "...some road closures and/or seasonal restrictions may be necessary for grizzly bear security." This somewhat contradictory view illustrates our point -- the restrictions will come with the bears, whether planned by the [agency] or not, and these restrictions will get worse over time."

> "Grizzly bears moving into an outfitter's area of operations or near permitted camp sites will have the priority use and all human activity will be terminated."

A few respondents feel restrictions are necessary to protect the grizzly bear and to protect the habitat.

> "I am in favor of preserving large tracts of intact, unlogged and unroaded ecosystems; if the bears are the only way to achieve that goal, then I am in favor of the bears."

> "I would much rather have a few grizzlies roaming around than dozens of logging trucks, road graders and other heavy machinery tearing at the earth."

> "I am willing to sacrifice some backcountry areas, closing them if needed, to provide protection for the bears. I am an avid hunter and backpacker, and I feel that the introduction of grizzlies is a good thing."

303 - PRIVATE PROPERTY RIGHTS

A few respondents expressed concern that they did not have the right to protect their private property from the grizzly bear. They felt they should have a legal option of killing a bear in defense of life or property. They point out that the burden of regulations to property owners will be "oppressive".

> "Our private property rights on our permanent easements on our irrigation dams will be violated by this introduction. We feel recovery zones will bring bear protection regulations which will also endanger our property rights."

> "[Idaho Farm Bureau Federation] has serious concerns about the impact these animals will have on the agricultural/ranching industry."

"If the USFWS insists on reintroducing grizzly bears, over the objection of the State of Idaho, the following parameters must be included in the recovery plan: There must be no additional federal limits placed on the use of public or private lands outside the boundary of the Reintroduction Zone."

"Your booklet on page 13 says grizzly bears cannot be killed by members of the PUBLIC IN DEFENSE OF PROPERTY. This alone is reason enough to say NO NO NO to the reintroduction of the grizzly bear...when the laws or rules say we cannot protect our properties, this is going far too far."

304 - ESA (ENDANGERED SPECIES ACT)

A great number of respondents believe the bear must be reintroduced under the Endangered Species Act. These people want the grizzly bear fully protected under the ESA and feel any attempt to do otherwise is against the law. They believe the experimental nonessential designation would not ensure the safety of the bears being introduced into the area nor the safety of any bears that might already be there. However, a few respondents felt the experimental nonessential designation would give needed flexibility (Refer to other comment on issue 209).

Many respondents feel the grizzly bear is not an endangered species due to the numbers that already exist in other areas. Some feel the ESA should be abolished, particularly those who favor the "no action" alternative.

"It is time we stopped merely paying lip service to the idea of species protection and preservation and started actually accomplishing the goal of protecting our natural heritage."

"I believe that full protection of individual bears under the Endangered Species Act (ESA) listing provision be awarded relocated bears. Livestock are not common in the Bitterroot so the need for nonessential experimental population status seems questionable. I firmly believe that consultation requirements under Section 7 of the ESA should remain in place for activities with potential effects on roadless and other habitat needed for full recovery."

"Grizzly females may take up to 10 years or more to replace herself with a daughter of breeding capabilities. This is if the Mother bear has a daughter in her first litter. I recommend fully protecting the grizzly under the Endangered Species Act for at least 15-20 years, so there will be a guarantee of established breeding females to replenish grizzly populations."

"The artificial introduction of grizzlies creates inevitable and numerous conflicts between humans and bears. An unintended effect of this will be to actually erode public support for the Endangered Species Act."

In Opposition

"It is wrong for us to treat the grizzly bear as if it were an endangered species. There are thousands of them living in Canada and Alaska. The fact that there are relatively few in the lower 48 states does not concern me one bit."

"We have observed that animal rights groups and wilderness special interest groups use the Endangered Species Act to push their own goals of restricting and denying traditional forest uses as; Forestry, grazing, water use, hunting, fishing and recreation. Citing exaggerated threats to certain species of wildlife."

"I support the 'No Action' alternative which would allow Grizzly Bears to populate whatever portions of the public lands they choose...the Grizzly Bear is officially categorized as 'Threatened', the Grizzly is in actuality, neither 'threatened' or 'endangered'. They thrive very nicely in a variety of habitats. In fact, in Montana, grizzly management by the State Dept. Fish, Wildlife and Parks maintained a sizable Grizzly population without undue disruption of other activities, and some hunting was allowed."

"I have seen no compelling evidence that suggests the reintroduction of grizzly bears to the Selway-Bitterroot area of Idaho and Montana is essential to the survival of the species. In fact, the grizzly bears have done so well in the Yellowstone area that there is a movement to have the Yellowstone population de-listed."

"This frustration (with grizzly reintroduction) stems from the unreasonable and irresponsible manner the USFWS has exhibited in handling grizzly bear recovery efforts in other portions of the state. Grizzly bear populations have been meeting and exceeding population parameters in both the Glacier National Park and Yellowstone National Park Ecosystems for many years. Yet as grizzly populations reach these recovery goals, the USFWS continues to ignore the possibility of relaxing regulations that restrict activities in these areas. Instead, as old goals are met and exceeded, the agency develops new standards for the population to meet."

305 - INTERAGENCY GRIZZLY BEAR COMMITTEE GUIDELINES

The only comment received on this issue was that there appeared to be a "decision" made by the Interagency Grizzly Bear Committee on reintroduction so why waste time having public involvement and going thorough the NEPA process on it now.

306 - STATE OR PRIVATE BEAR MANAGEMENT SPECIALIST

No one responded to this particular issue; however, the concerns for state or private bear management are covered in issue 301.

307 - COMPLIANCE WITH FOREST PLANS

Two respondents commented on compliance with Forest Plans. One was critical of Forest Plans and whether they do an adequate job of protecting biological corridors and habitat; the other comment raised by the Citizen Management Committee referred to using the existing standards and guidelines of the Forest Plans unless deemed otherwise.

"I remain unconvinced that current Forest Plan directions are sufficient to protect biological corridors for the long-term proliferation of the bear. All the available habitat must be linked in a system of biological corridors such as proposed by the Northern Rockies Ecosystem Protection Act."

"[Citizen Management Committee] Initial Standards & Guidelines: Existing forest plan standards and guidelines for current wildlife management will be deemed adequate unless the Committee determines otherwise."

308 - WILDERNESS ACT

Although numerous respondents spoke to wilderness in other issues, the Act itself was only referred to in the following comment:

"According to Forest Service interpretation of the Wilderness Act, all animals, plants, trees, fish, etc. in Wilderness Areas are to be left to nature. How can they reintroduce grizzles in Wilderness since they have been gone long before the Wilderness Act was passed in 1964?"

400 - ECOSYSTEM MANAGEMENT

A majority of respondents in favor of reintroduction feel the grizzly is a necessary component of the ecosystem that is now missing. Some people, however, feel the ecosystem has evolved with the absence of the grizzly, and that its return would upset the existing ecology. Quite a few people mention there is a lack of food supply particularly grasses and forbes, berries, pine nuts, and that there is a lack of anadromous fish. Red cedar is the indicator species for moisture; this suggests that the Bitterroot is somewhat drought. Many feel it is necessary to restore good habitat conditions before reintroducing grizzlies. If the Bitterroot provided suitable habitat, the bears would be there already.

"The productivity of the area is on a downward trend because of the encroachment of noxious weeds, especially spotted knapweed and sulphur cinquefoil. Grizzly bears will likely contribute to the problem of further reducing vegetational diversity because of their habits."

"...Reintroducing grizzlies to the Selway-Bitterroot is necessary to the survival of the bear in the lower 48 states."

"By taking happy bears from Canada and putting them into a new environment in Idaho we do a great disservice to the bears."

"You are proposing to take bears from healthy ecosystems and dump them in an area where they are sure to have an uncertain future. Already salmon, cutthroat trout, bull trout and whitebark pine in the Selway Bitterroot ecosystem are on the verge of disappearing. All were forage species for the great bear...The number one priority should be to reestablish the natural diversity that existed prior to the grizzlies' elimination."

"I really want to see grizzlies remain in the Northern Rockies forever. Establishing a third population would help a lot to meet this goal, and the Selway-Bitterroot is about the only undisturbed large area left."

"I support the reintroduction for the following reasons: increased habitat for grizzly bears, increased biodiversity and increased population of an endangered species."

A few people commented that reintroduction should be guided by biological factors.

"A Conservation Biology Alternative that has been suggested by the Alliance for the Wild Rockies is most consistent with this crucial approach, and must be evaluated."

"I would like to see an alternative developed that would restore the land in grizzly bear management units to a condition usable to grizzlies."

401 - GRIZZLY BEAR AS A MISSING COMPONENT OF THE ECOSYSTEM

Many people feel the grizzly bear embodies the "wild" in wilderness. Several people stated that the survival of the grizzly indicated a healthy ecosystem for all species, including human. One person felt bears are necessary for human health research in prevention of osteoporosis and heart disease, etc.*

* "While denning, bears do not lose bone mass. Bears are unique in the animal kingdom in this regard. No other animal exhibits this phenomenon nor can any other animal system be manipulated to behave in this manner. I am currently in pursuit of the substance made by bears which prevents osteoporosis." Bears do not develop heart disease despite the fact that they have very high serum cholesterol levels. ... Serum from bears is highly nutritive for cells growing in tissue culture. Bears are able to handle urinary wastes for five months without urinating. ...Bears have very powerful immune systems. ... Bears secrete a bile acid which has proven useful in the treatment of gall stones. It is therefore of utmost importance to human medicine and medical science that strong efforts are made to preserve ursine genetic biodiversity in order to provide material from which to do scientific research..."

Several people felt that we should leave nature alone; adding grizzlies constitutes change. Let nature take its course. Several people thought habitat needs improving before reintroducing bears. They suggest resuming the anadromous fish runs, return fire into the ecosystem, and improve vegetation food supply. Some commented that it is necessary to restore nature's imbalance.

"It will restore a vital missing link to Idaho's wilderness and probably secure the existence of the "great bear" in the lower 48 states."

"Grizzly bears...are a part of the natural world and I want to know they have suitable habitat. Also that they have a better chance of survival because they have a corridor for dispersal and biological or genetic diversity."

"The grizzly bear is an indicator species that shows how the ecosystem it lives in, is coping. The grizzly, being a top predator of the food chain, needs to thrive in a wilderness habitat (where there are no roads)."

"The ecosystem balance needs the grizzly more than it needs further human utilization."

"The grizzly is the quintessential symbol of the wild, and belongs in the Wilderness. The bear's reintroduction into the Selway-Bitterroot area would help restore the delicate balance of nature that existed before hunting had such devastating effects on the species."

"The grizzly bear should be returned to the Bitterroot Ecosystem. The grizzly bear adds natural diversity to land systems."

"Since the bears are doing so well where they are, leave them there. If the bear wants to come to the lower 48 let them do it naturally on their own."

402 - IS GRIZZLY NATIVE TO BITTERROOT ECOSYSTEM

Several people felt the key to developing a secure grizzly population south of Canada lies in recovering more of the bear's historic range and increasing bear numbers. Some people felt that (a few) grizzlies already exist. Many people questioned that grizzlies were ever in the Selway-Bitterroot Wilderness area because the habitat is not good and historical records don't support it.

"No mention of grizzly in the Bitterroot Valley in the Lewis and Clark diaries. It appears grizzlies were primarily in the plains, along the rivers and following buffalo herds."

"The grizzly bear once roamed throughout the area. Lewis & Clark commented in their journals that they had killed eight grizzlies around what is now Kamiah."

"I don't believe man had anything to do with the grizzly disappearing from these areas...I don't think there ever was a small population in the two areas."

403 - WHAT IS A VIABLE GRIZZLY POPULATION? NUMBER OF GRIZZLIES?

Many people favoring reintroduction felt that the rate of reintroduction should be increased and that the population recovery goal is too low. Some feel the goals of recovery should be set before placing any bears. Some people stated that grizzlies are no longer in danger of becoming extinct and that there is no documented proof of grizzly bears in the Clearwater drainage area. A few people stated that bears are a nuisance on the Rocky Mtn. front and "no one is doing anything about it". Some said it is not necessary to place bears in SBW to maintain a population. A few stated that a lack of grizzly sightings in Bitterroot Ecosystem indicates a lack of use.

"Several years ago the Montana Fish and Game Dept. offered to give surplus grizzly bears to the fish & game departments of all lower 48 states, Canada, and Alaska. In those unenlightened times we imagined that there were too many grizzlies in Montana."

"The CMC will determine a final recovery goal when sufficient information on the experimental grizzly bear population is available."

"Allendorf, Harris & Metzgar (1991) showed that a minimum viable population of grizzly bears is between 1,670-2,000 bears, much higher than the current recovery plan considers."

"The proposed "recovered" population of 280 bears seems too small to be a viable population especially if their population is isolated."

404 - TRAVEL CORRIDORS & LINKAGES (RANGE OF GRIZZLIES)

Many people felt that travel corridors between ecosystems must be identified, established and maintained. Corridors would allow genetic intermingling and they are critical for long-term survival of the grizzly bear. Corridors are essential to link isolated populations of grizzlies for dispersal and biological or genetic diversity.

Comments on designated area:

"To assume grizzlies would remain within designated area is wrong assumption."

"Should include lands north of the Lochsa River (critical low-elevation spring habitat)."

"Not realistic to establish corridors for natural recolonization."

"Relocating bears isn't the answer--create corridors and preserve wilderness for unrestricted passage for bears to relocate themselves."

"In order to provide for genetic interchange and to improve security for migrating grizzly bears there should be road closures and reclamation along possible travel corridors. Likely locations include Allan Mountain/Anderson Mountain, the Pioneer Ranges, and the Sapphire Range."

"Natural recolonization won't work as bears don't range far into new areas."

"Wildlife has lost too much ground to aimless and thoughtless development."

"Map potential corridors with GIS technology."

"Corridors between ecosystems are not realistic any more. More feasible to relocate new bears into Yellowstone to maintain vitality."

"Any activity within corridors must be approved by USFWS and Nez Perce Tribe."

"Should expand recovery zone to include Frank Church-River of No Return Wilderness."

"Consider alternative by Selway-Salmon Grizzly Coalition."

"Travel corridors that would allow bears to intermingle with neighboring grizzly populations in the Greater Yellowstone and Northern Continental Divide Ecosystems must be designated and protected. Logging and road construction are slowly eliminating such corridors."

One person said sufficient corridors exist.

405 - EFFECTS ON GRIZZLY FROM HUMAN INCURSIONS OUTSIDE WILDERNESS (LOGGING, ROAD BUILDING, MINING & ORV)

Many people stated the necessity to keep the recovery area off-limits to road building and logging.

"Unprotected roadless areas should be designated as protected grizzly habitat, off limits to road building and logging."

"There are bears who have already wandered down, so don't stop them from doing so by building more roads or fencing more land."

"Failure of Forest Service to close roads to protect habitat is responsible for loss of species because of harassment, poaching and safety."

"If your bureaucracy has energy and money to burn---concentrate on protecting the habitat near the Bob Marshall and Yellowstone ecosystems: limit the logging and mining by buying the private lands/and or otherwise curtail the habitat reducing qualities of these activities. And stop building roads near these areas!"

"Immediate closure of the Magruder Corridor road is necessary for a serious reintroduction of grizzly."

"No ORV use, including snowmobiles. Many structures have been built in crucial bear habitat. Removal of structures with rehabilitation of sites and a ban on construction of any new facilities is necessary."

"Closure of Salmon River to motorboats is essential as well as elimination of airstrips in wilderness."

"Restriction of logging to seasonal small post and pole cuts and firewood sales should be limited to along major arterial roads outside of designated wilderness."

"Complete withdrawal of mineral or energy entry in Salmon-Selway Ecosystem."

"No rodent or predator poisoning in ecosystem."

Many respondents provided suggestions for restructuring logging and logging practices including following:

"Move toward selective cuts."

"Promote non-motorized logging and then eliminate logging roads."

"Roads closed to bears should include ATV & motor bikes."

"Utilize helicopter logging or other such lower impact methods should be the preferred method in the recovery area."

"Road obliteration and revegetation must always be encouraged in grizzly bear habitat."

Several respondents feel the area won't support bears for reasons including the Columbia dams have blocked fish migration and fire suppression has altered the habitat/vegetation.

406 - POPULATION CORRIDOR LINKAGES

Many responded that recovery of the grizzly is dependent on habitat corridors connecting bear populations. Many believe current populations are not adequate to sustain the species due to isolation and limited numbers. Several people believe that reintroducing bears to the Selway-Bitterroot ecosystem could begin to link existing isolated bear populations

in northwest Montana and Yellowstone National Park.

"Your agency needs to recommend reintroduction or augmentation with protection of biological corridors for interbreeding populations and general dispersal in the following areas: Cabinet-Yaak (Montana/Idaho), Gila-Blue Range-Aldo Leopold (New Mexico/Arizona), South San Juan-Weminuche (Colorado), High Uintas (Utah), Hells Canyon (Idaho/Oregon), North Cascades-Kettle Range (Washington), Sisklyous-Marble Mountains-Kalmiopsis (California/Oregon)."

"...the key to developing a secure grizzly population south of Canada lies in recovering more of the bear's historic range and increasing bear numbers. This could link grizzly populations in Yellowstone and Montana."

"Large areas of wild habitat connected by biological corridors is probably the most critical issue in grizzly bear recovery."

One person stated that "to isolate Bitterroot Recovery...is politics, not science."

Another stated that the Bitterroot is no longer an intact ecosystem.

"...the Bitterroot area is a fragment of a former wild ecosystem, and is no longer an intact, whole ecosystem....western Montana is now a human settlement....It is therefore not going to be prudent -- or realistic -- to regard the eventual recovery of the grizzly in the Bitterroot as something that can be done...without also achieving recovery in related areas, or without planning for the corridors..that still connect the related areas."

407 - EFFECTS "TO" GRIZZLY (GENETICS, DISEASE, COLONIZATION, ETC.)

Numerous people responded that the recovery of the threatened grizzly bear is dependent on habitat corridors connecting bear populations. Corridor linkage is critical and necessary for genetic viability.

"To allow for genetic intermingling of bears in the Greater Yellowstone and Northern Continental Divide Ecosystems, travel corridors must be addressed and designated."

"The experimental population plan would allow isolated grizzly populations to be connected, improving genetic heath..."

"...we must realize that inbreeding can be just as much a danger to bears as any other creature."

"Possible linkage zones should be studied and established so that gene pools can remain healthy."

"Bears need to intermingle genetically with other populations so viable travel corridors must be protected."

Several people stated there is an inadequate food source for the grizzly bear in the area.

"I truly do not believe there is food source enough for the bears to stay in the unpopulated mountains."

"Here in the Bitterroot a bear could eat all the berries in one day."

"I feel the lack of feed has a lot to do with the lack of game."

"The lack of food because the salmon quit running...dryness of the area, isn't good black bear habitat."

408 - HABITAT SECURITY

A great number of people commented on the importance and necessity of roadless areas for adequate grizzly bear habitat. Many feel road density standards need to be enforced. Several people stated the importance of closing roads to all motor vehicles to curtail use.

"After human caused morality, the greatest threat to reintroduction success is the slow destruction of secure habitat. Road density standards must be adopted."

"Road densities must be reduced to protect the bears..."

"Strict road density standards, necessary for the grizzly's habitat security, must be adopted and rigorously enforced."

"Habitat security must be a high priority through the implementation of road density standards."

"Close as many roads in the habitat as possible...Prohibit big clearcuts and limit mineral exploration and development. Keep black bear hunters out of grizzly habitat."

"Grizzly bears need habitat security, particularly from roads and motorized recreation."

"Openings created by logging activities and road building must be minimized."

"...requirements for security include protection from mortalities, quality habitat remote from human activities and adequate food resources."

"...habitat protection, including limits on road densities should be an integral part of the plan."

Several commented on the need for critical low elevation spring bear habitat.

"Critical spring low-elevation habitat should receive attention and protection."

500 - EFFECTS OF GRIZZLY

Many people were concerned about the effects the grizzly bear would have on various aspects as identified in the categories that follow. The number one concern is the effect the bear might have on human health and safety. This issue is raised the most by the local residents who live adjacent to the proposed area for reintroduction. Many people feel a direct threat from the prospect of having grizzly bears introduced into their back yards, and some of those folks feel that people are more important than the grizzly bear. Some raise the issue of who will be responsible for bear-human conflicts - that is not clear in the scoping information.

"More grizzlies in the area would create many bear to human or bear to livestock conflicts."

"If the people with glorified ideas about grizzlies want to make laws to increase their numbers in Idaho they should live here, walk these trails in the back country, camp in a tent, and try to raise livestock in a bear-infested environment. The black bears are problem enough."

"The last thing humans or grizzlies need is a bunch of hungry bears descending from the mountains in search of food."

The supporters of the Citizen Management Committee Alternative (*See Exhibit 1 of original report in project file*) point to the clause that identifies who will be responsible for human/bear encounters:

"[Citizen Management Committee] Initial Standards & Guidelines: The Committee will be responsible for determination of appropriate responses to grizzly bear and human encounters, livestock depredations, and other conflicts arising from the reintroduction and recovery of grizzly bears within or in the immediate vicinity of the Experimental Area."

501 - HUMAN HEALTH AND SAFETY

Numerous people responded that they feel the grizzly bear poses problems with human safety. Safety is a very volatile issue with many respondents speaking from the heart with anger and emotional pleas concerning the danger they see for themselves and their family. Several say to "put human safety first". Many people speak of relaxing, enjoyable trips taken into the area and how the grizzly bear would change that to one of fear. Some refer to the problems with grizzly bears in other areas such as Glacier National Park and the Bob Marshall Wilderness.

"100 living grizzlies is not worth one innocent person's death (especially if I'm the victim)."

"In the past it has been very relaxing and enjoyable to hike and not have to worry about the dangers of the grizzly."

"The Bitterroot Mountains are one of the few areas in Montana where people can hike and camp without grizzly bears...We need some places that we can go to enjoy the outdoors without having to deal with grizzly bears."

"Years ago we would take pack horses and ride into the Bitterroots to hunt elk. We slept in the open and picketed the horses in the meadows without fear of interruptions. With the introduction of the grizzly, all of this would be lost. We would have another Glacier Park problem."

"With the reintroduction of grizzly bears you will create a situation where people go into the hills of Idaho for recreation armed against bears. There are already enough armed people in the hills."

"I can assure you that I will not allow one of these animals to attack me, my family or my livestock...I'll shoot the bastard."

"I have two children and spend a lot of time in the woods and own property in the wilderness. I don't want to have to worry about my kids being attacked or killed by a grizzly."

"Residents already contend with black bears and mountain lions coming out of the wilderness area why add grizzlies to the list. Why take the risk of many human injuries in the years to come for ecology of today."

"People hike in these mountains because this area is safer than other wilderness areas. People who spend a lot of time in grizzly country respect the danger and do carry guns. They know this is illegal, but are willing to risk a fine when protecting one's life."

"...You say the bears run away when they hear humans coming; let me point out that most trails are along creeks and they cannot hear you coming."

"Grizzlies are...like a terrorist. He does not strike many times but you constantly have to be on guard for him."

"I live in Lemhi County and do not want the grizzly moved into this area. I don't want to have to pack a gun every time I go out side. I do not want the grizzly tearing down my fence to get to my garden and orchard. I have enough problems with the black bear but I don't live in fear."

"I own and operate a family guide service over 65 years. We have taken thousands of people into the back country and would like to continue. This may not be possible with the introduction of the grizzly bear."

"Grizzlies do not scare so easily - if at all. These bears would be too close to our homes and families to be a safe situation. Please do not place these aggressive animals so near to what is dear to me, my family."

"Please no grizzly bears in the Bitterroot mountains! We have the last cabin before you go into the wilderness at Sula and it is our bit of heaven under the Big Sky."

Only a few people stated that human safety was not a concern; most of those commented on educating the public and that the issue is exaggerated out of proportion.

"I hike and camp in the Bitterroot and would not mind taking extra precautions to avoid grizzly bears. Everyone who hikes in Glacier Park has learned to hike in groups, make noise, and handle their food. People who visit the Bitterroot could learn the same things."

"When a hiker whines about fear of bears and the need for safer trails, I say we need more bears. Preferably hungry ones."

"It is an increasing population of humans, not wildlife which causes the greatest challenges for local government by placing heightened demands on services from law enforcement, health, social service, and fire agencies."

"In twenty years of backpacking in Montana wilderness inhabited by grizzlies, I've yet to see or have my camp raided by one."

"Certainly there will be an increased risk of human-bear confrontations. Most problems arise because of some foolish behavior by the humans. Grizzly bears are one of the most impressive creatures on this earth, but they should be respected not feared needlessly."

"I've read that there has been no recorded grizzly attacks on a group of 5 or more. If people were responsible with their food; it wouldn't attract bears into camp."

502 - EFFECTS OF GRIZZLY ON LIVESTOCK AND PETS

Several people expressed their concern regarding loss of livestock and pets to the grizzly. They feel it is probable that the grizzlies will supplement their diets with domestic livestock and domestic pets. Some stated their concerns for the cattle ranchers and said that compensation for livestock lost should be part of the plan.

"Grizzly bears do indeed come down out of the mountains and attack livestock: cattle, sheep, hogs and even domestic pets."

"Most ranchers have a tough enough time making ends meet and making a living."

"The potential danger to humans and livestock in this populated area would be very high if these animals are reintroduced to the Selway Bitterroot Wilderness area. In the early fall we would have to deal with bear problems in our orchards and crops."

"I am also a stock grower I'd hate to raise my calves for grizzly food."

Several commented that the grizzly wasn't a threat to livestock. The rightful place for the grizzly is in the wilderness and public land should not be just for the ranchers to graze their livestock.

"Concerns of cattle ranchers can be adequately addressed and appropriate compensation should be part of any plan."

I am a rancher, raising cattle and sheep over the past twenty years in the Greater Yellowstone area. I realize that on occasion the grizzly can become a threat to my livestock and my livelihood. I have made Montana my home; I am willing to chance that very remote possibility. I have chosen to remain in Montana because of its

singular beauty and diversity of wildlife and along with that comes the responsibility to protect and nurture our natural areas. The grizzly really gives Montana it's uniqueness, and deserves every chance for survival."

"I strongly support the notion that native wildlife (e.g. bears, coyotes, cougars, etc.) should receive priority where conflicts arise with domestic livestock. That is where predators belong!"

"We do not favor killing of bears who kill livestock (especially public lands grazers). Use other methods, reduce and halt public lands grazing, and alter the IGBC guidelines."

"As a rancher I have to laugh at worries of other ranchers about their livestock. Bears are not major predators and if one like that occurs come up with license for bid just like these high priced sheep tags and allow hunters to harvest the bear and part of the money could go for compensation of killed livestock."

503 - EFFECTS OF THE GRIZZLY ON BIG GAME SPECIES

A few people stated their concern for the livelihood of wildlife in the area. The biggest concern is for the elk herds and how they would be affected by the grizzly bear. Many point out that grizzly bears can devastate elk calf populations. People are also concerned with the effects on black bear, deer populations and big game hunting opportunities.

"The most dramatic and immediate consequences will probably be to the fragile black bear and mule deer populations."

"Grizzly bears will reduce the survival of elk calves that are already heavily impacted by black bears."

"Fish and Game officials know the effect the grizzlies will have on the elk and moose populations. It was only a few years ago that black bears were killing so many new-born elk calves that they had to haul some of the bears to new territories."

They will have a detrimental effect on elk calving during the springtime along the Selway and Lochsa Rivers."

504 - EFFECTS OF GRIZZLY ON HUNTING OPPORTUNITIES

Several people stated that conflicts with spring black bear hunting in the recovery area needs to be addressed to avoid accidental killing of grizzlies. Some say that a halt to spring black bear hunting should be considered. Some sports hunters are concerned with the restrictions on access that might come with grizzly bear reintroduction.

"Bears need protection during the spring black bear hunting season, to minimize injury and disturbance."

"No black bear baiting or use of dogs should be allowed in grizzly bear designated habitat. Hunting should continue during big game seasons."

"If grizzlies are introduced, it will be a matter of time before hunters and other sportsmen have less access to these lands."

A few people stated that when the grizzly bear is recovered, they should be allowed to hunt them. Other hunters voiced their support for the grizzly bear.

"I have used the back country and have observed that when grizzlies are not hunted at all, they do become less cautious of avoiding humans."

"I am also a hunter and spend much time in the woods year-round. I can think of no greater high than seeing one of these magnificent bears in the wild and I never have any intention of hunting the king of the forest."

"I would be in favor of limited hunting for grizzlies in the future (once populations allow it), this would keep

the grizzly under control and they would have fear of man."

505 - EFFECTS OF GRIZZLY ON OUTFITTERS/GUIDES

A few outfitters and guides stated that they were concerned about hunting opportunities and for the safety of their clients. They feel their livelihood would be directly affected by grizzly bears in the area. Some say their clients will stop coming if there are grizzlies in the area, and that their clientele comes to the area to have an option for good hunting without grizzly bears to contend with such as in the Bob Marshall Wilderness. They also felt that the grizzly bear would prey upon elk and deer and therefore reduce the game harvest for hunting.

"The grizzly would be detrimental to our outfitting business making it impossible to fulfill our obligations to our clients. Our livelihoods are at stake . Many of us have spent years building our business which would be disrupted with one sighting of a grizzly in our permitted and licensed area of operation."

"There would be possible curtailment of access to camps, rivers and trails for the guided public. Changes in black bear hunting opportunity and impact of grizzlies on other wildlife populations would affect the outfitters and guides."

506 - EFFECTS OF GRIZZLY ON OTHER RECREATIONAL OPPORTUNITIES

Several people who use the Bitterroot for hiking and camping were very concerned about the reintroduction of the grizzly bear. They avoid the Bob Marshall and Glacier National Park because of the presence of grizzlies. Some feel grizzly bears would infringe upon the safety and solitude they enjoy in the Bitterroots, and that there will be more closures and restrictions in the areas they use for hiking and camping. Some raise the issue of safety to those who float the Salmon River.

"I oppose the reintroduction of grizzly bears. I do like to fish and would feel the need to carry a firearm for my protection."

"The Bitterroots have always been a refuge for me, a place where I can hike alone or with a family member. I can even bring my dog. Experiencing the wilderness in a grizzly-free region was more uplifting than the experience of seeing the bears."

"I am among the many who have avoided the Bob, Scapegoat and Glacier because of the grizzlies."

"The concerns I address are of control and access. The boundaries presented in the grizzly bear program are too broad and the possibility of conflicts for access to trails. No where in the entire plan is there any reference to the backcountry horse person and the impact the recovery program has on them."

"I and friends backpack, hike, and camp there and do not wish to encounter a grizzly bear."

"Reintroduction is unfair to campers and hikers seeking silence and solitude...If they wear bells or other noise makers to avoid surprising bears the noise will disturb fish and frighten photogenic rare birds."

507 - EFFECTS OF GRIZZLY ON OTHER PREDATORS

A handful of respondents are concerned with the effects the grizzly would have on other predators. Most felt there are already enough predators in the area especially considering the prey base and food supply.

"The population of a predator is dependent on prey. Available foods are now being taken by predators already living in these areas."

"Winter killed elk will be cleaned up by the wolves and coyotes."

"Grizzly bears need a high protein/fat diet to get them ready for winter. They will be in competition with the black bear and coyotes for gut piles."

508 - EFFECTS OF GRIZZLY ON OTHER ENDANGERED SPECIES (SUCH AS LISTED SALMON)

Some concerns were raised about reintroducing the grizzly bear in an area where the Chinook Salmon and steelhead are threatened. They point out that fish is a food source for the grizzly bear.

"Already salmon, cutthroat trout, bull trout and white bark pine in the Selway Bitterroot ecosystem are on the verge of disappearing. The ecosystem should be in good working order before the grizzly is returned."

"Grizzly bear population in the headwaters of the Selway and Salmon Rivers will work against efforts to aid the Chinook Salmon and the Steelhead. Grizzly bears eat these fish."

"Since we are trying to recover the salmon it's poor judgement to think about grizzly reintroduction in the Selway Bitterroot Wilderness."

509 - EFFECTS OF GRIZZLY ON OTHER ANIMALS, FISH, BIRDS, ETC.

One respondent requests that the analysis focus on all threatened and endangered life, including invertebrate life, insects, plants, etc.

"...How misleading it is to concentrate on the bear while giving brief attention to the base of invertebrate life, insects, plants, and associated mammals on which all mammalism life depends. Protecting the grizzly cannot be considered in a vacuum. Cannot the agencies administer and discuss all creatures great and small that are threatened and endangered by subdevelopment, timber management, grazing and mining?"

600 - ECONOMIC/SOCIAL

Several people are concerned that the grizzly bear is being considered as more important than the livelihood of humans. Some commented on the economic impact that reintroducing grizzly bears would have on the livestock industry. Some also feel their "quality of life" would be threatened and the way of life as they know it would change. Numerous comments point to the high cost of implementing the reintroduction efforts in particular and the high cost of government spending in general.

"We use the Orofino and Grangeville, Idaho area for recreation and our livelihood (cattle pasture). The grizzly will cause continual property damage along with the killing and maiming of people."

"...the proposed bear recovery plans make the existence of a few animals more important than the livelihood of human beings."

"If the grizzlies come back naturally, so be it, but no money should be spent and no human measures taken to introduce them in the proposed area."

"Any restrictive actions taken as a result of grizzly bears moving into a current outfitter's area of operation would be detrimental to our business making it impossible to fulfill our obligations to our clients."

"...management plans must lead toward long-term recovery of the grizzly bear and minimize social and economic impacts."

A handful of respondents feel the grizzly bear would actually bring more tourists to the area and therefore benefit the economy.

601 - SPIRITUAL/CULTURAL

This issue relates to the spiritual symbolism of the grizzly bear, its cultural significance to the West, preserving the grizzly for future generations, and the benefits of simply knowing that grizzlies exist in the reintroduction area. A few commented on the complexity and mystery associated with the wilderness and that grizzlies being returned to the area would make the wilderness whole again. Many speak to their respect for nature and "there should be some humility on the part of humans so the natural ecosystems can flourish."

> "We need the grizzly bear in our wilderness areas for spiritual purposes; the presence of the grizzly bear enlivens and ennobles humankind. The grizzly bear may prove to be valuable to medical, physiological, and social science someday to help preserve our own kind."
>
> "I am for reintroduction as part of an effort to reintroduce sanity, big wilderness, and respect for nature in place of the nefarious and ultimately self-destructive idea that the earth exists solely for humans to use and abuse."
>
> "In twenty years of backpacking in Montana wilderness inhabited by grizzlies, I've yet to see or have my camp raided by one. Moreover, the theoretical danger they present enhances my experience."

Some individuals, particularly from the local area, say the reintroduction of the grizzly bear would "decrease the quality of my wilderness experience."

602 - ENJOYMENT OF GRIZZLY (WATCHING, ETC.)

Several people mentioned that they would like nothing more than to see a grizzly bear in the wild. Several commented that they would appreciate being able to see a grizzly bear in the wilderness rather than behind bars in a zoo. One said there is a need to restore the top carnivore on earth.

> "I have hiked and backpacked into the Selway Bitterroot Wilderness regularly since 1967...there is nothing I would like more than to see a grizzly in the Bitterroot."
>
> "Living as I do, so near occupied grizzly habitat, I hope for the day that they can once again frequent our "backyard" here in the Tobacco Roots."
>
> "The idea of having another of Montana's original predators restored to this area is very exciting."
>
> "As a landowner in Idaho, I take special joy in watching bears in the wild and hope their population continues to increase and remain secure."
>
> "I would like there to be enough of them to hunt some day, for those who would pursue that sport."
>
> "There are innumerable good reasons to reintroduce bears into this region, ranging from aesthetic reasons to irrefutable ecological and scientific issues."

One person disagreed with people who say that the grizzly heightens their wilderness experience.

> "I think they confuse the adrenalin thrill of surviving danger with the true wilderness experience of happiness and contemplation [without the grizzly bear]."

603 - COST OF PROGRAM TO TAXPAYER

This issue was of concern to many of the respondents. Many felt that grizzly bear reintroduction is a waste of the taxpayer's money. Several stated that they would like the money spent on other programs while others said that the money should be used for the national deficit. Questions were raised about the validity of actual costs of grizzly bear

reintroduction; some felt that the cost would be higher than predicted.

"At a time when this nation faces astronomical debt problems it is the height of financial irresponsibility to fund a project as frivolous as grizzly bear reintroduction."

"We have plenty of bears on the East Front...You would be doing both the bears and the public a favor if you used some of these bears instead of spending time and money going to Canada."

"I oppose the reintroduction when we live in a country with humans not having adequate housing and lack of food."

"The cost of reintroduction is out of line at a time when the Congress and the American people are looking for ways to reduce unnecessary expenditures."

"When everyone is cutting budgets and reducing benefits to the poor, how can million dollar bears be justified."

"...this is just another Federal project to consume taxpayers dollars while we are struggling to keep our schools open."

There were only a few that stated that reintroducing grizzly bears was a wise use of their tax dollar.

"I have no problems seeing my tax dollars going for such purposes."

"...The benefit--the survival of a threatened species; to halt or reverse the destructive trends of a century--far outweigh the minimal costs."

604 - EFFECTS ON LOCAL ECONOMY

This issue reflects the economic concerns of the local people in communities near the grizzly recovery area. Several commented on this issue.

Negative Economic Impacts

"...Remember that forestry is a part of the agricultural industry, and mining provides a tax base for a state that tries hard not to be manipulated by eastern interests."

"Property value is reduced where bears tear up cabins looking for food."

"Tourism, ranching, and logging could be placed in jeopardy."

"...Livestock producers top the list of those most affected."

"I believe it would jeopardize the lives of humans and also the loss of jobs."

Positive Economic Impacts

"...The economy of the Bitterroot Valley, where I live, is being accelerated and enhanced by people coming to the area in search of the "wild" experience."

"Some people would jump at the opportunity to see a grizzly, it might actually bring tourists to the area for the chance to see a bear."

"...the potential for loss of jobs and tourist industry revenues should outweigh the benefits of new bear

populations in our area."

"Artistic materials should be sold in the area as well as other grizzly bear recovery zones and historic habitat to generate more local and tourist interest in preserving the grizzly bear as well as help the local economy."

605 - VISITOR USE

This issue reflects the effects grizzlies will have on visitor use . There were very few comments received that concerned this issue.

"I feel it is imperative to leave the Bitterroots free from the danger of grizzlies. We need one mountain top we can enjoy."

"Judging from the impact of grizzly bear programs in national forests will mean further reductions in forest access for residents and visitors with the loss of recreational and commercial values? The reintroduction of a species that will most assuredly endanger Idaho residents, and the tourists that visit our beautiful wilderness areas, is unacceptable to the state of Idaho."

700 - MISCELLANEOUS

A few people felt that there should be fines for anyone recreating in the recovery area who are found guilty of improper procedures in grizzly country. Several people commented on the political influence regarding reintroduction of the grizzly bear.

"Members of the Idaho Congressional delegation have publicly expressed their concern, if not opposition, to reintroducing grizzlies to the Selway. Their concerns arise from a lack of knowledge on the part of their constituents who themselves are most likely to be personally affected by the reintroduction."

"...the final design should simultaneously address rationality and democracy. Rationality can be understood as making good choices for sound cognitive reasons. Democracy can be understood as the collective construction and application of political authority...Build political consensus based on trust and credibility."

701 - EDUCATION

This issue addresses education needs for sanitation practices; common sense hiking & camping practices; identification of bears in the field, etc. Several people commented on the importance of having an education program on how people and grizzlies can coexist. There is need to educate people on proper disposal of garbage and how to handle food. People also need to learn safe hiking procedures in grizzly bear country.

"Educate the people who utilize these areas by providing signage on roads and trails to explain the proper methods in recreating among grizzly bear habitat areas."

"If the population is concerned with bear-human confrontation they should be more educated on the facts."

"Public education efforts on peaceful coexistence, human safety, and how to behave in grizzly country should be studied and implemented."

"Most everyone I know wear bear bells, keep pepper spray and hike and camp smarter. People need more knowledge about bears."

"Education efforts in the Bitterroot area are the back bone of the grizzly bear recovery project success. Educate black bear hunters how to identify grizzlies."

"A few people that were against grizzly reintroduction commented that education wouldn't help."

"I am totally against grizzly bear reintroduction, and no amount of education would quell my fears about hiking alone where there are grizzlies."

"You go out of your way to state and make a point that the bears are not dangerous if the forest users are properly educated. Why then does the Federal government require its own survey and work crews to carry shotguns and high powered rifles when they are working in grizzly bear areas in Alaska. It would seem to me that this would be unnecessary if the government crews are properly educated."

702 - POLITICAL INFLUENCE

Several people commented on how they feel political influence affects the reintroduction of grizzly bears. Many respondents at both ends of the spectrum conveyed their exasperation with the political system and the role it plays in determining the outcome of the proposed reintroduction. Some disparage having politics instead of science be the guiding force in reintroduction efforts.

Many respondents against reintroduction reiterated their view that the political process has not worked to their advantage. Some see a "hidden agenda" by pro-grizzly advocates to "lock up the land." Many respondents also resent people or groups outside the local community or State as having undue influence on reintroduction efforts into the area in which they live. Some also say they think the Endangered Species Act is being misinterpreted for political means.

"Being aware of the environmental-shun in Congress I hardly hold my breath at the future of the Endangered Species Act. I doubt this will bounce upon the shoulders of our mighty cattlemen/rancher controlled Congressmen any more lightly than the status of the ESA."

"Once the EIS is completed, the decision for a course of recovery action will encounter delays primarily from political sources at local and state levels."

"If it weren't for so many political, social and economic factors, bears, wolves, etc., wouldn't be endangered...I understand that the FWS is under pressure to serve the timber and mining industries, ranchers, etc. These are public lands and the wildlife on these lands deserve to be protected and not serve the needs of those who wish to make money off public lands."

"It concerns me that the three Ravalli County Commissioners had such a "say" as to whether they approve the grizzly bear plan."
"Creates political misuse of valuable funds."

"Don't let the congressmen and the livestock industry try and stop you because they lack the commitment to future generations and can only think short term and of themselves."

"I hope that grizzly recovery can go without the nonsensical political idiocy as seen in the wolf recovery program."

"More and more decisions about wildlands, wildlife, biology and science are being influenced by U.S. Senators and House Rep."

"I am disturbed by proposed options which would grant special interests and political appointees by the governors of Idaho and Montana to have disproportionate influence on the grizzlies' fate."

"This needs to go forward regardless of the pressure against it and short-sighted special interest groups."

APPENDIX 20. EXCERPTS FROM THE REPORT: "SUMMARY OF PUBLIC COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR GRIZZLY BEAR RECOVERY IN THE BITTERROOT ECOSYSTEM" -- USFWS, APRIL 1998

CHAPTER 1. INTRODUCTION

This report summarizes public responses on the following two draft documents issued by the U.S. Department of Interior, Fish and Wildlife Service (FWS):

A. Draft Environmental Impact Statement (DEIS) on Grizzly Bear Recovery in the Bitterroot Ecosystem; and

B. Endangered Species Act, Proposed Special Rule 10(j), Establishment of a Nonessential Experimental Population of Grizzly Bears in the Bitterroot Area of Idaho and Montana (published in the Federal Register July 1, 1997, and included as Appendix 13 in the DEIS.)

The Draft EIS and Proposed Special Rule 10(j) were released for public review and comment on July 1, 1997. Comments were to be received through September 30. The comment period was extended to November 1 based on numerous requests for more time to prepare responses. The comment period was extended a second time to December 1, 1997 following a request from a member of the Idaho Congressional delegation.

Comments on the two draft documents were received from over 24,000 individuals, organizations, and government agencies. These comments arrived in over 2,660 letters, DEIS summary forms, resolutions, and hearing testimonies. Ten petitions were received with over 21,000 signatures. Fifteen form letters were identified (see Demographic Summary for specific figures). This degree of interest from the public indicates the strong feelings people have in the possibility of grizzly bear recovery into the Bitterroot Ecosystem (BE).

This analysis of the public's responses describes what people have said as completely and directly as possible without assigning weights or serving as a vote-count. The system used to analyze comments was objective, reliable and traceable. All responses to the two draft documents have been considered in the production of the summary, including petitions, hearing testimonies, resolutions, and DEIS summary forms along with letters and form letters.

It is important to note that this analysis is not based on vote-counting. The public involvement efforts of the National Environmental Policy Act (NEPA) are intended to gather information and ideas from the public on proposed actions and alternatives to the proposed action to provide a clear basis for choice among options by the decision-maker and the public. An analysis of this public comment will help the decision-maker make better decisions, not to simply count pro-s and con's. It is tempting for a proponent or opponent of a particular alternative to "stuff the ballot box" in support of a particular view. But while quantitative information is gathered and is important in assessing attitudes and concerns relating to particular issues, that is only part of the information analyzed. The reasons for people's concerns, preferences and criticisms are sought in this process. Therefore one will find little mention of total numbers outside of those provided in this Introduction, but rather more qualitative information indicating trends of public opinion.

NOTE: The chapters on Alternatives and Issues fully describe and analyze public response. These chapters are not included in this Appendix, but detailed information on the Issues raised in public comments is included in Chapter 5 of the FEIS. An analysis of form letters and petitions is provided at the end of this chapter.

PUBLIC INVOLVEMENT

Solicitation of Public Comment on the DEIS and Proposed Rule:

The public comment process for an Environmental Impact Statement began in January 1995 and took the following path to the present:

- January 1995 - A Notice of Intent to prepare an EIS was published in the Federal Register. An Interagency team representing the U.S. Fish & Wildlife Service, the U.S. Forest Service, the Montana Department of Fish, Wildlife & Parks, the Idaho Fish & Game Department, and the Nez Perce Tribe was formed to prepare the Draft EIS.
- May 1995 - A Scoping of Issues and Alternatives information brochure was mailed to 1,100 people.
- June 1995 - Formal scoping for issues and alternatives began with Federal Register Notice for a 45-day comment period.
- July 1995 - The public comment period was extended by 30 days until August 21.
- August 1995 - The comment period ended, analysis of public comment began. Over 3,300 written comments were received and analyzed.
- September 1995 - The scoping results were summarized in the document, "Summary of public comments on the scoping of issues and alternatives for grizzly bear recovery in the Bitterroot Ecosystem" and document was distributed.
- August 1996 - April 1997 - Draft EIS written and reviewed by Interagency team (Idaho Fish and Game declined opportunity to review and comment on January 14, 1997).
- June 1997 - Congressional members and staffs, administration and agency personnel, states, counties, tribes, advisory committees/councils, and key individuals and organizations briefed on the Proposed Special Rule and DEIS preferred alternative before Federal Register publication and DEIS release to the public.
- July 1997 - DEIS released to public. Public comment period begins July 11 and ran through December 1, 1997 (following two extensions).
- July 1997 - Endangered Species Act, Proposed Rule 10(j) for Establishment of a Nonessential Experimental Population of Grizzly Bears in the Bitterroot Area of Idaho and Montana published in the Federal Register on July 2. Comment period begins July 11 and runs through December 1.
- October 1997 - Public hearings/open houses to gather public comments on the DEIS and Proposed Special Rule held in seven communities on the perimeter of the Bitterroot area. Approximately 1400 people attended these hearings and 293 individuals testified. The Salmon and Hamilton hearings both had more people signed up to speak than time allowed to testify. The dates and locations for the public hearings were as follows:

  Wednesday, October 1, 1997: Challis, Idaho and Hamilton, Montana
  Thursday, October 2, 1997: Missoula, Montana and Lewiston, Idaho
  Friday, October 3, 1997: Boise, Idaho and Helena, Montana
  Wednesday, October 8, 1997: Salmon, Idaho
- December 1 - Public Comment period ended.

In addition, the USFWS held meetings with local community, state leaders, and interest groups in communities around the perimeter of the proposed recovery area.

The Draft EIS, the Summary, and the Special Rule were all published on the USFWS web site at: http://www.r6/fws/gov/endspp/grizzly.

Alternatives Analyzed in the DEIS:

Four alternatives representing different approaches to grizzly bear recovery and management were developed for evaluation in the DEIS because they encompassed public concerns raised during scoping and to reflect a full range of alternatives. Two alternatives (Alternatives 2 and 3) do not necessarily meet the purpose of and need for action, but were included in the DEIS to be responsive to public comments, to provide a full range of alternatives for consideration, and to meet the requirements of NEPA. All four alternatives reflect public comments and suggestions identified through issue and alternative scoping. Alternative 1 was identified as the U. S. Fish and Wildlife Service preferred alternative. The alternatives considered in the DEIS and analyzed in this report are:

Alternative 1. Reintroduction of a Non-essential Experimental Population Alternative (Proposed Action): The goal is to accomplish grizzly bear recovery by reintroducing grizzly bears designated as a non-essential experimental population to central Idaho and by implementing provisions within Section 10(j) of the ESA, conduct grizzly bear management to address local concerns. A Citizen Management Committee (CMC), created under a special rule to be published in the federal register, would be tasked with management of this grizzly bear population. This alternative has been identified as the U. S. Fish and Wildlife Service preferred alternative.

Alternative 2. The No Action Alternative - Natural Recovery:
The goal is to allow grizzly bears to expand from their current range in north Idaho and northwestern Montana southward into central Idaho and western Montana, and to recolonize the BE. The ultimate goal is natural recovery of grizzly bears in the BE.

Alternative 3. The No Grizzly Bear Alternative:
This alternative would prevent grizzly bear recovery in the BE.

Alternative 4. Reintroduction of a Threatened Population with Full Protection of the ESA Alternative:
The goal is to achieve recovery through reintroduction and extensive habitat protection and enhancement to promote natural recovery. The grizzly bear would have full status as a threatened species under the provisions of the ESA.

THE PUBLIC COMMENT ANALYSIS PROCESS

The analysis method used for this project provides a means of categorizing each person's comments into separate subjects, then grouping like subjects together so that the public's comments can be more thoroughly examined. It accurately displays public concerns and reasoning about particular issues and alternatives since each person's own words and phrases are captured. It provides a traceable, visible system for displaying public comments without injecting interpretation or judgment.

Responses were received in the form of letters or postcards, form letters, petitions, hearing transcripts, DEIS summary forms, and resolutions. Each letter, hearing transcript, petition, etc. was first given a unique identification number. A coding system was developed to assign demographic information to each respondent and to record their opinions on issues and alternatives. Demographic information coded included identifying who the respondent represents, the medium used for responding, the respondent's overall preference for or against grizzly bear recovery, and where the respondent is from.

Respondents were classified into one of the following categories, referred to in the coding system as "Organization Types":

- Individual Citizens, Individual Landowners (if identified), Schools/Universities, Youth, Professional Scientific Organizations
- Federal Agencies, State Government/Agencies, County Government, City/municipal/local government, Indian Tribal Government, Congressional/Legislative officials, Coalitions, Political Groups
- Business, Ranching, Environmental, and Recreation Organizations and Interests.

The codes that were used to identify the demographic information, issues and alternatives can be found in Appendix A; a demographic summary of respondents is displayed in this chapter.

Next, substantive comments related to a particular alternative were coded, along with particular reasons (issues) for support of, or opposition to, that alternative. In many instances, a particular alternative was not identified, but issues were identified that generally supported or opposed grizzly bear recovery. Many people asked for modification to an alternative, wanted parts of alternatives combined, or offered a completely different alternative. These were captured as well. Also, if a comment specifically referred to the Proposed Special Rule 10(j), this was coded as such. All substantive comments, accompanied by the appropriate coding for alternatives and issues, as well as demographic information, were then entered into a computer database for easier sorting and retrieval.

At all times, objectivity and fairness were stressed in this public comment analysis. All respondents' values, perceptions and opinions were captured, including those based on misinformation. The exact words of each respondent were used rather than summaries of the person's words to insure accuracy and objectivity. All letters were read at least three times by more than one member of the "coding team". A coder first read the entire response to gain an overall understanding of the respondent's viewpoint, then re-read the response, highlighting and coding substantive comments. To maintain accuracy and consistency, a coding supervisor or another coder would then check the coded response. If questions arose, they would discuss the response and come to agreement on the appropriate coding.

Form letters were grouped to insure that identical coding was used on each letter. Form letters and petition comments were entered into the database only once; however, the total number of signatures associated with the form or petition was recorded to reflect the number of respondents either submitting the form letter or signing the petition.

Although comments in technical or complex letters were coded and included in the database, they were also "red-flagged" because of their length and detail. Copies of these letters have been provided separately to the FWS interdisciplinary team for in-depth review. Letters from all government entities have also been provided to the interdisciplinary team for incorporation into the final Environmental Impact Statement.

Many chose to inform the FWS of their opinion more than once. Some spoke at one of the hearings, then sent a letter or signed a petition as well. Through alphabetical sorting of names, identical letters were identifed, then combined under one letter number and entered into the database only once. If multiple letters received from one individual or organization were different, the letters were treated separately.

DEMOGRAPHIC SUMMARY OF RESPONDENTS

This section presents demographic information of the responses received. Information displayed includes *who* responded (individuals, organizations, agencies, etc.), *how* they responded (letter, petition, resolution, etc.), and *where* they generally responded from.

WHO RESPONDED

ORGANIZATION TYPE	NUMBER OF SIGNATURES
Business Owners/Interests	25
County Government/Representative	35
Environmental Interest	14,902
Federal Agencies	7
Individual Citizens	8,998
Congressional/Legislative Representatives	13
City/municipal/local government	10
Industry interest (ranching, timber, etc.)	49
Landowner within recovery area (if identified)	50
Professional scientific organization	7
Recreation Interest	7
State Government/Agencies	29
Tribal Government	3
Schools, universities	29
Coalition	30
Youth	53
Political Groups	4
TOTAL	24,251

HOW THEY RESPONDED

Response Type	Number of Signatures
Letter or Post Card	1,856
DEIS Summary Form	520
Hearing Transcript	294
Form Letter	217
Petition	21,362
Resolution	2
TOTAL	24,251

WHERE RESPONDENTS ARE FROM

	Number of Signatures
Idaho	978
Montana	806
California	149
Oregon	27
Utah	129
Washington	86
Wyoming	15
Other States combined	505
Outside the United States	2
TOTAL	2,697*

* This figure doesn't account for names on petitions, nor for the many respondents who did not provide an address.

FORM LETTERS AND PETITIONS

FORM LETTERS

As letters were received, noticeable trends and similarities among them became apparent. Fifteen different form letters were detected totaling 217 signatures of which 76 percent are in general support of grizzly bear recovery and 24 percent opposed. Eight of the fifteen form letters are generally supportive of reintroduction of grizzly bears; seven are opposed.

Two of the form letters (totaling 9 signatures) do not specifically address any of the DEIS alternatives; however, they are strongly against grizzly bears and include the wording "Just Say NO! to Grizzlies" and "the People of Idaho do not want grizzlies". This exact wording is also found in several petitions, but because these individuals wrote a letter, the input was analyzed as a form letter.

Only one of the form letters (totaling 14 signatures) is supportive of the Proposed Alternative 1. These individuals are particularly supportive of aspects of a Citizen Management Committee. Another form letter (totaling 9 signatures) is critical of Alternative 1 and does not say which of the other alternatives they prefer, if any. Their criticisms of the Proposed Action are:

- "Remaining security habitat, especially roadless areas on public lands in grizzly hatitat, should be maintained as roadless."
- "On roaded public lands in grizzly bear habitat, road densities should be maintained below one mile per square mile."
- "Key food source areas should be protected from human disturbance during bear use and from habitat destruction."
- "Isolated island grizzly bear ecosystems in the lower 48 should be reconnected."

Two form letters (totaling 10 signatures) support Natural Recovery and "No Action" as outlined in Alternative 2, and also are against grizzlies. These respondents do not believe grizzly bears are "endangered in vast wilderness areas in the world"; that the grizzly bear would negatively impact the small communities around the Selway-Bitterroot Wilderness"; and that "grizzly bears would decrease the quality of my wilderness experience".

Three form letters (totaling 32 signatures) support Alternative 3 and are adamant about preventing grizzly bear recovery in the Bitterroot Ecosystem. They make the comment they want to "leave the grizzlies where they are".

Six form letters (totaling 143 signatures) support Alternative 4, Reintroduction of a Threatened Population with Full Protection of the ESA. In addition, they compare Alternative 4 with Alternative 1 along the following common themes:

Support Alternative 4 because:
- "...it maintains full legal protection for all grizzly bears as a threatened species under the Endangered Species Act."
- "...it covers the entire Greater Salmon-Selway Bitterroot Ecosystem."

Oppose Alternative 1 because:
- "Alternative 1 removes grizzlies' legal protection under the ESA, including protection of habitat. It would remove the requirement for formal consultation with FWS on any development within grizzly habitat."
- "Alternative 1 removes female grizzlies currently designated as "threatened" from Yellowstone and Northern Continental Divide ecosystems and downgrades them to "experimental" status which removes their protection under the ESA."

PETITIONS

Ten petitions were received containing 21,362 signatures. Of the total signatures approximately 76.6 percent favored grizzly bear reintroduction and 23.4 percent were strongly opposed.

Six of the ten petitions were adamantly against reintroduction. These were overwhelmingly generated and signed by "local" signators from the States of Montana and Idaho totaling 5,002 people. Of those petitions against reintroduction, only one mentions the alternatives. This one generated by Citizens Against Grizzlies, and totaling 2,866 signatures, states they are "opposed to reintroduction of Grizzly Bears into the Bitterroot Selway Wilderness, therefore; ...(we are)...opposed to the 4 alternatives, as stated, in the draft...EIS submitted to the public for review."

Three petitions were initiated or obtained from signature campaigns by the Defenders of Wildlife and the National Wildlife Federation in support of Alternative 1, the proposed action. The total for the Defenders of Wildlife petition was 4,430 and the two NWF petitions totaled 10,364.

The Alliance for the Wild Rockies initiated a petition in support of Alternative 4 which garnered 1,566 signatures.

Due to the volume, signatures were counted and recorded in the database, along with the coding and substantive comments, but the individuals' names and addresses were not entered into the mailing list.

Chapter 6 - Appendix 20

Petitions in Support of Grizzly Bear Recovery

All of the petitions in favor of grizzly recovery address specific issues and alternatives. The Defenders of Wildlife and National Wildlife Federation's petitions spoke to the following issues in support of Alternative 1:

- "I strongly support the "citizens management" alternative plan developed by Defenders of Wildlife and others that will allow local people and scientific experts to share in decisions on how bears will be restored and managed, and I urge you to proceed with final approval for grizzly reintroduction as soon as possible."
- "The plan is timely and cost-effective. Because it includes oversight by a Citizen Management Committee, it is acceptable to local residents. This tested approach to threatened species to an area specifically set aside by our government for the protection of wild lands and wild species has the full cooperation of coalitions from the timber industry."
- "The NWF proposal has widespread support - from the timber industry, from local citizens who will have input, and from conservationists who eagerly desire to see the grizzly returned to its rightful home..."

The petition generated by the Alliance for Wild Rockies in support of Alternative 4 raised the following points:

- "...it represents the most scientifically viable way to restore grizzly bears to their rightful home in the Bitterroots."
- "I want all grizzly bears to receive full legal protection as a threatened species under the Endangered Species Act....if grizzly bears are to survive, they need protection of roadless areas and they must be connected with other...populations with corridors."
- "Alt. 4 is a common-sense, habitat-based approach and is the only alternative that satisfies my concerns. However, I am deeply opposed to taking any bears from threatened populations for reintroduction into Idaho and insist that Alternative 4 be amended to remove that possibility."
- "I am strongly opposed to...Alternative 1, which promises to weaken already threatened grizzly populations, fails to ensure the survival of a Bitterroot population, and does nothing to increase the chances of grizzly bears overall. It is also a bad idea, as well as a dangerous precedent, for a group of politically-appointed special interests to manage grizzly bears."

Petitions in Opposition to Grizzly Bear Recovery

Twenty three percent of the petition signatures oppose grizzly bear recovery in the Bitterroot Ecosystem. Although only one of these six petitions mentions alternatives (as outlined above), the remainder are loud and clear on how they feel about reintroduction specifically and grizzly bears, in general. The issues most often addressed in these petitions include:

- "The undersigned citizens are opposed....because of the threat to life and property, and restrictive use of this area."
- "We urge the Idaho State Governor to exercise the rights of this state according to the 10th amendment of the Constitution...The federal government agencies need to impose their plans and alternatives upon a different people and a different area than the people of this Great State..."
- "The purpose of this petition is to display...our opposition to said Introduction, and further to request that (the receiver) honor and respect our wishes on this subject, and pray that we don't become prey of the Grizzly Bear or the U.S. Fish & Wildlife Service's plans."

A petition signed by thirty members of a family in Idaho express the following concerns:

- " Aside from the threat it would be to the livelihood of Idahoans--mining, lumber, livestock, recreation and tourism, we, as a family would be personally affected. Some members kayak and white water raft in the Salmon River area. Some trailride, horseback in the high country, and have been doing that for about forty years. We love our high country, and do not want our trips there spoiled by threats of grizzly bear attacks. PLEASE DO NOT CONTINUE WITH THIS PROJECT."

HEARING TESTIMONIES

Seven hearings were held in Montana and Idaho attended by approximately 1400 people with 294 people testifying. The Salmon and Hamilton hearings both had more people attend the hearings and register to speak than there was time allowed. The dates and locations for the public hearings were:

Wednesday, October 1, 1997: Challis, Idaho and Hamilton, Montana
Thursday, October 2, 1997: Missoula, Montana and Lewiston, Idaho
Friday, October 3, 1997: Boise, Idaho and Helena, Montana
Wednesday, October 8, 1997: Salmon, Idaho

Strong feelings were voiced by those providing testimony on the proposal to reintroduce grizzly bears as well as vocal support or opposition to grizzly bears in general. A summary of the pro's and con's is provided here to display the general flavor of those testifying at the hearings. Individuals registered to speak who did not get their name drawn could choose to provide written comments for the record. These comments are also analyzed in this report along with others in the Alternatives and Issues chapters.

HEARING SUMMARY

Location of Hearing	Attendance	Total Testified	Number pro/con/ and unknown*
Challis, Idaho	155	29	6/20/3
Hamilton, Montana	200	50	22/23/5
Missoula, Montana	258	56	49/1/6
Lewiston, Idaho	127	45	27/16/2
Boise, Idaho	148	47	28/15/4
Helena, Montana	37	18	14/3/1
Salmon, Idaho	442	49	11/25/13
TOTAL	1,367	294	157/103/34

*Unknown is for those people who did not express support or opposition to reintroduction of grizzly bears in general, or to any of the four alternatives.

APPENDIX 21. AN ANALYSIS OF THE HABITAT CAPABILITY OF THE BITTERROOT ECOSYSTEM FOR GRIZZLY BEARS

Public comment received on the Draft Environmental Impact Statement for Grizzly Bear Recovery in the Bitterroot Ecosystem indicated substantial concern about the amount and quality of habitat included in the Bitterroot area and the contribution of a restored grizzly bear population in the Bitterroot to the recovery and continued existence of grizzly bears south of Canada. Some commentors indicated that they thought that the designated recovery area was too small and did not provide sufficient habitat for the needs of a recovered population of bears. Other comments questioned the number of bears that could be supported by habitat within the wilderness and multiple use lands identified in the alternatives.

A special appropriation was made by Congress for the U.S. Fish and Wildlife Service to study these issues more thoroughly in the Final Environmental Impact Statement. The four reports in this appendix apply the best available scientific approaches to answer these questions. Three reports were produced by Dr. Mark Boyce using this funding. The fourth report was produced by the Craighead Wildlife-Wildlands Institute and is included here because the information is pertinent to the question of habitat capability of the Bitterroot Ecosystem for grizzly bears.

The first report, **Relating Populations to Habitats using Resource Selection Functions** (Appendix 21A), details a methodology to relate habitat to population size utilizing grizzly bears as an example. This methodology was specifically developed for this Bitterroot project and it has subsequently been accepted for publication in a peer reviewed scientific journal.

The second report, **The Application of Resource Selection Function Analysis to Estimate the Number of Grizzly Bears that Could be Supported by Habitats in the Bitterroot Ecosystem** (Appendix 21B), applies the methodology developed in the first report to the Frank Church and Selway-Bitterroot Wilderness, and non-wilderness public lands to the north (North Fork of the Clearwater River drainage) in order to estimate the number of grizzly bears that can be expected to be supported by the habitat in these areas.

The third report, **Metapopulation Analysis for the Bitterroot Grizzly Bear Population** (Appendix 21C), describes the changes in the probability of existence of grizzly bears south of Canada with and without a restored Bitterroot population.

The fourth report, **Excerpts from and Synopsis of Portions of the Report, "*Abundance and Spatial Distribution of Grizzly Plant-Food Groups in the Salmon-Selway Ecosystem: A Preliminary Analysis and Report*" (Hogg, Weaver, Craighead et al. 1999)** (Appendix 21D), presents detailed habitat maps showing the distribution and abundance of major grizzly bear foods in the Bitterroot Ecosystem in east-central Idaho.

Together, these reports present significant new information on the capability of the Bitterroot Ecosystem to support grizzly bears, the distribution and abundance of the foods grizzly bears would use in this area, and the level of improvement that would occur in grizzly survival south of Canada if grizzly bears were restored in the Bitterroot Ecosystem.

APPENDIX 21A. DESCRIPTION OF METHODOLOGY UTILIZED FOR BITTERROOT POPULATION ANALYSIS PRESENTED IN APPENDIX 21B

(Note: This paper has been accepted for publication in the journal, *Trends in Ecology and Evolution.*)

Relating Populations to Habitats using Resource Selection Functions

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Key words: *geographical information systems, GIS, habitat ecology, landscape ecology, logistic regression, mapping, modelling, population ecology, population estimation, resource selection functions*

Habitat use can be characterized by resource selection functions (RSFs) that are proportional to the probability of an area being used by an animal. We highlight two procedures that recently have been used to relate RSFs to population density, dependent upon which field procedures are practical for a species. These new developments allow RSF models to be interfaced with geographical information systems (GIS) to map the probability of use, and ultimately populations, across landscapes.

'Ecology is the scientific study of the distribution and abundance of organisms.'[1] If we know the distribution of resources on which the organisms depend, the distribution and abundance of organisms often can be characterized by resource selection functions (RSF). As such RSFs are fundamental tools for the quantification of ecology. An RSF is any function that is proportional to the probability of use of a resource unit[2]. The recent development of RSFs is an offshoot of quantitative models for characterizing natural selection[3], involving the use of the same statistical approaches for quantifying selection of resources by animals[2]. The purpose of this review is to chronicle new advances in the use of RSFs for mapping the abundance of organisms using geographical information systems (GIS) and for estimating total population size in an area.

Habitat selection is usually a behavioural consequence of animals actively selecting where they live, or passively persisting in certain habitats. Ultimately, however, resource-use patterns are a consequence of the influence of selection on survival and reproduction that determines fitness in various habitats[4]. Typically, the extent of habitat use suggests the quality and abundance of resources in those areas, which in turn reflects fitness in that habitat[5], although there are exceptions[6].

Recent developments in the use and analysis of geographical information systems (GIS) provide the opportunity to map habitats[7,8]. We believe that RSFs are the most promising of procedures proposed for study of resource selection when combined with GIS because: (1) RSFs offer a quantitative characterization of resource use; (2) RSFs can accommodate virtually any type of resource being selected including both categorical and scalar variables[2]; and (3) RSF models easily accommodate spatial structure[9,10] and can be interfaced with GIS to facilitate rapid analysis and use of remote sensing and other types of spatial data[8,11].

Because RSFs yield probabilities proportional to use, we will explain how RSFs also can be used, with appropriate scaling, to tie populations to their habitats. If such a habitat/population link can be established, there are important applications for conservation and ecological management. For example, the RSF approach has been used to model populations of spotted owls (*Strix occidentalis caurina*) in the Pacific Northwest[12], to anticipate future timber wolf (*Canis lupus*) populations in the Northern Great Lakes states[13] and New England[14], to base a population viability analysis of California gnatcatchers (*Polioptila c.*

californica)[15], and we are currently using RSFs to anticipate the distribution and abundance of grizzly bears(*Ursus arctos horribilis*) in the proposed recovery zone in the Selway-Bitterroot wilderness of Idaho and Montana (M.S. Boyce, *et al.*, unpublished).

We will outline two approaches that have appeared for linking RSFs to population size, *N*. Using a reference area of known *N*, RSFs can be used to extrapolate *N* in a new area based on the area of resource units. RSFs are typically estimated using use vs. availability data. Alternatively, a resource selection probability function (RSPF) can be estimated over a finite collection of sample units, which simply can be summed over an area to estimate population size. RSPFs can be obtained from samples of used vs. unused resource units or by adjusting an RSF based on sampling intensity.

Using resource selection functions

The beauty of RSFs is that they are proportional to the probability of use of a resource unit[2] (Box 1).

BOX 1. Estimating resource selection functions (RSFs)

A variety of statistical approaches can be used to estimate an RSF, w_i, most simply as the proportion of used resource units of category i from those available. If a_+ is the population of available resource units and a_i are those in category i, we can estimate a simple selection ratio:

$$w_i = o_i/\pi_i$$

where $\pi_i = a_i/a_+$, and similarly, o_i is the proportion of used resource units in category i. This 'foraging ratio' was first applied by R. E. Savage in 1931 to herring feeding on plankton off the coast of England[16].

We can carry this idea a step further by modelling the use of habitats relative to their availability. For example, we might assume that our resource selection function, $w(x)$, can be characterized by a log-linear model:

$$w(x) = \exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k)$$

where the x_i denote $i = 1, \ldots, k$ independent habitat variables, and the β_is are selection coefficients. This model can be fitted using a generalized linear model assuming Poisson counts for the number of used units[2], but a short-cut is to fit a logistic model, $\tau(x)$, to the independent variables where the dependent data are 1 for used units and 0 for available units,

$$\tau(x) = \exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k)/ [1 + \exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k)].$$

The selection coefficients, β_i, in the log-linear model are estimated by the logistic regression coefficients. We simply use the numerator, $w(x)$, to distribute the use of resources across the landscape[2].

As such, if we know the distribution of a population among habitats by RSF values in a baseline area, we can estimate the density of animals by habitat type, under the assumption that all units are equally available. If similar use patterns can be assumed to occur in another area, we can predict the population by applying densities by habitats (Box 2).

BOX 2. Estimating population size using RSFs

For the ith habitat type with area $A(x_i)$ and habitat vector x_i the relative use is:

$$U(x_i) = w(x_i)A(x_i)/\sum_j w(x_j)A(x_j)$$

where the summation is over the number of habitat types, $j = 1, 2, \ldots, m$. If every habitat unit has a unique value of the variables x_i then the sum is over the number of units in the study area. So, the number of animals expected in the ith habitat type is:

$$N_i = N(U(x_i))$$

and density of animals, $D(x_i)$, in the ith habitat type is obtained by multiplying the total population size, N, by the relative use adjusted by area:

$$D(x_i) = N \cdot U(x_i)/A(x_i).$$

When applied to a new area, to estimate the population size, we simply sum over the product of density times area of the jth type of habitat in the new area, $A'(x_j)$ for $j = 1,2, \ldots, m$:

$$\hat{N}' = \sum_j D(x_j)A'(x_j)$$

Standard errors for $\hat{N}'$, and $D(x_j)$ can be approximated by the delta method using the first few terms of a Taylor series expansion[17].

We provide an example using this method for extrapolating the number of wolves in the northeastern United States (Box 3). The example in Box 3 arbitrarily defines suitable habitats as those with relative RSF>0.5, but there is no reason to expect that poorer quality habitats would not be occupied as well, thereby the calculations yield underestimates of expected population size (also see refs. 15 & 22). An extensive statistical treatment of RSFs and their estimation under various sampling protocols is provided by Manly *et al.*[2] and related sampling considerations are discussed by Aebischer *et al.*[23].

Using resource selection probability functions

Whereas an RSF permits us to calculate w, which is proportional to the probability of use for a resource unit, a resource selection probability function (RSPF) is scaled so that we can calculate w^*, which is the actual probability of use. Obtaining probabilities of use is useful because we simply can sum the probabilities of use over an area to estimate total population size. A study design suited to estimation of RSPFs is based on characterizing used and/or unused sample units (Box 4). However, a common problem with the used and/or unused sampling scheme is that often we cannot discern what constitutes an unused habitat unit[24]. If we wait longer or collect data more intensively, we may discover that a habitat unit is used making the distinction between used and unused less clear. A solution to this problem is to estimate an RSF

BOX 3. Wolves in northeastern United States.

Mladenoff et al. projected wolf populations for the Great Lakes states[9] and New England[10] using resource selection functions (RSFs) with a variation on the procedure that we outlined in Box 2. They monitored wolf packs using radiotelemetry[18] to secure a collection of 14 'used' pack areas containing at least 50 telemetry locations. Within the region of potential but unused habitat, they obtained habitat data from a collection of 14 random areas equal in area to the mean pack size. Each selected area was at least 10 km from the nearest known wolf pack. Therefore, the data were from used and unused sites, appropriate for a direct application of logistic regression analysis[2] (see Box 4). Habitat variables included road density, prey (white-tailed deer [*Odocoileus virginianus*]) density, land cover type, human population density and land ownership. Road density (R) was the best predictor. The results of the logistic regression can be expressed as a logit function. The RSF is therefore:

$$\text{logit}(p) = 14.6R - 6.6$$

The resulting logistic-regression model was scaled from 0 to 1 (i.e., a relative RSF). Suitable habitat was mapped using GIS based on areas with a relative RSF value of 0.5 or greater.

Using these suitable habitat areas, Mladenoff et al. employed two methods to extrapolate the eventual wolf population into Wisconsin and Michigan where wolf populations had recently become established. These methods were based on: (1) mean territory size, and (2) white-tailed deer (*Odocoileus virginianus*) density for prey. In the first case, the number of wolves was predicted using Fuller *et al.*'s[19] model:

$$\hat{N} = [AW/[M(1 + i)]]/(1 - d)$$

where $\hat{N}$ is the number of wolves, A is the area of favorable habitat, W is the mean pack size (4.08), M is the mean pack territory size (179 km^2), i is the proportion of saturated habitat in interstitial areas between packs (0.37), and d is an estimate of the proportion of non-pack wolves (0.15). Isolated habitat fragments less than 50 km^2 were not included. This method, therefore, offers an estimate of the saturated wolf density at equilibrium given pack characteristics such as those observed in Minnesota.

The second method extrapolates wolf population density, D in numbers per 1,000 km^2, based on a prey density estimate, specifically white-tailed deer density per km^2, X:

$$D = 3.4 + 3.7X$$

where deer density was estimated for each deer management unit by state wildlife officials[20,21]. Again only 'suitable' habitat was used for the extrapolation and habitat fragments less than 50 km^2 were deleted. An illustration of anticipated wolf habitats in New England is presented in Figure 6-8 (a) where prey includes both deer and moose (*Alces alces*). Wolf population size was obtained simply by summing over the areas of interest Figure 6-8 (b).

By monitoring the expanding wolf population in northern Wisconsin subsequent to publishing their model, Mladenoff et al. validated the model[21] although finding that wolves will indeed occupy areas with RSF<0.5.

using a generalized linear model assuming Poisson counts for the number of used units[2]. A short-cut (Box 1) is to fit a logistic regression of used versus available sites, and then to adjust the RSF for different sampling intensities of randomly selected units (available) and used units[2].

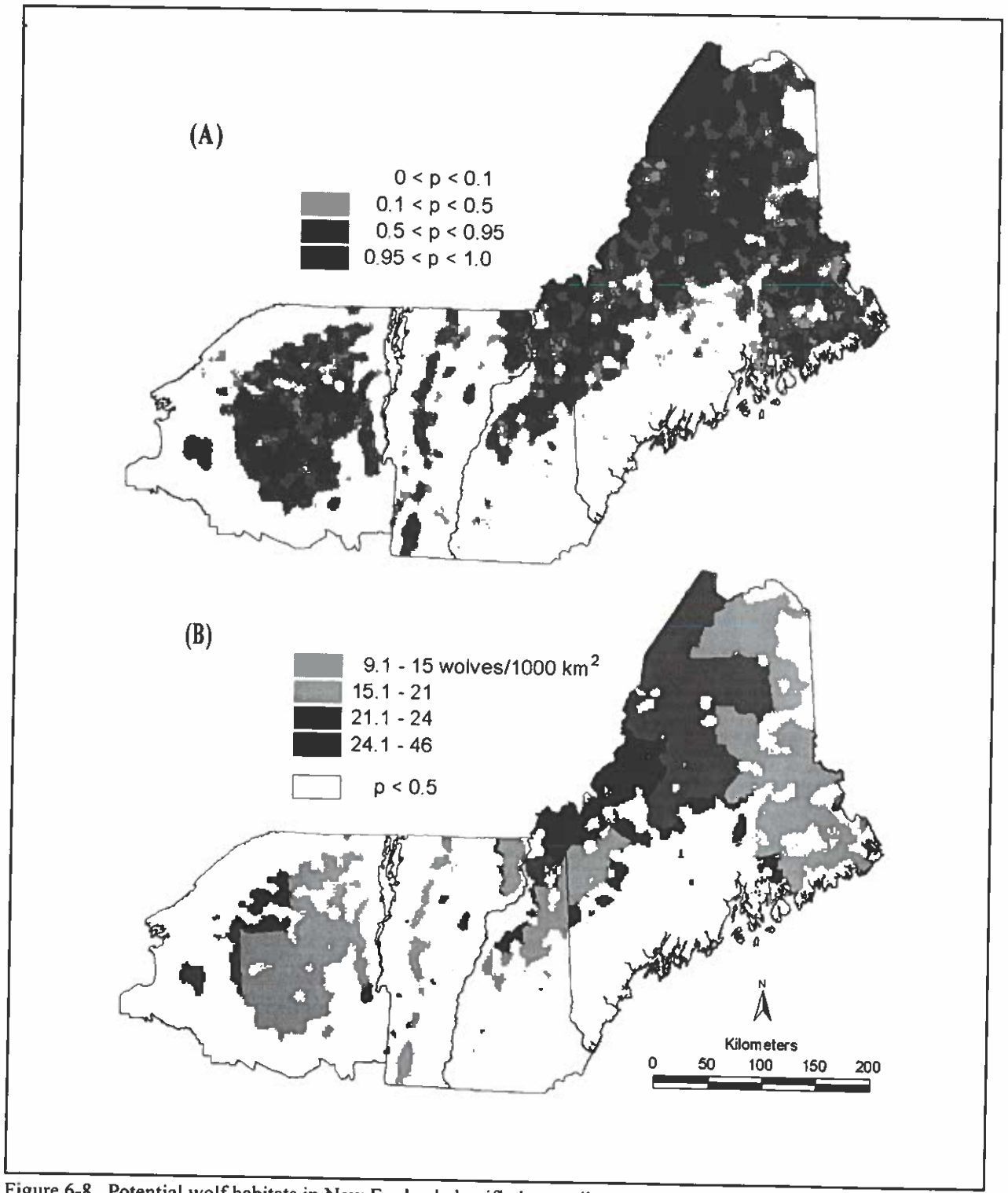


Figure 6-8. Potential wolf habitats in New England classified according to relative RSF scores, where classes with $p > 0.5$ were classified as favorable habitat (a). Potential wolf densities (b) were based on a combination of favorable habitat from map (a) and prey abundance. Modified, with permission, from Ref. 14.

BOX 4. Estimating resource selection probability functions (RSPFs)

There are several study designs that can yield an RSPF directly. Perhaps the easiest approach for estimating an RSPF, $w^*(x)$, is to use logistic regression on samples of used and unused units, where the selection function is modeled by a logistic function of k independent variables, x_i, hypothesized to influence resource selection and β_i are coefficients to be determined when fitting the model to data:

$$w^*(x) = \exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k)/ [1 + \exp(\beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k)]^{2,24}.$$

Many statistical packages are available for logistic regression. Input data are the dependent variable (either 0 for unused units or 1 for used units) and the corresponding values of the independent variables, x_i, measured on each unit. This approach yields outcomes directly interpretable as probabilities or alternatively as a ratio of odds.

Thus, for a finite number of possible habitat units, we first measure resources for a sample of used and available sites. Then we use logistic regression to estimate an RSF to characterize habitat use patterns. The RSF equation is then modified to create an RSPF by altering the constant, β_0, to adjust for differential sampling of random habitat units and used sites[2]. The RSPF model then can be applied to a GIS map, predicting population size by summing the RSPF probabilities over an area of interest.

With this method, RSPFs are computed from samples of resource units that are finite in number. If the sampling unit is a point, say a radiotelemetry location, scaling logistic regression for RSPF is not possible because there are an infinite number of possible sampling units. Estimating population size using RSPFs is most easily adapted to territorial species where individuals (or families) occupy exclusive areas (Box 5). When territories overlap, however, an RSPF still could be used to estimate population size by adjusting for the extent of territory overlap.

Assumptions of RSF-based population estimation

We assume that the modeler knows the limiting factors that influence the distribution and abundance of the study organism and that data are available on key resource variables. When resource units are sampled, we also assume that these are sampled randomly and independently. We fuirther assume that organisms have free and ready access to available resource units. Although we assume that RSFs and resources do not change during the study, this assumption can be relaxed if sufficient data are available to estimate RSFs repeatedly. In some applications, habitats are dynamic and change rapidly, but RSFs can be estimated to document how resource selection changes through time. For example, Arthur et al.[11] studied variation in pack ice as habitat for polar bears (*Ursus maritimus*) and measured habitat selection every three to six days. Similarly, seasonal changes in habitat use may require one to estimate RSFs by season[27].

In addition to the issue of temporal constancy in resource selection, we also must struggle with variation in the availability of resources and the effect of spatial variation on selection of a given unit. If not reconciled, an RSF or RSPF estimated in one area cannot be applied in another area except under some unusual circumstance where the availabilities, including effects of spatial variation, are the same. Indeed, simply varying the size of the study area or excluding certain areas from the domain of the study can result in different models[23]. This is not a fatal flaw, however, because sometimes we obtain robust models that are

BOX 5. Northern spotted owls in the Pacific Northwest

Declines in habitat for the northern spotted owl (*Strix occidentalis caurina*) in the Pacific Northwest have been a major conservation concern during the past decade. We used RSF to evaluate the role of habitat variables in the distribution of spotted owl nest sites, including several measures of landscape pattern such as patchiness, isolation, contagion and fractal dimension[26]. Our sample unit was a 2-km^2 circle surrounding an owl site, approximately the area of an exclusively defended territory for a pair of owls. An intensive field survey effort by U.S. Bureau of Land Management (BLM) and Forest Service personnel censused a total of 1 780 owl pairs within the bounds of our study area in western Oregon (USA). We measured details of habitat within 2-km^2 circles at 50 owl sites and 50 random forest-landscape locations.

We used logistic regression to estimate an RSF from a set of habitat variables that we hypothesized to be important to the owls viz:

$$w^* = \exp[\beta_0 + \beta_1(OldGrowth) + \beta_2(ElevRange) + \beta_3(Diversity)]$$

where *OldGrowth* is the area within the 2-km^2 circle in old-growth forest, *ElevRange* is the range in elevation at the site, and *Diversity* is the Shannon Index of the diversity of forest types within the 2-km^2 circle.

Key to linking this relative RSF to population is the calculation of β_0. Following Manly *et al.*[2] we estimated the β_0 from the logistic regression analysis by subtracting the ratio of sampling fractions, P_u:P_a. Here P_u is the proportion of used units sampled and P_a is the proportion of available units sampled. Assuming that the BLM/Forest Service census of 1,780 spotted owl pairs up to 1993 was valid, $P_u = 50 \div 1{,}780 = 0.028$ because we measured habitats for 50 out of 1,780 possible pairs of owls. Likewise, we measured habitats at 50 nonoverlapping random landscape locations out of 18,079 possible 2-km^2 plots that would cover the entire study area yielding $P_a = 50 \div 18{,}079 = 0.0028$. Thus, a total of 1 780 owls occupied a total available 18,079 sites or 9.8% of the sites were used[12].

We then estimated w^*s for each of 50 landscape locations obtaining a mean w^* of 0.098 (±0.031 95% C.I.), which is virtually identical with the proportion of available 2-km^2 plots used by spotted owls. The locations of these owls were accumulated over more than 10 years of sampling, and a substantial number of the sites had been monitored for several years. Our estimate of w^* is to characterize the location of owl sites, but these owl sites vary in how frequently they were occupied. We estimated the proportion of years that each site was occupied, and again modeled this as a function of habitat variables but using linear regression. Then this proportion was multiplied by w^*, which yielded the probability that a 2-km^2 area is an occupied owl site. By summing these over the study area, we estimated the total population size, thereby allowing our calculations to

relatively insensitive to variation in availabilities, and in other cases we can model the relation between selection coefficients and availabilities explicitly, thereby taking availabilities into account.

When certain habitat attributes are key to the ecology of a species, the coefficients can be robust over a range of habitat types. This was the case for spotted owl models because old growth was such an overwhelmingly important variable in our estimation of RSFs—the amount of old growth forest was a good predictor even in quite different landscapes[26]. Specifically, the RSF estimated for habitats in southwestern Oregon accurately predicted spotted owl locations on the Olympic Peninsula and on the east slope of the Cascades of Washington—both of these areas host very different vegetation. However, because the amount of old growth forest was such an overwhelmingly important ecological variable, it was a strong predictor in each area and the models could be used interchangeably among areas with little loss of accuracy in predicting

owl nest sites (Box 5).

In some circumstances, resource availabilities in a landscape vary considerably, as do the diets of animals in different habitats. Consider, for example, grizzly bears in the Yellowstone (USA) ecosystem. Some bears have seasonal access to cutthroat trout (*Oncorhynchus clarki*), whereas other bears may have no trout streams within their home ranges[28]. Likewise, some bears feed extensively on army cutworm moths (*Euxoa auxiliaris*) in alpine talus, but, again, some bears have no access to this food resource[29]. Availability of certain resources influences diet and habitat-use patterns. One solution to this problem is to sample home ranges over a range of habitats, and then to model the coefficients in the RSF as a function of the availability of resources in each home range. Modelling the coefficients might be accomplished using linear regression analysis, for example. Then when a new area is modeled, the β_i coefficients will be estimated based on the availabilities in this new area.

One of the potential applications of RSF models in GIS context is to project future habitats using succession models, and then to anticipate future population sizes[12]. Understanding how RSF coefficients might change as resource availabilities change on the landscape is fundamental to the reliability of such population projections.

Autocorrelation of resource variables is an important consideration, especially for evaluating the statistical significance of alternative models. Autocorrelated data tend to yield estimates of variance that are too small and consequently we are likely to overestimate the differences of use among habitats[2]. Radiotelemetry data, for example, might be abundant but not independent. By inspecting an autocorrelation function, one can identify the time interval over which observations become independent and use this interval for sampling observations.

Likewise, the distribution of organisms is seldom random in space, and we often find them to be clustered in good habitat or possibly aggregated as an antipredator strategy. But the spatial autocorrelation structure of the distribution of the organism might be simply a function of the spatial pattern of its habitats, so RSF modelling might remove any such pattern. One approach is to examine the residuals from an RSF to see if spatial aggregations occur independently of habitat; for example by using the Durbin-Watson statistic. If spatial autocorrelation occurs in the residuals, as a next step one might develop autologistic models where the animals' use of resource units surrounding a used resource unit is a covariate in a logistic regression model[9]. Alternatively, one might use an interpolation method like kriging [30]or some other smoothing algorithm to create 'nicer' maps of distribution. For purposes of projecting population size, however, the β-coefficients in a logistic regression model are not biased by spatial autocorrelation, so estimates of population size should not be affected. The primary advantage of modelling the spatial autocovariance is to create more realistic maps of distribution.

Implicit in attempts to model populations based on habitats is an assumption of equilibrium population dynamics. If populations are changing rapidly, we cannot expect RSF models to hold constant. Two possible approaches to this problem come to mind. First, one might model RSFs at varying population densities to see how the coefficients vary in a density-dependent fashion[31]. Another approach would be to model mean population densities assuming that population fluctuations are attributable to stochastic fluctuations around some long-term average[12]. Otherwise, applications will be limited to species with equilibrium dynamics occurring at or near carrying capacity.

The value of habitats is not necessarily based upon their use[6]. For example, habitats used for sleeping might not be in short supply nor all that crucial for survival. Access to water, however, might be crucial but only a few minutes each day might be spent drinking. Other approaches can be taken to evaluate the importance of habitats. For example, one might multiply the RSF values by the caloric food value of each habitat to get an index of the value of a habitat (D.J. Mattson, unpublished). Another approach is to model

the reproduction or survival of individuals as a function of habitat variables thereby dissecting components of fitness. An understanding of the ecology of the species must be used in the interpretation of RSF models.

Research opportunities

Summarizing his review of definitions of ecology, Krebs[32] suggested that 'We are interested in *where* organisms are found, *how many* occur there, and *why'*. RSFs can do an excellent job of describing where, and under certain assumptions, how many. But RSFs are simply statistical descriptions of the distribution and use of landscapes, and as such, do not necessarily help us to understand why organisms are where they are. In contrast to individual- based models[33] that typically include many details, RSFs take a broad-scale or top-down perspective characterizing general patterns on the landscape. RSFs generally will be preferable to individual-based models when data are scarce and the spatial scale is large. When applicable, RSFs offer a framework from which one can explore the ecological processes that shape distribution and abundance.

Habitat ecology is a discipline depauperate of theory, even though habitats are fundamental to population biology, community ecology, behavioural ecology, landscape ecology, conservation biology and wildlife management. Indeed, given the definition of ecology at the beginning of this article, one might argue that habitat ecology rests at the very core of ecology.

There are several reasons for the lack of a theory of habitat ecology. By its very nature, habitat ecology is a multifaceted process requiring simultaneous consideration of a number of variables. However, RSF based on multivariable models such as multiple logistic regression easily accommodates this problem. Interactions with other species, influences of a variety of physical and biotic factors, and the structure of the population can all be built into the model explicitly. Furthermore, habitat ecology is fundamentally in a spatial context which has always been difficult to model. Issues of scale are readily explored using RSFs constructed at alternative scales[27], or even multiple scales[26]. Recent advances in GIS technology make spatial modelling much easier, especially when facilitated by RSFs.

RSFs can provide a framework for the development of a theory of habitat ecology. The simple methods that we have outlined in this paper forge a link between landscape ecology and population biology. More generally, however, ecological and behavioural processes shape the RSF coefficients. Foraging theory is behind the prediction of resource selection, providing the mechanisms that shape patterns of resource use. Likewise, physiological ecology is fundamental to predicting resource needs of organisms. If we can build models to predict the β_is, we can generalize models that incorporate the processes.

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References

1 Andrewartha, H.G. (1961). *Introduction to the Study of Animal Populations,* University of Chicago Press.

2 Manly, B.F.J., McDonald, L.L. and Thomas, D.L. (1993). *Resource Selection by Animals: Statistical Design and Analysis for Field Studies,* Chapman & Hall.

3 Manly, B.F.J. (1985). *The Statistics of Natural Selection,* Chapman & Hall.

4 Southwood, T.R.E. (1977). Habitat, the templet for ecological strategies? *J. Anim. Ecol.* 46, 337-365.

5 Fretwell, S.D. and Lucas, H.L. (1970). On territorial behaviour and other factors influencing habitat distribution in birds. *Acta Biotheor.* 19, 16-36.

6 Van Horne, B. (1983). Density as a misleading indicator of habitat quality. *J. Wildl. Manage.* 47, 893-901.

7 Alldredge, J.R., Thomas, D.L. and McDonald, L.L. (1998). Survey and comparison of methods for study of resource

selection. *J. Agric., Biol., and Environ. Stat.* 3, 237-253.
8 Erickson, W.P., T.L. McDonald, and R. Skinner. (1998). Habitat selection using GIS data: a case study, *J. Agric., Biol., and Environ. Stat.* 3, 296-310.
9 Augustin, N.H., Mugglestone, M.A. and Buckland, S.T. (1996). An autologistic model for the spatial distribution of wildlife. *J. Appl. Ecol.* 33, 339-347.
10 Otis, D.L. (1998). Analysis of the influence of spatial pattern in habitat selection studies. *J. Agric. Biol. Environ. Stat.* 3, 254-267.
11 Arthur, S.M., *et al.* (1996). Assessing habitat selection when availability changes. *Ecology* 77, 215-227.
12 Boyce, M.S., Meyer, J.S. and Irwin, L.L. (1994). Habitat-based PVA for the northern spotted owl, in *Statistics in Ecology and Environmental Monitoring* (Fletcher, D.J. and Manly, B.F.J., eds.), Otago Conference Series No. 2, pp. 63-85, University of Otago Press.
13 Mladenoff, D.J., *et al.* (1997). Causes and implications of species restoration in altered ecosystems. *BioScience* 47, 21-31.
14 Mladenoff, D.J. and Sickley, T.A. (1998). Assessing potential gray wolf restoration in the northeastern United States: A spatial prediction of favorable habitat and potential population levels, *J. Wildl. Manage.* 62, 1-10.
15 Akçakaya, H.R. and Atwood, J.L. (1997). A habitat-based metapopulation model of the California gnatcatcher, *Conserv. Biol.* 11, 422-434.
16 Savage, R. E. (1931). The relation between the feeding of the herring off the east coast of England and the plankton of the surrounding waters. *Fishery Investigation, Ministry of Agriculture, Food and Fisheries*, Ser. 2, 12, 1-88.
17 Seber, G.A.F. (1982). *The Estimation of Animal Abundance and Related Parameters,* Charles Griffin & Company.
18 Wydeven, A.P., Schultz, R.N. and Thiel, R.P. (1995). Monitoring of a recovering gray wolf population in Wisconsin, 1979-1991, in *Ecology and conservation of wolves in a changing world* (Carbyn, L.N., Fritts, S.H. and Seip, D.R. eds), pp. 147-156, Canadian Circumpolar Institute, (Occas. Publ. No. 35).
19 Fuller, T.K., *et al.* (1992). A history and current estimate of wolf distribution and numbers in Minnesota. *Wildl. Soc. Bull.* 20, 42-55.
20 Fuller, T.K. (1989). Population dynamics of wolves in north-central Minnesota. *Wildl. Monogr.* 105, 1-41.
21 Mladenoff, D.J., et al. (1995). A regional landscape analysis and prediction of favorable gray wolf habitat in the Northern Great Lakes Region. *Conserv. Biol.* 9, 279-294.
22 Mladenoff, D.J., Sickley, T.A. and Wydeven, A.P. Predicting landscape recolonization by gray wolves: comparing logistic regression model results with new field data. *Ecol. Appl.* (in press).
23 Aebischer, N.J., Robertson, P.A. and Kenward, R.E. (1993). Compositional analysis of habitat use from animal radio-tracking data. *Ecology* 74, 1313-1325.
24 Buckland, S.T. and Elston, D.A. (1993). Empirical models for the spatial distribution of wildlife. *J. Appl. Ecol.* 30, 478-495.
25 Osborne, P.E. and Tigar, B.J. (1992). Interpreting bird atlas data using logistic models: an example from Lesotho, southern Africa. *J. Appl. Ecol.* 29, 55-62.
26 Meyer, J.S., Irwin, L.L. and Boyce, M.S. (1998). Influence of habitat abundance and fragmentation on spotted owls in western Oregon. *Wildl. Monogr.* 139, 1-51.
27 Mace, R.D., *et al.* (1996). Relationships among grizzly bears, roads and habitat in the Swan Mountains, Montana. *J. Appl. Ecol.* 33, 1395-1404.
28 Mattson, D.J. and Reinhart, D.P. (1995). Influences of cutthroat trout *(Oncorhynchus clarki)* on behaviour and reproduction of Yellowstone grizzly bears (*Ursus arctos*), 1975-1989. *Can. J. Zool.* 73, 2072-2079.
29 Mattson, D.J., *et al.* (1991). Bear feeding activity at alpine insect aggregation sites in the Yellowstone ecosystem. *Can. J. Zool.* 69, 2430-2435.
30 Isaaks, E.H. and Srivastava, R.M. (1989). *An Introduction to Applied Geostatistics,* Oxford University Press.
31 Hobbs, N.T. and Hanley, T.A. (1990). Habitat evaluation: do use/availability data reflect carrying capacity? *J. Wildl. Manage.* 54, 515-522.
32 Krebs, C.J. (1978). *Ecology: the Experimental Analysis of Distribution and Abundance* (2nd edn), Harper & Row.
33 DeAngelis, D.L. and Gross, L.J., eds. (1992). *Individual-Based Models and Approaches in Ecology*, Chapman & Hall.

APPENDIX 21B. THE APPLICATION OF RESOURCE SELECTION FUNCTIONS ANALYSIS TO ESTIMATE THE NUMBER OF GRIZZLY BEARS THAT COULD BE SUPPORTED BY HABITATS IN THE BITTERROOT ECOSYSTEM

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A resource selection function (RSF) is any function that is proportional to the probability of use of a resource unit (Manly et al. 1993). If resource units are selected carefully, they can characterize habitat for a species. Given a reference area of known density of animals, one can estimate potential population size based on habitat RSFs derived for the study area and the reference baseline area (Boyce and McDonald 1999). We use this approach to estimate the potential number of grizzly bears (*Ursus arctos horribilis*) in the proposed recovery area in the Selway-Bitterroot wilderness of Idaho and Montana (USFWS 1997).

METHODS

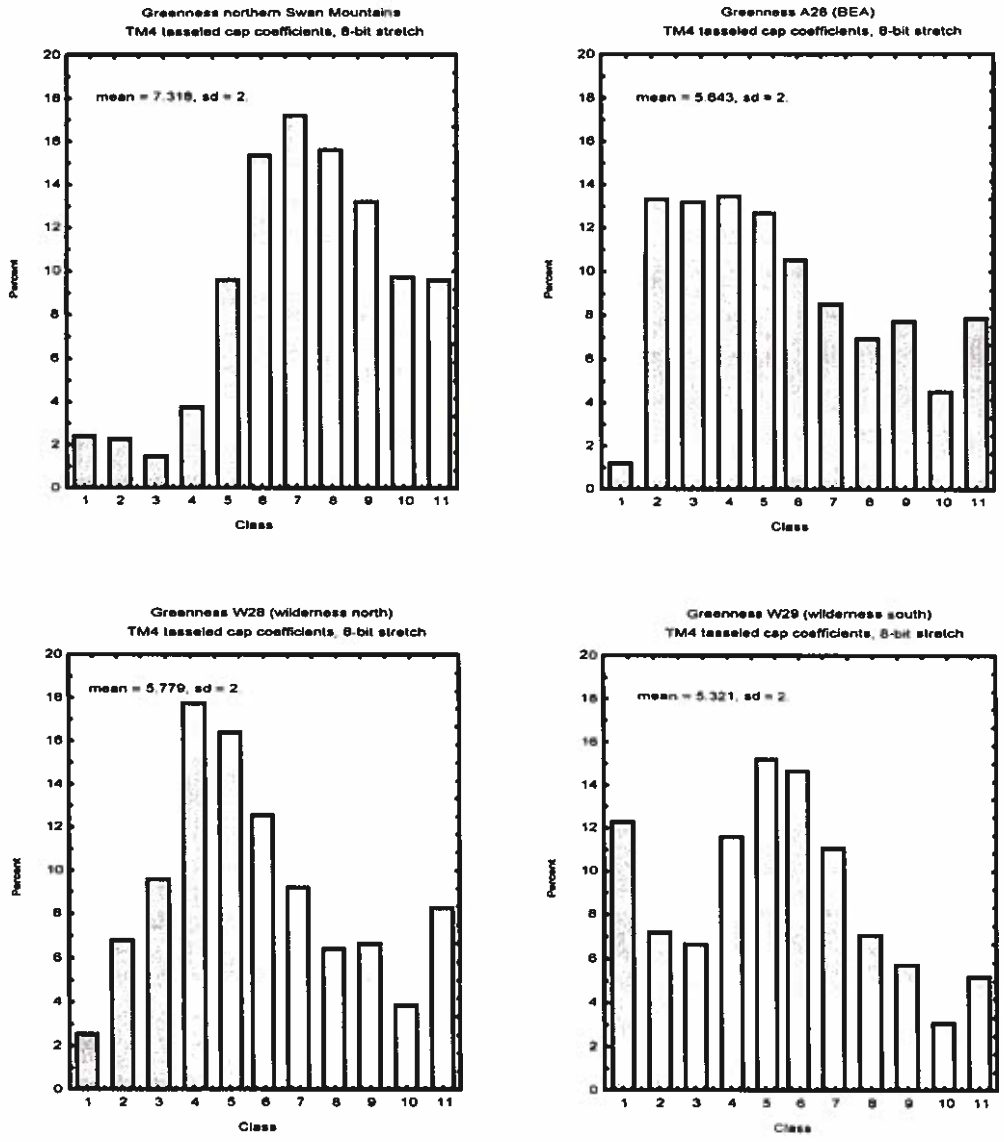
A north to south gradient in precipitation occurs in the Bitterroot recovery area such that the northern half of the area is much wetter with denser vegetation than the southern half. Because of this gradient, we developed estimates of the number of bears using two baseline populations: (1) the northern Swan Mountains study area which is wetter than (2) the Yellowstone ecosystem. We developed population estimates for the southern half of the Bitterroots using an RSF from the Yellowstone ecosystem, and both the north and south halves of the Bitterroots using the northern Swan Mountains model. The histograms presented in Figures 6-9 through 6-14 compare the areal percentage of each model parameter in the reference and extrapolation areas. By calculating estimates for the southern half using both sets of models we can compare results using the two reference areas although we believe that the Yellowstone ecosystem is a better ecological baseline for comparison with the southern half of the Bitterrroots.

Bitterroot Habitat Model

To build an equation that predicts relative probability of use of habitats in the Selway – Bitterroot, we used an existing grizzly bear radio-telemetry database. This telemetry data was collected during 1988-1994 by the Montana Department of Fish, Wildlife and Parks in the northern Swan Mountains during the South Fork Grizzly Project. We believed that the northern Swan Mountains were sufficiently similar to the northern Selway – Bitterroot to allow extrapolation of general grizzly bear habitat relationships. The northern half of the Selway - Bitterroot was divided into two regions: the core wilderness area, and the non-wilderness portion of the Bitterroot Evaluation Area (BEA) to the north (Davis and Butterfield 1991). The model was also extrapolated to the southern Selway – Bitterroot as a comparison to values derived from the Yellowstone Ecosystem model. We compared the availability of various digital data layers between the northern Swan Mountains and the Selway – Bitterroot wilderness. We selected 7 layers that were good predictors of grizzly bear habitat use and that could be replicated between each study area. The layers were:

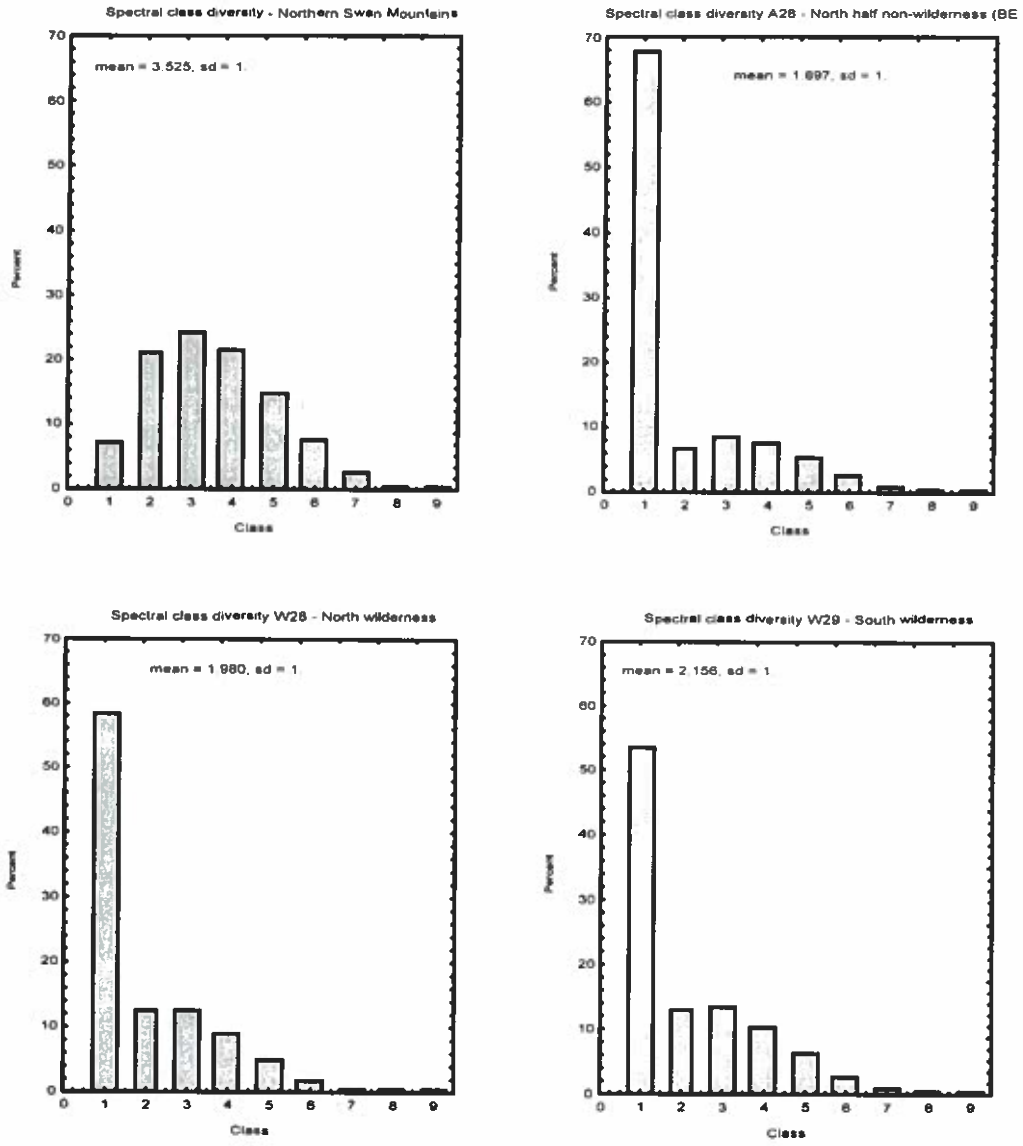
Greenness – a measure of vegetation reflectance derived from Thematic-Mapper satellite imagery, analogous to leaf area index. The imagery used in the South Fork Flathead is described in Mace et al. 1997. To produce the Selway – Bitterroot greenness layer, we did a tasseled cap transformation on TM scene p41r28 (20 July, 1991) and p41r29 (31 July, 1995) as described in Manley et al. (1992) and Mace et al. (1997).

Figure 2. Greenness in the northern Swan Mountains reference area and each of the 3 extrapolation regions. The ordinate axis refers to the percent of area within each greenness class.



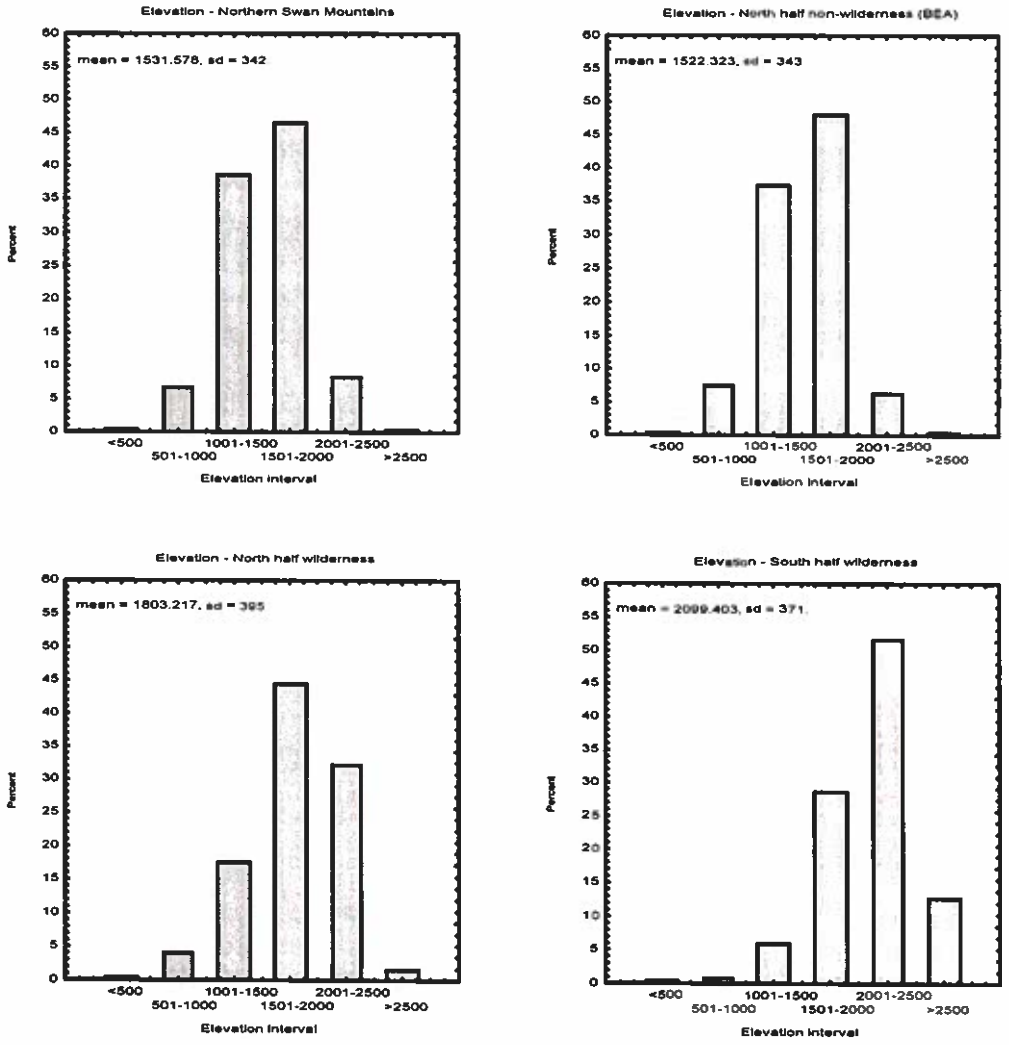
Spectral class diversity – a measure of vegetation diversity also derived from TM satellite imagery (described in Manley et al. 1992). The same scenes were used as were used for greenness.

Figure 3. Spectral class diversity in the northern Swan Mountains reference area and each of the 3 extrapolation regions. The ordinate axis refers to the percent of area within each diversity class.



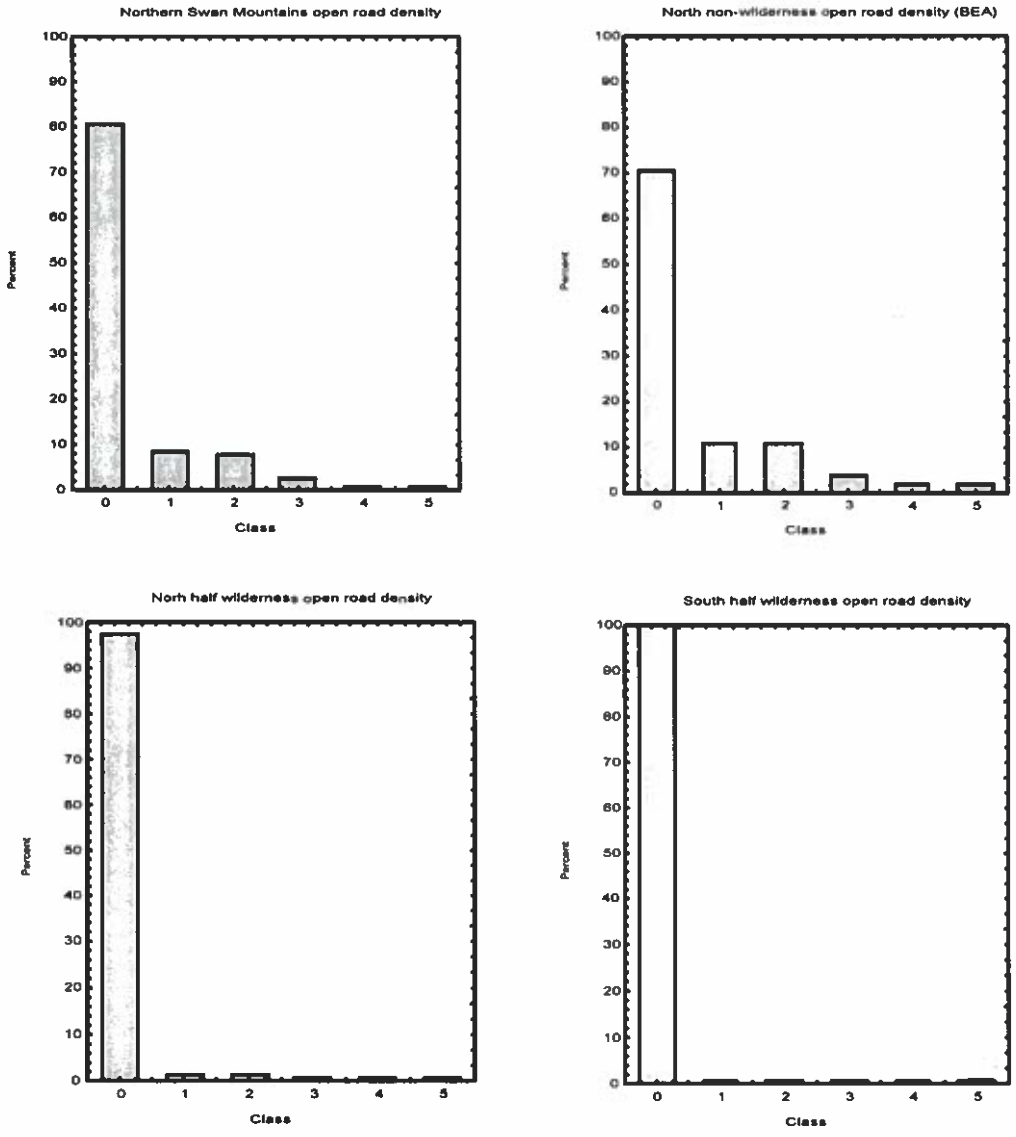
Elevation - measured in meters (from DEM data). Mean elevation in the north half Selway - Bitterroot is higher than in the South Fork Flathead. To adjust for this elevation difference, we subtracted the difference in means (271 m) from the Selway – Bitterroot DEM values.

Figure 4. Distribution of elevation classes in the northern Swan Mountains reference area and the 3 extrapolation regions.



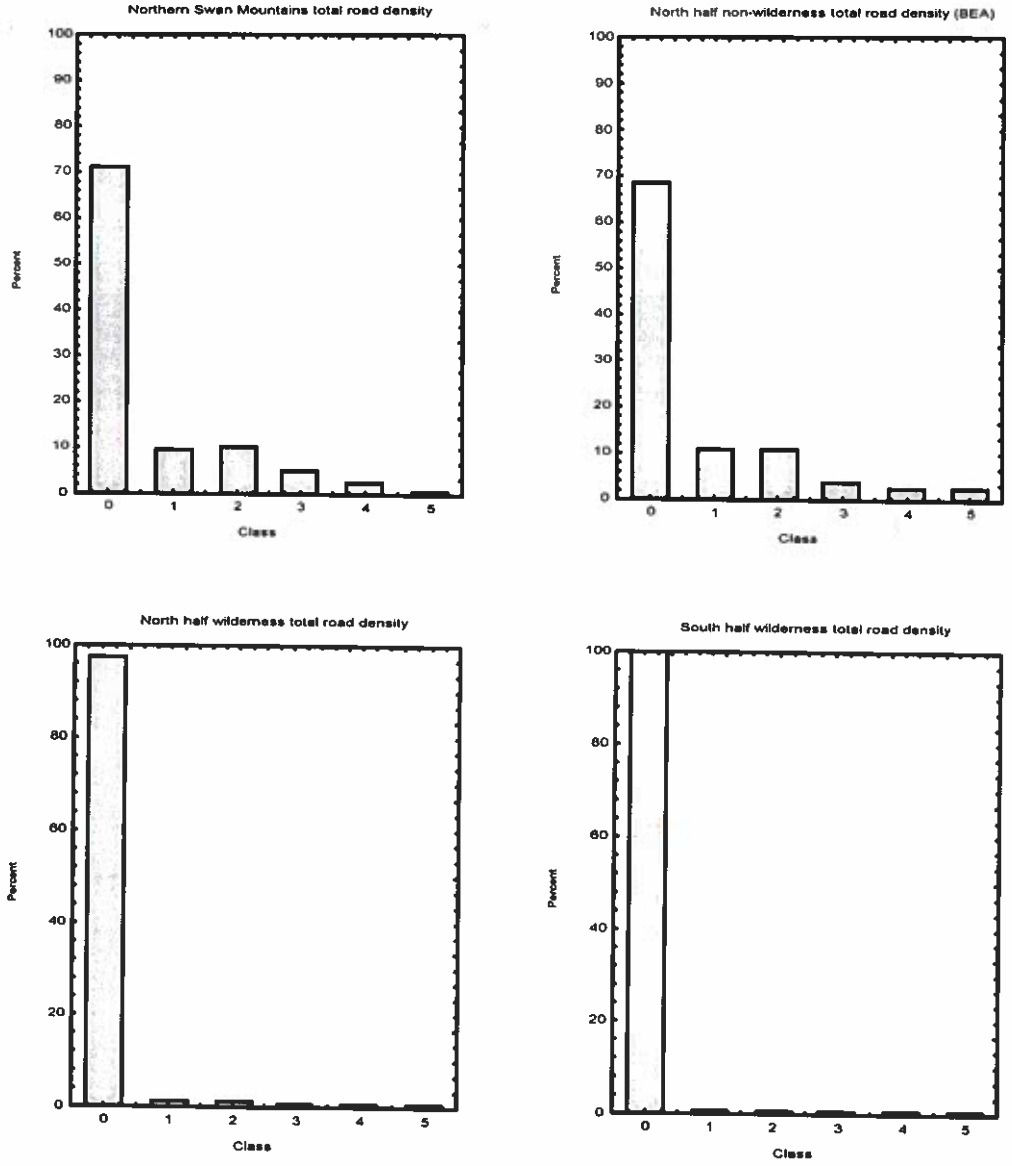
Open road density - measured using the moving windows technique in 5 classes of increasing density in km/km^2 (as described in Mace et al. 1996). Roads open during any portion of any season were considered open for the year. Digital road maps were obtained from the USDA Forest Service and classified as open or closed according to the Travel Management Record System.

Figure 5. Distribution of open road density classes within the northern Swan Mountains reference area and within each of the 3 extrapolation regions.



Total road density – also measured using the moving windows technique in 5 classes of increasing density in km/km^2 (as described in Mace et al. 1996). All open and closed roads were included in this category.

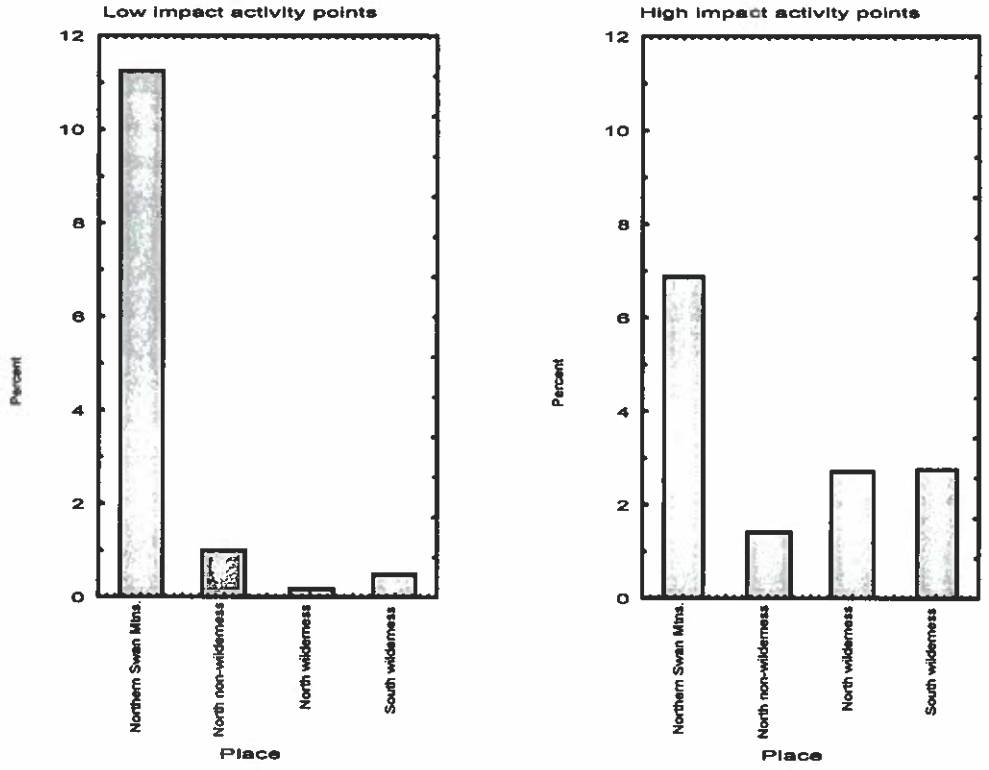
Figure 6. Distribution of total road density classes in the northern Swan Mountains reference area and within each of the 3 extrapolation regions.



Low impact activity points – points where activities thought to have minimal impacts on grizzly bears occurred (incorporated as described in Mace et al. 1997). Digital maps of point source activities were obtained from the USDA Forest Service and classified according to Northern Continental Divide Ecosystem Cumulative Effects Model guidelines.

High impact activity points – points where activities thought to have large impacts on grizzly bears occurred (incorporated as described in Mace et al. 1997). Both low and high impact points were buffered 500 meters.

Figure 7. Distribution of low and high activity point buffers in the northern Swan Mountains reference area and within each of the 3 extrapolation regions.



We used the computer program CALHOME to calculate seasonal multi-annual 95% adaptive kernel home ranges for 11 female grizzly bears that inhabited the northern Swan Mountains during the period 1988-1994. The home range polygons were then converted to GIS map layers (Waller and Mace 1997). The sum of the pixel-by-pixel (30m) cell values of each of the 7 layers at random locations represented the *availability* of the 7 parameters to each of the 11 bears. Aerial telemetry locations for each of the 11 bears, collected between 1988-1994, were used to quantify seasonal *use* of each of the 7 parameters. Logistic regression was then used to calculate coefficients for each parameter for each bear based on *use* and *availability*. The coefficient for each parameter, averaged across all 11 bears was used in a Resource Selection Function (RSF) that describes the relative probability of use of each combination of the 7 parameters within each season (Mace et al. 1997, Manly et al. 1993). The RSF is then applied to the Selway – Bitterroot data and RSF values mapped for each 30m pixel. The season were spring; den emergence to 15 July, summer; 16 July to 15 September, and fall; 16 September to den entrance.

Yellowstone Habitat Model

A similar approach was taken to estimate RSFs for the Yellowstone ecosystem using radio telemetry locations. In this case, however, radio telemetry locations were compiled (1989-1997) over the entire Yellowstone grizzly bear recovery zone. Habitat variables for which data were available for both the Yellowstone ecosystem and the Bitterroots were:

Greenness – a measure of vegetation reflectance derived from Thematic-Mapper satellite imagery, analogous to leaf area index. To produce the Selway – Bitterroot greenness layer, we performed the tasseled cap transformation on TM scene p41r29 in the same manner as in the Yellowstone ecosystem.

Brightness – another measure of vegetation reflectance derived from Thematic-Mapper satellite imagery, brightness is often dominated by the amount of bare ground. Therefore we expect the coefficient to be negative because large brightness values do not indicate areas containing forage for bears.

Wetness – similar to greenness and brightness this measure is also calculated using the tasseled cap transformation of the TM imagery.

Distance to the nearest road (road) – measured in meters. All open and closed roads were included .

Elevation – measured in meters (from DEM data). Mean elevation in the south half of the Selway - Bitterroot is lower than in the Yellowstone ecosystem. To adjust for this elevation difference, we added the difference in means (710 m) to the Selway – Bitterroot DEM values.

RESULTS

Bitterroot Habitat Model

The seasonal RSF equations based on the Swan Mountains analysis were:

Spring: w = exp(0.25850 + (greenness * 0.14633) + (diversity * 0.03205) + (elevation * -0.00173) + (open road density * -0.10138) + (total road density * -0.38789) + (low impact points * -0.80915) + (high impact points * -3.39215))

Summer: w = exp(-4.09939 + (greenness * 0.18133) + (diversity * 0.04041) + (elevation * 0.00053) + (open road density * -0.34569) + (total road density * -0.23886) + (low impact points * -0.08599) + (high impact points * -9.84811))

Fall: w = exp(-4.3707 + (greenness * 0.15430) + (diversity * 0.04500) + (elevation * -0.00070) + (open road density * 0.19130) + (total road density * -0.27560) + (low impact points * -0.57570) + (high impact points * -10.4967))

Yellowstone Habitat Model

For the Yellowstone ecosystem we constructed models based on 2 seasons: a spring season prior to 15 July and an autumn season beginning on 15 July. The seasonal RSF equations based on the Yellowstone analysis were:

Spring: w = exp{0.12 * [1 – exp(-0.00033 * road)] + 0.0017 * greenness - 0.0011 * brightness – 0.0022 * wetness - 0.0006 * elevation + 0.3886}

Autumn: w = exp{0.14 * [1 – exp(-0.00019 * road)] + 0.002 * greenness - 0.0068 * brightness – 0.0024 * wetness + 0.0017 * elevation – 4.7905}

In both seasons we found models that were statistically significant based on –2log likelihood criteria ($P < 0.001$).

Population Estimates

Methods outlined in Boyce and McDonald (1999) were used to estimate the population size for the Selway-Bitterroot. We present estimates of the number of grizzly bears for the southern half of the Bitterroots based on both the Swan Mountains and Yellowstone models (Table 6-20).

Table 6-20. Estimates of projected grizzly bear population size based on resource selection function (RSF) models from the Yellowstone ecosystem and the South Fork of the Flathead.

AREA	SPRING	SUMMER	AUTUMN	MINIMUM ESTIMATE
South Wilderness:				
Yellowstone Models	132	---	184	132 (spring)
Northern Swan Mtn. Models	183	126	119	119 (autumn)
North Wilderness:				
Northern Swan Mtn. Models	177	121	115	115 (autumn)
North Non-Wilderness (BEA)				
Northern Swan Mtn. Models	175	74	75	74 (summer)
Estimated total population size using Yellowstone Model:				321
Estimated total population size using Northern Swan Mountains Model:				308

DISCUSSION

We fit the RSF models using logistic regression, which worked fine for the South Fork models. But for the effect of the distance to the nearest road in the Yellowstone model we discovered that the relation was quadratic, i.e., the likelihood of a bear location increased to a maximum and then declined at larger distances. We believe that this observation is a result of bias in the sample of radio-collared bears because bears that inhabited remote country were under-represented. Therefore, rather than retain the quadratic function, we replaced it with an asymptotic function that levels off near the local maximum in the quadratic model. We believe that this is an appropriate adjustment to the model.

Estimates of the number of bears in the Selway-Bitterroot recovery area was highest in spring for both the Yellowstone-based models and the Swan Mountains-based models. This appears to be a

consequence of the fact that in the spring models, elevation had a negative coefficient indicating that bears are expected to be more abundant at lower elevations in spring. Because the Bitterroot has proportionately more low elevation habitats than either the Yellowstone or Swan Mountains baseline areas, the spring models indicate more bears even though we adjusted for differences in mean elevation between the Bitterroots and the baseline areas. The Swan Mountains reference area also differed from the extrapolation areas in that greenness and diversity were higher (Figures 6-9 and 6-10), however since coefficients were positive for these parameters, they should reduce the population estimates. Open and total road densities were very similar between the Swan Mountains and the non-wilderness BEA (Figures 6-12 and 6-13). As expected, road densities in the wilderness were lower. The overall effect would be to increase the population estimate as a greater proportion of the extrapolation area in wilderness. The number of low and high-impact activities in the Swan Mountains was substantially more than in the Selway-Bitterroot (Figure 6-14). Again, we would expect this to have a positive impact on the population estimates. Because the population estimates varied, we used the minimum of the annual population estimates for each of the 3 regions in the Bitterroot recovery area reasoning that one season is likely to be limiting to the number of bears.

The estimate of 308-321 bears for the Bitterroot is 10-15% higher than the estimate in the Draft Environmental Impact Statement (USFWS 1997). We expected the number of bears to be lower in the southern ½ of the Bitterroots because generally the habitats are dry and less productive than northern portions of the recovery area. Yet, portions of the Yellowstone ecosystem are also relatively dry and support bears. Even though the forb and berry production in these dry habitats is relatively low, the southern ½ of the Bitterroots contains substantial stands of whitebark pine as well as populations of elk and deer that can provide food for grizzly bears. Certainly the remoteness of the area and the paucity of roads will help to ensure that a viable population of grizzly bears can persist in the Selway-Bitterroot wilderness of Idaho and Montana.

LITERATURE CITED

Boyce, M. S., and L. L. McDonald. 1999. Relating populations to habitats using resource selection functions. Trends in Ecol. Evol. (manuscript).

Davis, D. and B. Butterfield. 1991. The Bitterroot evaluation area: A report to the Bitterroot Technical Review Team. Unpublished report. 56 pp.

Mace, R. D., J. S. Waller, T. L. Manley, L. J. Lyon, and H. Zuuring. 1996. Relationships among grizzly bears, roads and habitat in the Swan Mountains, Montana. J. Appl. Ecol. 33:1395-1404.

Mace, R. D., J. S. Waller, T. L. Manley, K. Ake, and W. T. Wittinger. 1997. Landscape Evaluation of grizzly bear habitat effectiveness in western Montana. *In:* Final Report: Grizzly bear ecology in the Swan Mountains. Montana Fish, Wildlife and Parks, 1920 6th Ave. East., P.O. Box 200701, Helena, MT 59620. 191 pp.

Manly, B. F. J., L. L. McDonald, and D. L. Thomas. 1993. Resource selection by animals. Chapman and Hall, London. 177pp.

Manley, T. L., K. Ake, and R. D. Mace. 1992. Mapping grizzly bear habitat using Landsat TM satellite imagery. Pp. 231-240 *in* J. D. Greer, ed. Remote sensing and natural resource management. Am. Soc. Photogramm. Remote Sensing, Bethesda, MD.

U.S. Fish and Wildlife Service. 1997. Grizzly bear recovery in the Bitterroot ecosystem. Draft Environmental Impact Statement. U.S. Department of Interior, Fish and Wildlife Service, Missoula, Mont.

Waller, J. S., and R. D. Mace. 1997. Grizzly bear habitat selection in the Swan Mountains, Montana. J. Wildl. Manage. 61:1032-1039.

APPENDIX 21C. METAPOPULATION ANALYSIS FOR THE BITTERROOT POPULATION

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One of the early tenets of conservation biology is that population viability is enhanced by maintaining multiple populations of a species (Soulé 1987). Management strategies that reduce variance in population size will also reduce risk of extinction. Asynchrony in population fluctuations in independent populations reduces variance in the aggregate of populations whereas environmental correlation among areas increases the risk that all populations will go extinct (Foley 1994). I use a stochastic model predicting extinction risk to evaluate the decline in the risk of extinction to be had by restoring grizzly bears in the Bitterroot wilderness of Idaho and Montana. Here I quantify the reduced probability of extinction for grizzly bears in the Rocky Mountains of the United States by adding the proposed Bitterroot population.

Only four populations of grizzly bears persist in the conterminous United States: about 420 bears in the Yellowstone ecosystem (Boyce et al. 1999a), 400 in the Northern Continental Divide Ecosystem (NCDE), 40 in the Selkirk Mountains, and 35 in the Cabinet/Yaak Mountains. Although a few grizzly bears are known also to occur in the Cascades of Washington, these animals appear to have dispersed south from Canada and as yet there is no evidence that this is a reproducing population. A proposal to restore a grizzly bear population to the Selway-Bitterroot wilderness of Idaho and Montana could potentially add another population of 308-321 grizzly bears (Boyce et al. 1999c).

Underlying my calculations is a stochastic model from diffusion theory which I use to estimate the probability of extinction during the next 100 years, $P_{ext}(100)$, for each of 4 populations of grizzly bears, and a hypothetical population in the Bitterroots (Foley 1994, 1997):

$$P_{ext}(100) = 1 - \exp\{-100/2n_o[k - (n_o/2)]/V_r\} \quad (1)$$

I require 3 parameters to estimate extinction risk: $\log_e$ of initial population size, n_o; k, $\log_e$ carrying capacity; and V_r, the variance in the per capita population growth rate, r. With this model I make the conservative assumption that the long-term average growth rate will be approximately 0. Using a larger value of r would usually reduce extinction risk by strengthening density dependence.

The per capita growth rate, $r(t)$, was estimated from a series of grizzly bear population estimates, $N(t)$, for $t = 1, 2, \ldots$ by taking the sequential differences in $\log_e$ population sizes between years, i.e., $r(t) = \ln[N(t+1)] - \ln[N(t)]$. I then took the variance of these $r(t)$ values to estimate V_r. My best series of population estimates is from the Yellowstone population, so these were used as the basis for estimating V_r for each population in two ways. First, I used the variance in $r(t)$ from a series of 12 population estimates, 1986-1997, based on cumulative counts of the number of females with cubs of the year (Boyce et al. 1999a). Second, I reconstructed a series of population estimates for 1961-1985 by adding 11.5 to the counts of the number of females with cubs based on the difference between cumulative-count estimates (Boyce et al. 1999a) and actual counts of females with cubs of the year for 1986-1997. Then I used Lowess smooting (tension = 0.7) to remove trend in the time series (Chambers et al. 1983), and calculated V_r from the residuals of the smoothed series. The first method yields a relatively "high" estimate of V_r because it includes a population increase over the period 1983-1997 (Boyce et al. 1999a). The second method is a relatively conservative estimate because I have removed all trend in population size; I call this a "low" estimate of V_r (see Appendix for summary of definitions). Even though the second method yields relatively low estimates of V_r, both methods actually may overestimate the variance in per capita growth rates because the cumulative counts also reflect variation in reproductive output over time.

For the Yellowstone ecosystem, estimates of density-dependent survival suggest that the current population of 420 is nearing a carrying capacity of about 450 grizzly bears (Boyce et al. 1999b). Carrying

capacity for the Bitterroot population was estimated to be 308-321 using projected populations from an analysis of resource selection functions for the projected recovery zone (Boyce et al. 1999c). Carrying capacities for each of the other populations were approximated by 3 methods: (1) assuming that carrying capacity was equal to the official recovery goal in the Grizzly Bear Recovery Plan (USFWS 1993), (2) assuming that the current population size reflects the long-term carrying capacity for each area except the Bitterroots, or (3) assuming that the Cabinet-Yaak, Selkirk, and NCDE populations are merely the southern extension of a much larger contiguous Canadian bear population. This third approach has the consequence of greatly increasing the population size for the Cabinet-Yaak, Selkirk and NCDE populations, thereby greatly enhancing the joint long-term viability of the United States' populations. These 3 approaches correspond to the numbered section of Table 6-21.

Dispersal, to a point, lowers extinction probabilities. Under simplifying assumptions, Kuno (1981) found that random migration between 2 populations over a wide range of environmental fluctuations had the effect of lowering the variance in rate of population change, V_r, by 1/(number of populations). I assumed that dispersal was possible, but only between the 4 northern sites, NCDE, Selkirks, Cabinet/Yaak Mountains, and the Bitterroots. I presumed that the Yellowstone would remain independent due to the distance between it and the others. Thus for the northern 4 populations I multiplied the variance by 1/4 to account for the fact that we have 4 populations amongst which dispersal might occur--an optimistic assumption without management intervention (Servheen et al. 1995). For the second option where I assumed that populations would not increase to management objectives, I assume that dispersal will occur only among 3 populations: Selkirks, Cabinet/Yaaks, and the Bitterroots.

For the calculations presented in Table 6-21 I ignored the possible consequence of correlation among areas because I have empirical evidence for such a correlation. If such a correlation is identified, the extinction risk would increase. Indeed, if grizzly bear populations decline due to continued habitat loss, such a correlation will almost certainly occur. At the extreme, if the correlation were 1.0, the extinction risk would be equal to the extinction probability of the population with the lowest risk of extinction. If correlation is 0, the risk of extinction is the product of the independent probabilities of each subpopulation. For intermediate environmental correlation, if I assume that increasing correlation is linearly related to extinction risk, a model for estimating extinction probability with environmental correlation $P_{ext\text{-}cor}$ is:

$$P_{ext\text{-}cor} = P_{ext(all)} + (P_{ext\text{-}min} - P_{ext(all)})R^2 \qquad (2)$$

where $P_{ext(all)}$ is the joint extinction probability of all the populations if they were independent, $P_{ext\text{-}min}$ is the extinction probability of the most persistent population, and R^2 is the coefficient of determination between/among populations. Equation 2 yields a function where $P_{ext\text{-}cor}$ decreases as number of populations increases but quickly reaches an asymptote that is determined by the degree of correlation.

Generally, the probability of extinction for the entire assemblage of grizzly bear populations is very low, being ≤ 3/1,000. One must view these estimates cautiously because there is great uncertainty in the estimates (Ludwig 1999). Also, one must also question whether the probability of extinction is an appropriate measure to consider in a conservation context. In fact, resource managers already are committed to manage to achieve viable populations of grizzly bears larger than exist now (U.S. Fish and Wildlife Service 1993). Nevertheless, for comparative purposes I believe that the estimates are useful.

The results of my calculations predict that the addition of the Bitterroot population will reduce the probability of extinction by 88-99% depending on the variance in r. I was surprised that the relative change in extinction probability was about the same whether I assumed a baseline K equal to the projected recovery targets, or estimated number of bears in the entire ecosystem including bears from Canada. Adding additional populations causes a geometric decline in extinction probability, and greatly improves the

probability of existence and therefore the effectiveness of conservation for the grizzly bear.

Table 6-21. Extinction probability for Rocky Mountain grizzly bear populations in the United States as influenced by the addition of a population in the Bitterroot wilderness of Idaho and Montana. The model assumes dispersal among the Northern Continental Divide Ecosystem (NCDE), Selkirk Mountain, and Cabinet-Yaak Mountain populations. Carrying capacities for the first 3 areas are set first at the recovery goals, then at current population sizes, and finally at levels that include Canadian extensions of the 3 northern populations.

(1) Assuming k = recovery targets for each population

Variable	NCDE	Selkirks	Cabinet/Yaak	Yellowstone	Bitterroot
N	400	40	35	420	25
$n(0)$	5.992	3.689	3.555	6.04	3.219
K	500	106	106	450	308
k	6.215	4.663	4.663	6.109	5.73
V_r (high)	0.0243	0.0243	0.0243	0.097	0.0243
P_{ext}**(100)(high** V_r**)**	0.061	0.110	0.112	0.229	0.087
V_r (low)	0.0025	0.0025	0.0025	0.01	0.0025
P_{ext}**(100)(low** V_r**)**	0.0065	0.012	0.012	0.026	0.009
		Low V_r		**High V_r**	
P_{ext}**(all)** *odds*		2.318×10^{-10} *2/10 billion*		0.000015 *15/1 million*	
P_{ext}**(all) (without Bitterroots)** *odds*		2.472×10^{-8} *2/100 million*		0.000171 *17/100,000*	
Improvement in P_{ext} with Bitterroots		99.1%		91.3%	

(2) Assuming $k = n(0)$ and no interchange with NCDE

Variable	NCDE	Selkirks	Cabinet/Yaak	Yellowstone	Bitterroot*
$P_{ext}(100)$(high V_r)	0.237	0.212	0.226	0.234	0.115
$P_{ext}(100)$(low V_r)	0.028	0.024	0.026	0.027	0.013
		Low V_r		High V_r	
P_{ext}(all) *odds*		5.841×10^{-9} *6/1 billion*		0.000303 *3/10,000*	
P_{ext}(all) (without Bitterroots) *odds*		4.677×10^{-7} *5/10 million*		0.00264 *3/1,000*	
Improvement in P_{ext} with Bitterroots		98.8%		88.5%	

* for Bitterroot population $k = \ln(308)$

(3) Assuming K includes Canadian populations

Variable	NCDE	Selkirks	Cabinet/Yaak	Yellowstone	Bitterroot
K	2000	1000	1000	450	308
$P_{ext}(100)$(high V_r)	0.0411	0.0496	0.0496	0.2289	0.0874
$P_{ext}(100)$(low V_r)	0.0043	0.0052	0.0052	0.0264	0.0094
		Low V_r		High V_r	
P_{ext}(all) *odds*		2.924×10^{-11} *3/100 billion*		2.018×10^{-6} *2/1 million*	
P_{ext}(all) (without Bitterroots) *odds*		3.117×10^{-9} *3/1 billion*		0.000023 *23/1 million*	
Improvement in P_{ext} with Bitterroots		99.1%		91.3%	

Appendix. Variable definitions.

K	carrying capacity where $dN/dt = 0$
k	ln carrying capacity
N	population size
n	ln population size
$P(100)$	probability of persistence over a 100-yr time interval
P_{ext}	probability of extinction
$P_{ext}(100)$	probability of extinction within 100 years
$P_{ext(all)}(100)$	joint probability that all populations go extinct within 100 years
r	per capita growth rate
t	time
V_r	variance in r

Literature Cited

Boyce, M. S., D. L. McKenzie, B. F. J. Manly, M. A. Haroldson, and D. Moody. 1999a. Negative binomial models for counts of unique individuals. Journal of Wildlife Management (manuscript).

Boyce, M. S., B. M. Blanchard, R. R. Knight, and C. Servheen. 1999b. Population viability for grizzly bears: a critical review. Ursus Monographs 5: (in press).

Boyce, M. S., J. Waller, R. Mace, C. Schwartz, D. Ouren, M. A. Haroldson, D. Moody, and C. Servheen. 1999c. Projecting populations of grizzly bears for the Bitterroot recovery zone in Idaho and Montana. Wildlife Society Bulletin (manuscript in preparation).

Chambers, J. M., W. S. Cleveland, B. Kleiner, and P. Tukey. 1983. Graphical methods for data analysis. Wadsworth International Group, Belmont, California.

Foley, P. 1994. Predicting extinction times from environmental stochasticity and carrying capacity. Conservation Biology 8:124-137.

Foley, P. 1997. Extinction models for local populations. Pages 215-246 in I. Hanski and M. E. Gilpin, eds. Metapopulation biology: ecology, genetics, and evolution. Academic Press, New York.

Kuno, E. 1981. Dispersal and the persistence of populations in unstable habitats: a theoretical note. Oecologia 49:123-126.

Ludwig, D. 1999. Is it meaningful to estimate a probability of extinction? Ecology 80:298-310.

Servheen, C., W. F. Kasworm, and T. J. Thier. 1995. Transplanting grizzly bears *Ursus arctos horribilis* as a management tool--results from the Cabinet Mountains, Montana, USA. Biological Conservation 71:261-268.

Soule, M.E., editor 1987. Viable populations for conservation. Cambridge University Press, New York.

U.S. Fish and Wildlife Service. 1993. Grizzly bear recovery plan. U.S. Department of Interior, Fish and Wildlife Service, Missoula, Mont. 181pp.

APPENDIX 21D. EXCERPTS FROM AND SYNOPSIS OF PORTIONS OF THE REPORT, *"Abundance and Spatial Distribution of Grizzly Food-Plant Groups in the Salmon-Selway Ecosystem: A Preliminary Analysis and Report"*

(Hogg, Weaver, Craighead et al. 1999)

BACKGROUND

The Craighead Wildlife-Wildlands Institute (CWWI) of Missoula, Montana initiated a vegetation-based inventory and analysis of grizzly bear habitat in the Bitterroot Ecosystem in the fall of 1995 partially in response to the USFWS Notice of Intent and Scoping for a proposal to recover grizzly bears in the Bitterroots. The inventory and analysis utilized Landsat Thematic Mapper satellite imagery and on-the-ground botanical surveys. Part of the goal was to determine distribution and abundance of grizzly bear food plants for the entire ecosystem. Existing habitat studies including Scaggs (1979), Butterfield and Almack (1985), and Davis and Butterfield (1991) evaluated only portions of the ecosystem and used different methods.

Public comments on the Draft Environmental Impact Statement (EIS) indicated a general concern about the adequacy of habitats for grizzly bear recovery in the Bitterroot Ecosystem. To be responsive to public comments, the USFWS decided to improve the habitat information for the Final EIS. The USFWS approached the CWWI and coauthors about incorporating some of their results into the Final EIS. The USFWS met with CWWI researchers and their colleagues over a 20-month period to share information, review preliminary analyses and results, and discuss ways in which information from their project might be used in the Final EIS.

This appendix, prepared by the USFWS, **excerpts** portions of their preliminary report, *"Abundance and Spatial Distribution of Grizzly Bear Food-Plant Groups in the Salmon-Selway Ecosystem: A Preliminary Analysis and Report"* (Hogg, Weaver, Craighead et al. 1999). It contains only portions of the report pertinent to the Final EIS and to concerns raised by public comments on the Draft EIS. The CWWI and coauthors have granted the USFWS permission to reproduce the "Introduction," "Study Area" and "Methods" sections verbatim from their report as well as a subset of three tables (reproduced with minor modifications) and three figures containing results. In this appendix, the reproduced tables and figures are labeled Table 6-22, 6-23, and 6-24 and Figure 6-15, 6-16, and 6-17. The appendix has been reviewed for technical accuracy by the CWWI and coauthors. However, interpretations of the results made by the USFWS may not necessarily represent the views or conclusions of the CWWI or individual authors.

Hogg, Weaver, Craighead et al. (1999) present preliminary information on the abundance and spatial distribution of key grizzly bear foods in the Bitterroot Ecosystem. For information about their preliminary report (referred to in this appendix) and related documents, contact the Craighead Wildlife-Wildlands Institute, 5200 Upper Miller Creek Road, Missoula, Montana 59803.

The USFWS would like to express gratitude to the Craighead Wildlife-Wildlands Institute and colleagues for their cooperation and permission to reproduce portions of their report.

Chapter 6 - Appendix 21D

INTRODUCTION

This "Introduction" section is reproduced verbatim from Hogg, Weaver, Craighead et al. (1999) with the permission of the authors:

Craighead (1976) and Craighead, Sumner and Scaggs (1982) first proposed, developed, and applied methods for combining botanical survey (ground truthing) and Landsat TM imagery to map wilderness vegetation and delineate critical habitat on an ecosystem scale. The first "ecospectral" vegetation map was produced for a 204 km² primary study area in the Scapegoat Wilderness of northwestern Montana, validated with additional ground truthing in two secondary study sites, and then extrapolated with excellent accuracy to more than 4500 km² of surrounding terrain. Although the map was developed with primary reference to grizzly bear habitat requirements, the authors explicitly recognized and advocated the much broader potential application of landscape scale vegetation maps in conservation (see also Craighead 1982; Craighead, Craighead and Craighead 1986). These methods were refined and tested in the Kobuk River region of Alaska, an arctic ecosystem with markedly different plant associations and geology (Craighead, Craighead, Craighead et al. 1988). The Kobuk River vegetation map was subsequently combined with new techniques for satellite remote-sensing of animal location (Craighead and Craighead 1987) to monitor and describe grizzly bear habitat use in the ecosystem (Craighead 1998). The close historical connection between the development of methods for satellite-aided vegetation mapping and grizzly bear habitat evaluation was no accident. The methods are particularly appropriate for species, like the grizzly, that have space-intensive life histories and prefer or require wilderness landscapes (Craighead, Sumner and Mitchell 1995).

Our current studies in the Salmon-Selway Ecosystem are part-and-parcel of a long-term Craighead Wildlife-Wildlands Institute (CWWI) research program, initiated and enabled by these earlier mapping studies, in which an overarching goal is a remote-sensing aided inventory and evaluation of grizzly bear habitat throughout the Northern Rockies (Craighead 1982). Our decision to focus on the Salmon-Selway followed directly from a specific suggestion made within this broader vision by Craighead (1982, p. 22); the work has taken on special urgency in view of ongoing plans by the U.S. Fish and Wildlife Service to repatriate grizzly bears to this still wild and remote region. We have taken full advantage of improved methods of mapping arising during a virtual explosion of remote-sensing applications in the last decade (including some provided by authors of the current report). However, the fundamental elements of ecosystem mapping have remain unchanged. We have also retained, from the first mapping studies, the core philosophy that remote sensing is an aid to, not a replacement for, on-the-ground field biology. Remotely sensed data have limited value to conservation until supported by heavy investment in field-based surveys designed to define, guide, and validate ecological classifications of landscapes at large spatial scales (Craighead 1980).

STUDY AREA

This "Study Area" section is reproduced verbatim from Hogg, Weaver, Craighead et al. (1999) with the permission of the authors:

Conceptually, our study area was the Salmon-Selway ecosystem (Figure 6-15). This 100,000 km² complex of mountains, foothills, canyons and river valleys is centered on the broad back of the Idaho Batholith. The ecosystem is approximately bounded by the Snake River plain to the south, Hells Canyon and the Palouse

prairie of the Idaho panhandle to the west, the Missoula and Clark Fork River valleys in the north, and the Bitterroot Mountains to the east. Technically, the study area was defined by the boundaries of Landsat TM scenes P41R28 (dated July 20, 1991) and P41R29 (dated July 31, 1995) which together cover the majority of the area of conceptual interest.

Two major rivers have their headwaters in the Salmon-Selway: the Selway River in the north and the Salmon River in the south. Tributaries of the Snake, Clearwater, Bitterroot and Clark Fork Rivers drain the southern, western, eastern and northern fringes of ecosystem, respectively. The northern portion of the Salmon-Selway is characterized by a Pacific Maritime climate and features an expanse of relatively mesic, montane forest and shrublands above which rise the island-like peaks and alpine plant communities of the Selway Crags and Bitterroot Mountains. In contrast, the more uniformly rugged, mountainous terrain of the southern Salmon-Selway is influenced by an arid Basin and Range weather pattern and displays a more complex mosaic of grass, shrub and forest plant community types. The transition between these broad ecological zones of the ecosystem is fairly abrupt and roughly coincides with the area of overlap between the northern and southern TM scenes.

METHODS

This "Methods" section is reproduced verbatim from Hogg, Weaver, Craighead et al. (1999) with the permission of the authors:

Sources of Botanical Data: *We used botanical data from four sources: (i) Craighead Wildlife-Wildlands Institute (CWWI) (collected 1996-98); (ii) Forest Service (FS) Region 1 (collected 1994-95); (iii) FS Intermountain Fire Sciences Lab (collected 1995) and (iv) FS Region 4 (compiled 1996). Data from these sources varied in terms of the collection method and information recorded. CWWI and FS Region 1 data featured more comprehensive field plots located in and around wilderness cores, whereas Region 4 botanical data were more apt to be peripherally located in multiple use areas, missing data of interest to us (e.g., habitat type or species composition lists) and/or based upon photo interpretation rather than field inventory. A total of 3595 and 5929 training plots were used to classify TM scenes P41R28 and P41R29, respectively.*

Pooling data collected by different groups for different reasons was not our preferred method. However, the large size of the area and ongoing planning for repatriation imposed sample size targets and time constraints that we could not otherwise meet. Our accuracy assessment suggests that more was gained than lost by pooling.

Botanical Sampling Design: *CWWI training plot locations were chosen via a hierarchical process and according to both ecological and spectral criteria. We first stratified the ecosystem into broad biogeographic regions which, based on topographic and climatic considerations, could reasonably be expected to capture most of the ecological diversity in the study area. These regions included the arid canyon country of the middle and main forks of the Salmon River, mountain massifs such as the Bighorn Crags and Sawtooth Mountains, the broad, upland basin of Chamberlain Creek and the mesic forest lands of the upper Lochsa and Selway Rivers and their tributaries. Within each biogeographic region, we then sub-sampled four to six, 60 km^2 quadrangles corresponding in size and boundaries to 7.5 minute, USGS topographic maps.*

In 1996-97, quadrangles were selected for high ecological diversity, high spectral diversity as revealed by the TM imagery, or both characteristics. We used our knowledge, and that of others familiar with a particular bioregion, to identify quadrangles having high ecological diversity and a mathematical algorithm developed by the Wildlife Spatial Analysis Lab to rank quadrangles by spectral diversity. Plot placement within selected quadrangles was largely driven by spectral information. First, we located plots so that most if not all spectral classes represented on the TM image of the quadrangle in question were sampled. Second, we generally selected areas that were spectrally homogenous; plots were usually placed within polygons (map regions) in which 70-80% of the polygon's constituent pixels were classified to a single spectral class. However, in areas where spectral heterogeneity was widespread and appeared to reflect vegetational mosaics, we did not select for monotypic polygons. We used topographic maps, TM imagery and Global Positioning Systems (GPS) (GeoExplorers, Trimble Navigation, Inc.) to navigate to polygons selected for plot location. One-tenth acre plots were laid out 100-120 m (3-4 pixels) in from the polygon border at a point judged to be representative of vegetation in the polygon as a whole. We did not place plots in polygons of the same spectral class that were separated by less than 500 m. However, replicate plots in the same polygon from different data sources were allowed.

In 1998, quadrangles and plot locations were chosen randomly with respect to spectral pattern as follows. We first identified quadrangles within biogeographic regions and sampling areas within quadrangles that captured major landform features (canyons, ridges, etc.) in rough proportion to their areal extent in the larger area (biogeographic region or quadrangle). Access (e.g., via trail systems) as well as landform variety influenced the size, shape and location of sampling areas within quadrangles. Transects were laid out within sampling areas. Transect origin along an access route was determined by selecting a random number between 300 and 1000 and walking that number of meters from the start of the access route (or origin of the previous transect). Transect bearing (azimuth) was similarly determined by selecting a random number between 0 and 360 (degrees). Finally, location of one-tenth acre plots along a transect with fixed origin and bearing was determined by selecting a random number between 100 and 500 and walking that number of meters from the transect origin (or previous plot). In contrast to 1996-97, replicate CWWI plots within the same polygon were permitted. All plots were again GPS-located.

***Plot Data:** Both the data collected on CWWI's plots and the method of measurement were modeled on FS Region 1 Ecodata because we anticipated combining our plot data with existing data of this type. Some traditional Ecodata fields (e.g., related to fuel load) were not directly relevant to our application and were not collected in all years. We will ignore these data in this report, but readers should be aware that they exist for some plots.*

CWWI plot data consisted of (i) quantitative data on plant species composition, coverage and vegetative structure and (ii) categorical variables, or labels, designating membership in a recognized plant community type. For all plots in all years, we estimated percent coverage (0-100%) for each plant species known to be a grizzly bear food.

Whitebark pine nuts are an important, if variable, source of food for grizzlies in late summer and autumn (Craighead, Sumner and Scaggs 1982). Because there is widespread concern that cone-producing whitebark trees are in decline in the Northern Rockies from infestations of white pine blister rust fungus (Cronartium ribicola) and mountain pine beetle (Dendroctonus ponderosae), we recorded some additional data for plots in whitebark pine stands. In 1996, we initially used a condensed, and slightly altered, version of methods

designed to standardize data collection for studies of whitebark pine status in the Northern Rockies (Kendall 1995). However, these methods were time consuming (involving many measurements of each whitebark tree on plot) and consequently at odds with our primary objective of obtaining large numbers of training plots for map production. Thus, in the latter part of 1996, we limited complete measurements to 15 whitebark pine trees per size class and, in 1997, we further reduced extra data collection on whitebark plots. Measurements on whitebark pine made in both years were (i) size class and height, (ii) percent cover, (iii) presence or absence of cones, (iv) number of live and dead trees per plot, and (v) notes on blister rust infection. In 1998, (i)-(v) were recorded on 43 plots and (ii) and (v) on the remaining 1083 plots.

Ecological Classification System: *A land cover classification system is sometimes defined as a set of categories in which each land cover category identifies either a non-living surface material (e.g., barren ground, snow field, etc.) or a distinctive association of plant species. However, we follow Craighead, Craighead, Craighead et al. (1988) in using "land cover type" to refer to categories defined by non-vegetative features (rock, water, etc.) and either "plant community type" or "vegetation complex" to refer to categories defined by vegetative features (below). Botanical plots in vegetated areas were assigned membership in a hierarchical system of vegetation categories that was based upon (i) a modification of the Montana and Idaho Vegetation and Land Cover Classification System (1997) developed in consultation with agency and academic ecologists by the Wildlife Spatial Analysis Lab, and (ii) the USDA Forest Habitat Type System. Most of the forest lands in P41R28 fell under the Northern Idaho Forest Habitat Type System (Cooper, Neiman and Roberts 1991) whereas those in P41R29 fell under the Central Idaho Forest Habitat Type System (Steele, Pfister, Ryker et al. 1981).*

Non-forest plots and the forest canopy of forest plots were classified according to the Montana and Idaho Vegetation and Land Cover Classification System. The first level in this classification was general lifeform (forest versus non-forest). Forest and non-forest areas were divided at additional levels by ecological, specific lifeform and taxonomic criteria. The final level was defined by dominant or co-dominant plant species. Not all branches in the classification system divide at every level. This is because (i) some levels of subdivision do not logically apply to all branches or (ii) a subdivision, though possible, has not been developed. We follow Craighead, Craighead, Craighead et al. (1988) in referring to categories at the final level as non-forest or forest canopy plant community types and to higher level groupings of plant community types as non-forest or forest canopy vegetation complexes.

The understory (all non-canopy strata) of forest plots was categorized separately according to the Forest Habitat Type System. Following the terminology presented above, we refer to understory habitat types as understory plant community types and groupings of two or more understory plant community types as understory vegetation complexes.

In summary, our ecological classification of training plots included non-forest, forest canopy and forest understory plant community types which were sometimes grouped into vegetation complexes (non-forest, forest canopy, and forest understory) for purposes of mapping. We emphasize that we described and mapped existing vegetation in all cases. The habitat type classification system, which includes information on potential vegetation as well, was used only to describe existing understory plant associations.

Data Management: *CWWI plot data were entered into FoxPro databases using custom data entry screens and custom error- and logic-check routines. Error checks flagged entries that were outside the range of*

possible values for a given field. Logic checks flagged entries in two or more fields that were incompatible (one or more impossible entries given the value of the others). We checked flagged entries against the field data forms and corrected errors whenever possible. Plot data from FS Region 1 and Fire Sciences Lab (but not Region 4) sources were subjected to a similar battery of error and logic tests. Region 1 plots with errors having an obvious correction (i.e., spelling or typographical errors) were corrected and retained. If errors existed but corrections were not obvious, we discarded these plots. We differentially corrected latitude and longitude recorded for CWWI plots in GPS rover files with Pathfinder software using base station files from the appropriate base station (Idaho City, McCall or Missoula). Region 1 and Region 4 plots were differentially corrected by the agency.

We examined plots from all sources for statistical outliers in spectral values and removed 328 (P41R28) and 496 (P41R29) outlier plots from the data set. We moved 249 (P41R28) and 104 (P41R29) training plots located within 1-2 pixels of their polygon boundary into an adjacent polygon because the spectral signature of the initial polygon did not match the general lifeform (forest versus non-forest) of the plot. Such mismatches are attributable to measurement error in GPS-derived locations. Finally, we removed from the data set 1317 Region 4 plots located within clear cuts but assigned by the agency to a (potential) forest canopy plant community type. Plots that fell within polygons belonging to manually-labeled land cover classes (urban, agriculture, water, snow, cloud, cloud shadow) were also deleted.

Unsupervised Map: *The Landsat TM images had a resolution of 30 m. Each 30 x 30 m pixel carried a unique combination of values for seven TM channels (1, 2, 3, 4, 5, 6 and 7) as measured by sensors aboard the Landsat satellite. Mathematical algorithms developed by the Wildlife Spatial Analysis Lab were used to assign each pixel to one of approximately 130 spectral classes depending on its values for TM channels 3, 4 and 5. Pixels were then aggregated (merged) into polygons that had a five acre (22 pixel) or one acre (4 pixel) minimum size (minimum mapping unit) depending on whether the area was upland or riparian, respectively. The spectral class assigned to the polygon as a whole was the spectral class in the majority among member pixels. We will refer to the unmerged spectral map of pixels as the pixel image and the merged spectral map of polygons as the unsupervised image.*

Spatial Classifiers: *A classifier is a statistical procedure for using training (plot) data to predict membership of unclassified data. For vegetation mapping using remotely sensed data, classifiers are used to predict plant community type or vegetation complex membership for all polygons delineated in an unsupervised Landsat TM image. Classification is accomplished by comparing the attribute values of a given unclassified polygon to those of the (classified) training data. More specifically, we used k-nearest neighbor classifiers (Steele and Patterson 1998) to determine the similarity of unclassified polygons and the classified training data based on the attribute values. The k-nearest neighbor classifiers provided initial estimates of the probability of membership in each vegetation complex. These initial estimates were then modified using spatial information conveyed by the vegetation group memberships of training data that were geographically near a given unclassified polygon (Steele and Redmond 1998). Finally, the unclassified polygon was predicted to be a member of the vegetation complex with the largest modified probability of membership. Polygon attributes used in classification were TM bands 1-7, M_NDVI, elevation, slope, slope/aspect, latitude and longitude. M_NDVI is a function of TM bands 3, 4 and 5 (Nemani, Pierce, Running et al. 1993). Slope/aspect is an index of insolation calculated from slope and aspect. Spatial classifiers improved our accuracies in classification (percent correct assignments) by 10 to 15% over conventional classifiers.*

Supervised Map: *Training data and spatial classifiers were used to classify each unsupervised image independently in a hierarchical sequence of three steps. These steps broadly reflect the structure of our ecological classification (above). First, we assigned polygons to lifeform (forest versus non-forest). Second, we classified non-forest polygons to one of 8 (P41R28) or 7 (P41R29) non-forest vegetation complexes and forest polygons to one of 7 (P41R28) or 8 (P41R29) forest canopy vegetation complexes (Table 6-22). Finally, forest polygons were also classified into one of eight understory vegetation complexes (habitat type groups) (Tables 6-22 and 6-23). Water, snow, cloud, cloud shadow, urban, and agricultural areas were manually labeled. Most burns were first manually labeled and then assigned to one of two burn-related vegetation types (conifer regeneration dominated or shrub-herbaceous dominated burn) with a spatial classifier. After classification, the two images were edge-matched.*

The number of non-forest, forest canopy and forest understory vegetation complexes that we mapped was always less than the number of plant community types that we recognized in the collection of the plot data. This was because not all plant community types could be mapped with acceptable accuracy by our methods. We created predictable and ecologically coherent vegetation complexes by grouping plant community types that were difficult to distinguish spectrally but ecologically similar. Because the non-forest/forest canopy ecological classification was hierarchical (above), we agglomerated, when necessary, non-forest and forest plant community types into vegetation complexes simply by moving up levels in the classification until the overall accuracy of the supervised map, and that of each component plant community type or vegetation complex, was acceptable.

The procedure for grouping understory plant community types (habitat types) into understory vegetation complexes (Steele, Hogg and Redmond; in preparation) was more complicated. Step one involved making an initial grouping of eight to nine complexes based purely on an evaluation of ecological similarity. Each understory complex constituted a unique collection of habitat types, and each habitat type was assigned to a single complex. We then used the training plots to formulate predictive rules for classifying polygons to understory vegetation complex. Attributes examined for their predictive ability in this procedure were the seven TM spectral bands, M_NDVI, elevation, slope and slope/aspect. We estimated the overall accuracy of the predictive rules using leave-one-out cross-validation (McLachlan 1992; see next section). In addition to this overall accuracy rate, we used leave-one-out cross-validation to calculate the frequency at which training plots belonging to a specific understory type were predicted to be a member of each initial understory vegetation complex. This calculation gave an assessment of the fidelity of each understory type to each (provisional) understory complex. We then revised the grouping of understory plant community types into understory vegetation complexes with the objective of maximizing the rate at which polygons of a known understory plant community type were predicted to belong to its parent understory complex. For example, if polygons known to belong to a particular understory plant community type were consistently predicted to belong to a complex different from the one to which that understory type was initially assigned (its initial parent complex), we re-assigned the understory type to another parent complex—provided that the ecological integrity of the understory system was maintained. The entire process of accuracy assessment and understory complex revision was repeated until no further revisions were obvious.

Briefly, 123 (P41R28) and 88 (P41R29) habitat types represented in training plots were grouped into eight (four per scene) understory vegetation complexes. However, 48 and 35 habitat types in P41R28 and P41R29, respectively, accounted for roughly 80% of the understory training set. These common types had greater influence in classification and they were also given greater weight in our ecological characterization

of the understory complexes. Because of the ecological breadth of the understory complexes, no two- or three-word description adequately captured the ecological linkages between habitat types within an understory complex. Therefore, we created numeric labels to be used when brevity is important and indexed the numeric labels to a four-term, descriptive clause appropriate to each understory complex. The first term in these descriptions reflects temperature class (hot, warm, cool, cold), the second moisture class (dry, moist, wet), the third indicator species and the fourth characteristic tree species (Table 6-23).

The number and types of non-forest, forest canopy and forest understory vegetation complexes mapped in P41R28 versus P41R29 (Table 6-22) are somewhat different for two reasons. First, there were distinct plant associations (plant community types) that were present in the more mesic north but not in the arid south, and vice versa. Secondly, because of differences between scenes in numbers of training plots and/or our ability to distinguish the spectral signature for plant associations occurring in both scenes, we sometimes grouped differently to maintain our minimum standard of mapping accuracy. The edge-match boundary (Figure 6-15) marks the division between polygons classified according to the northern versus southern ecological classification. The edge-match boundary is irregular because it followed polygon boundaries (a polygon must be classified according to one and only one system).

Classification Accuracy: *We evaluated classification accuracies by leave-one-out cross-validation (McLachlan 1992). Our application of cross-validation involved removing the first training observation from the training set and constructing a new classification rule from the reduced training set. This new rule was then used to classify the polygon containing the left-out training observation. The process was repeated until all observations were held out once and used as a singleton test set. The estimated accuracy rate was the percentage of (held-out) observations correctly classified. A correct classification was one in which the vegetation type predicted for a polygon matched that assigned to the training plot present within the polygon. We also examined and displayed the spatial pattern of classification accuracy using the technique of Steele, Winne and Redmond (1998).*

Estimating Coverage of Grizzly Bear Food-Plant Groups: *The species defining non-forest, forest canopy and forest understory complexes in our ecological classification are not always or even often bear foods (the mixed whitebark pine forest canopy complex is an exception). We used the methods of Steele, Hogg and Redmond (in preparation) to provide an alternative classification of scenes P41R28 and P41R29 that more directly reflects the food-plant resource dimension of the grizzly bear niche. The essence of their approach is to combine remote-sensing data, plot data, supervised land cover maps, and regression analysis to build predictive models for attributes that have been explicitly defined or selected to reflect some aspect of habitat suitability for the species of interest. In our application of that approach, we built predictive models for the collective areal coverage of plant species assigned to five grizzly bear food-plant groups: primary berries, secondary berries, nuts, tubers and stems/leaves/flowers. In inferring food abundance from coverage values, we assume that the areal extent of above-ground vegetative structure on the one hand, and the productivity of reproductive (berries, nuts) and below-ground storage structures (tubers) on the other, respond similarly to variation in soil moisture, canopy closure and other potential limiting factors.*

Our list of bear food-plant species was assembled from the literature on bear food habits (for a recent review, see Craighead, Sumner and Mitchell 1995). It is not necessarily comprehensive. For example, there are no grizzly food habit studies from the Salmon-Selway ecosystem; plant species that are absent or rare elsewhere could be significant bear foods here. Assignment to food-plant group was based upon evaluation,

using the same literature, of the plant part(s) eaten and, in the case of primary versus secondary berries, their relative importance in the grizzly diet. Species utilized for more than one plant part (e.g., tuber and stems/leaves/flowers of Lomatium spp.) were counted in the more nutritious food group (e.g., Lomatium spp. were counted in the tuber group).

Predictive models were built as follows: First, for each CWWI training plot, we summed coverage values recorded for all plant species belonging to a given food-plant group to get a plot-specific estimate of the collective coverage of species in that group. We repeated this summation for all food-plant groups yielding five estimates of collective coverage for each training plot (one for each food group). Second, we identified potential predictor variables measured on plot (forest canopy vegetation complex) or otherwise available for the polygon within which a training plot was located (TM bands 1-7, slope, slope/aspect and elevation). Third, we used multiple regression to estimate the linear relationships between the predictor variables and the coverage of a particular food-plant group. Coverage was predicted as a continuous variable over the range 0-100%. We used the arcsine-square root transformation (Snedecor and Cochran 1980, p. 290) of coverage values in regression analysis. Predicted values were transformed back to the original 0-100% scale for display in tables via the inverse transformation. Separate models were built for each food group in each scene and, within food groups, for each of the four forest understory vegetation complexes and for three ecological groupings of the non-forest vegetation complexes mapped in P41R28 and P41R29. Thus, there were a total of 14 models per food group. A backward step-wise variable selection method was used to select predictor variables. Variables that were significant at the 0.05 significance level were retained in the predictive model. Residuals from the fitted regression model were checked for spatial autocorrelation by constructing a variogram (Cressie 1992, p. 58). No evidence of spatial autocorrelation was found. This result is consistent with our impression that bear food-plant coverage varies substantially over short distances with variation in topography, canopy structure, soils, and moisture availability.

We used this set of models to predict percent coverage of each food-plant group for all polygons (previously classified to vegetation complex as described above) in both scenes. To provide estimates of the total area covered by each food group within the study area, or sub-region thereof, we multiplied these polygon-specific estimates of coverage by the polygon's area and summed these products over all polygons within the region of interest (Table 6-24). To examine the areal distribution within each sub-region across six coverage classes, we summed areas for the subset of polygons predicted by regression to have a coverage value within the range of values defining each coverage class (Table 6-24). Finally, we examined the spatial distribution of coverage classes by assigning each polygon to the coverage class appropriate to its predicted coverage value, labeling every polygon with a coverage class-specific color, and mapping the color-coded polygons relative to proposed recovery area boundaries (Figures 6-16 and 6-17).

Cautions Regarding Interpretation: *To map vegetation in the entire region of interest, we had to emphasize spatial breadth over local intensity in our sampling design. Thus, our methods are more appropriate for generating inferences about large regions of the study area than, for example, about particular localities. To provide some context for this comment, consider that scenes P41R28 and P41R29 are segmented into more than 1.6 million polygons and cover more than six million hectares. Approximately 10,000 training observations were used to classify these polygons to vegetation type. Although this is a large number of training plots as mapping efforts go, the polygons in which they are placed are a small percentage of the total area. Some error is present in the maps and the estimates derived from the maps.*

The map construction process produced two maps: one showing the predicted forest canopy and nonforest layers, and the second showing predicted forest understory and nonforest layers. The estimated overall map accuracy for the forest canopy and nonforest layer was 68.4% north of the edge-match boundary and 76.7% south of this line. The estimated overall map accuracy for the forest understory and nonforest layer map was 72.3% north of the edge-match boundary and 79.0% south of this line. Coefficients of determination (R-squared) for the regression models predicting coverage of the primary berry, secondary berry and nut food-plant groups over both scenes ranged from 0.46 to 0.78 and averaged 0.58. A complete evaluation of accuracy for all vegetation type classifications and the bear food-plant coverage estimates is presented in "Results."

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SUMMARY OF RESULTS PERTINENT TO THE FEIS

Important Grizzly Bear Food Producing Habitat:
Landsat Thematic Mapper satellite imagery and botanical survey have been used to develop all-purpose vegetation maps for the Salmon-Selway region of central Idaho (Hogg, Weaver, Craighead et al. 1999). These authors then used these maps and plant species lists from the botanical surveys to estimate the abundance and spatial distribution of food-plant groups important to bears. The USFWS used the text, Tables 6-22, 6-23 and 6-24, and Figures 6-15, 6-16 and 6-17 from that report to produce the following summary statistics and comments regarding important food producing habitats for grizzly bears. The two Landsat scenes used in the CWWI analysis are referred to here as the North and South Scenes (see Figure 6-15). The edge-match boundary between the two scenes lies just south of the Salmon River. The CWWI analyzed several areas within the Bitterroot Ecosystem, including the recovery zone boundaries for Alternatives 1, 2, and 4. Since the Alternative 4 recovery zone boundary roughly approximates the Final EIS Primary Analysis Area (PAA) boundary, the results from analysis of alternatives will be presented here to maintain consistency with other data presented for the PAA in Chapter 3 of the Final EIS. Summaries for Alternative 4 can also be substituted for the experimental area of Alternative 1 and 1A because the boundaries are similar. Alternative 4 and Alternative 4A have the same recovery zone boundaries.

In our summary comments, we have focused on results from the CWWI report related to whitebark pine nuts and several berry producing shrubs because these species provide a major contribution to annual energy demands for bears (Interagency Grizzly Bear Committee 1987). Major berry producing species (referred to as "primary berry species" in the CWWI report) considered included species of huckleberry (*Vaccinium*), serviceberry, cherry, elderberry, buffaloberry, and mountain ash. Secondary berry species included other species producing berries eaten by grizzly bears (Hogg, Weaver, and Craighead et al. 1999).

Whitebark pine nuts are most abundant in the vegetation complex labeled mixed whitebark pine forest (Table 6-22). The estimated total area covered by this complex is 1180 square miles, with 222 square miles in the north scene and 959 square miles in the south scene. Estimated areas of mixed whitebark pine forest within the boundary of each alternative were: 401 square miles in Alternative 1, 101 square miles in Alternative 2, and 1106 square miles in Alternative 4. The authors of the CWWI report built predictive models for the areal coverage of white bark pine tree canopies (Hogg, Weaver, and Craighead et al. 1999). Total areas predicted by this model to be covered by whitebark pine canopies within each alternative were; 63 square miles in Alternative 1, 22 square miles in Alternative 2, and 171 square miles in Alternative 4.

Huckleberry species (*Vaccinium sp.*) are expected to be the dominant berries consumed by grizzly bears in the Bitterroot Ecosystem, but other prominent berry producing species exist such as buffaloberry, serviceberry, mountain ash, and cherry. These major berry species had high coverages in the non-forest vegetation complex labeled mesic shrublands (Table 6-22 and Figure 6-15) and in the understory of certain timber types (Table 6-23). The CWWI classifications of forested areas resulted in maps of both the forest cover type and the understory vegetation complex. We limit the following summary comments regarding the estimated amount of forest land belonging to a given understory complex to those understory vegetation complexes expected to have the highest coverages of huckleberry species other than grouse whortleberry (i.e., understory vegetation codes 40 and 60 in Table 6-23). We will refer to these two understory complexes as timber/huckleberry vegetation types. Total area covered by mesic shrublands was predicted to be 1733 square miles, with 1005 square miles in the north scene and 728 square miles in the south scene. Area of

mesic shrublands within the boundary of each alternative was predicted to be 235 square miles in Alternative 1, 587 square miles in Alternative 2, and 1147 square miles in Alternative 4. Total area covered by timber/huckleberry vegetation types was predicted to be 5568 square miles, with 2943 square miles in the north scene and 2624 square miles in the south scene. Area of timber/huckleberry vegetation types within the boundary of each alternative was predicted to be 1777 square miles in Alternative 1, 1305 square miles in Alternative 2, and 4480 square miles in Alternative 4. Major berry species occur in significant amounts in several other non-forest and forest-understory vegetation complexes, although coverage of huckleberry species (*Vaccinium sp.*) other than grouse whortleberry is probably lower. The preceding estimates of area covered by vegetation complexes supporting major berries are therefore likely conservative. Furthermore, these area totals emphasized vegetation complexes expected to support relatively high densities of huckleberry species other than grouse whortleberry. Grouse whortleberry can in some years produce a significant crop of berries, but typically is less productive than other species of huckleberry. Grouse whortleberry is often associated with habitats that are drier or cooler, which are more commonly represented in the southern portions of the BE particularly south of the Salmon River .

In addition to whitebark pine (above), the authors of the CWWI report built predictive models for the collective areal coverage of plant species assigned to two other grizzly bear food-plant groups: primary and secondary berries (Hogg, Weaver, and Craighead et al. 1999). Huckleberry, buffaloberry, serviceberry, mountain ash, and cherry were classified as primary berry species (Hogg, Weaver, and Craighead et al. 1999). Numerous other plant species such as kinnikinnick, currant, gooseberry, and raspberry also produce a berry crop that is available to bears. All other such berry producing species were classified as secondary berry species. Total coverage of primary berries within each alternative was predicted to be 724 square miles in Alternative 1, 718 square miles in Alternative 2, and 2059 square miles in Alternative 4. Total coverage of secondary berries within each alternative was predicted to be 193 square miles in Alternative 1, 268 square miles in Alternative 2, and 742 square miles in Alternative 4.

In summary, results of Hogg, Weaver, and Craighead et al. (1999) indicate bear foods in the form of primary and secondary berries are present in biologically significant amounts in both the northern and southern portions of the ecosystem, but generally decline in abundance moving from north to south through the Bitterroot Ecosystem (Table 6-24, Figure 6-16, Figure 6-17). We suspect that this north-south decline in abundance is most marked for species of huckleberry other than grouse whortleberry. However, coverage for this sub-group of primary berry species (excluding grouse whortleberry) was not separately estimated by Hogg, Weaver, and Craighead et al. (1999). Grouse whortleberry could potentially provide a significant seasonal food source in some years. Particularly significant berry distribution occurs north of the Selway-Bitterroot Wilderness area in the North Fork of the Clearwater River drainage and throughout much of the Lochsa and Selway River drainages (Figure 6-16, Figure 6-17). Whitebark pine and associated nut crops tend to follow the opposite pattern with greater abundance and distribution south of the Salmon River and a general decline through the northern portions of the Bitterroot Ecosystem (Figure 6-15).

Table 6-22. Estimated area (hectares and percent of region) of each mapped non-forest, forest canopy and forest understory vegetation complex within various boundaries relevant to the proposed reintroduction of grizzly bears to the Salmon-Selway ecosystem. (Modified from Hogg, Weaver, Craighead et al. [1999]; similar data from other sub-regions in the Salmon-Selway ecosystem that are included in Hogg, Weaver, Craighead et al. [1999], but are not defined by an alternative in this FEIS, were omitted from this table.)

	North of edge-match boundary[1]		South of edge-match boundary[1]		Alternative 1		Alternative 2		Alternative 4	
Vegetation complexes	Hectares	(%)	Hectares	(%)	Hectares	(%)	Hectares	(%)	Hectares	(%)
Non-forest										
3100 Xeric grasslands	148,871	(4.8)	305,415	(9.2)	34,489	(2.3)	6,681	(0.5)	98,002	(2.1)
3180 Mesic grasslands/subalpine meadows	110,961	(3.6)	53,725	(1.6)	48,942	(3.2)	59,207	(4.5)	145,510	(3.1)
3200 Mesic shrublands	260,388	(8.4)	188,596	(5.7)	60,896	(4.0)	152,079	(11.4)	297,201	(6.2)
3300 Xeric shrublands	-	-	353,656	(10.7)	77,193	(5.1)	0	(0.0)	244,031	(5.1)
3310 Non-sage xeric shrublands	9,606	(0.3)	-	-	2,636	(0.2)	2,357	(0.2)	6,367	(0.1)
3350 Sage shrublands	32,457	(1.0)	-	-	1,134	(0.1)	791	(0.1)	3,949	(0.1)
3400 Shrub-herbaceous dominated burn	5,858	(0.2)	74,059	(2.2)	25,804	(1.7)	4,464	(0.3)	79,246	(1.7)
6200 Herbaceous riparian	6,871	(0.2)	25,539	(0.8)	3,698	(0.2)	1,522	(0.1)	23,606	(0.5)
7300 Rock dominated	96,753	(3.1)	238,901	(7.2)	122,104	(8.0)	75,603	(5.7)	313,641	(6.6)
Subtotal	671,764	(21.6)	1,239,892	(37.5)	376,896	(24.8)	302,704	(22.8)	1,211,551	(25.4)
Forest canopy										
4203 Lodgepole pine dominated forest	484,626	(15.6)	477,534	(14.4)	215,399	(14.2)	170,404	(12.8)	757,664	(15.9)
4206 Ponderosa pine dominated forest	90,905	(2.9)	166,975	(5.0)	22,117	(1.5)	18,376	(1.4)	108,042	(2.3)
4212 Douglas fir dominated forest	486,958	(15.7)	547,197	(16.5)	334,404	(22.0)	156,196	(11.8)	826,725	(17.3)
4230 D. fir-ponderosa pine dominated forest	-	-	95,306	(2.9)	15,259	(1.0)	0	(0.0)	76,806	(1.6)
4260 Mixed whitebark pine forest	57,433	(1.8)	248,447	(7.5)	103,983	(6.8)	26,263	(2.0)	286,657	(6.0)
4270 Mixed subalpine fir forest	499,243	(16.1)	227,642	(6.9)	278,598	(18.3)	246,528	(18.5)	619,263	(13.0)
4280 Mesic forest	736,028	(23.7)	212,688	(6.4)	144,451	(9.5)	389,394	(29.3)	809,931	(17.0)
4410 Conifer regeneration dominated burn	17,868	(0.6)	22,716	(0.7)	19,543	(1.3)	11,597	(0.9)	39,424	(0.8)
Subtotal	2,373,062	(76.4)	1,998,505	(60.4)	1,133,754	(74.6)	1,018,757	(76.7)	3,524,512	(73.9)
Forest understory[2]										
10	597,779	(19.2)	-	-	127,042	(8.4)	140,114	(10.5)	292,575	(6.1)
20	277,238	(8.9)	-	-	33,681	(2.2)	158,575	(11.9)	248,302	(5.2)
30	735,358	(23.7)	-	-	171,782	(11.3)	381,948	(28.7)	665,801	(14.0)
40	762,686	(24.5)	-	-	246,711	(16.2)	338,115	(25.4)	552,304	(11.6)
50	-	-	640,565	(19.4)	158,023	(10.4)	5	(0.0)	488,779	(10.2)
60	-	-	679,988	(20.5)	213,824	(14.1)	0	(0.0)	608,630	(12.8)
70	-	-	157,100	(4.7)	51,427	(3.4)	0	(0.0)	153,654	(3.2)
80	-	-	520,852	(15.7)	131,265	(8.6)	0	(0.0)	514,467	(10.8)
Subtotal	2,373,062	(76.4)	1,998,505	(60.4)	1,133,754	(74.6)	1,018,757	(76.7)	3,524,512	(73.9)
Other[3]	63,030	(2.0)	70,957	(2.1)	8,438	(0.6)	7,546	(0.6)	33,819	(0.7)
Total	3,107,856	(100.0)	3,309,354	(100.0)	1,519,089	(100.0)	1,329,007	(100.0)	4,769,883	(100.0)

[1] A missing value (-) indicates that the corresponding vegetation complex was not mapped for this region.
[2] See Table 6-23 for an ecological characterization of understory complexes.
[3] urban, agriculture, water, snow, cloud, and cloud shadow

Table 6-23. Ecological characterization and numeric code for the eight forest understory vegetation complexes mapped in P41R28 and P41R29 (Modified from Hogg, Weaver, Craighead et al. [1999]).

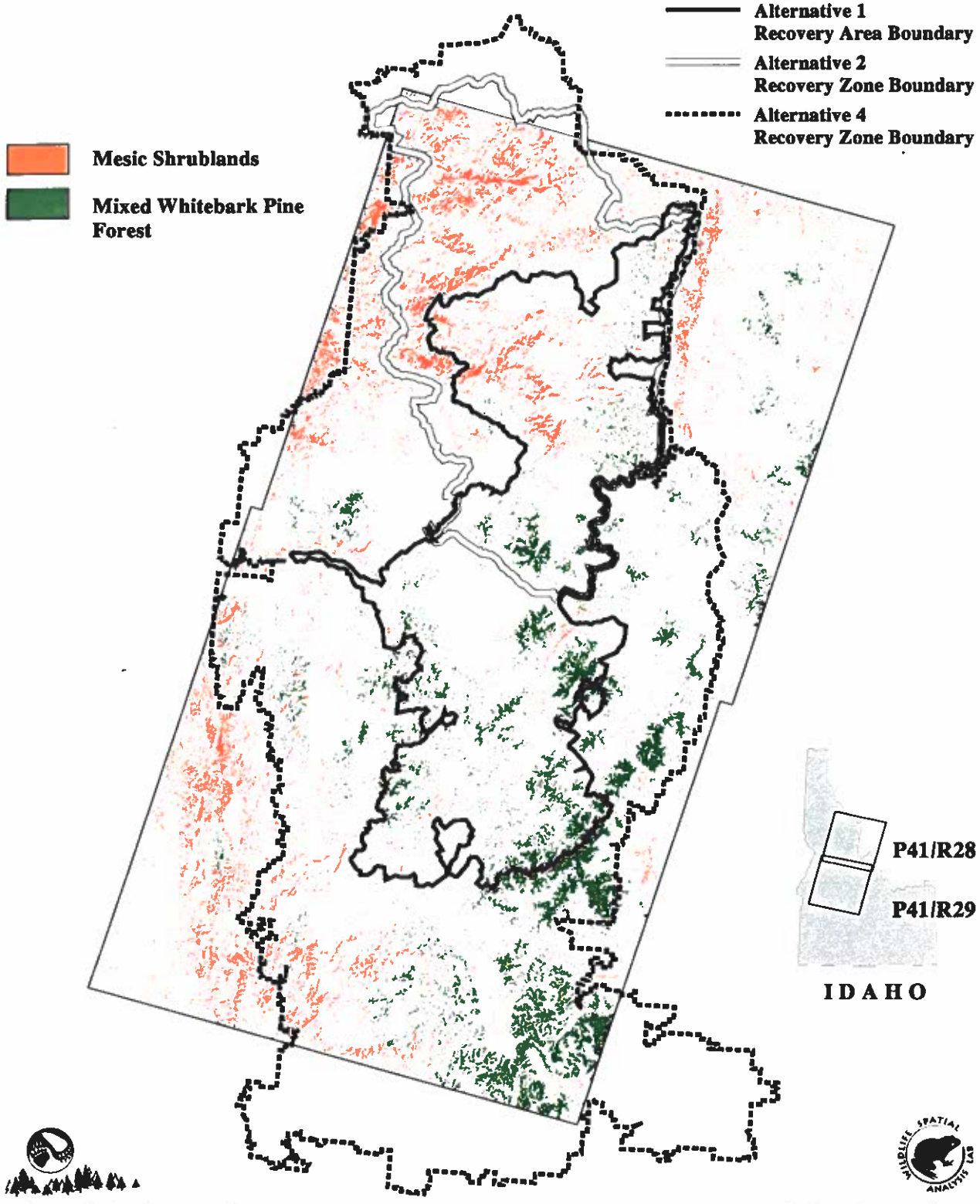
TM scene	Understory vegetation complex code	Temperature class	Moisture class	Understory indicator species	Trees present [1]
P41R28	10	warm	dry to moist	bunchgrass, ninebark, mountain snowberry, pinegrass, blue huckleberry	ponderosa pine, douglas fir
	20	warm	wet	queencup beadlily, wild ginger	western redcedar, grand fir
	30	warm to cool	moist to wet	queencup beadlily, twinflower, twisted stalk	grand fir, subalpine fir
	40	warm to cold	dry to moist	huckleberry, grouse whortleberry, beargrass, false huckleberry, bluejoint, smooth woodrush	grand fir, lodgepole pine, mountain hemlock, subalpine fir, whitebark pine
P41R29	50	hot to warm	dry to moist	bunchgrass, ninebark, mountain snowberry, pinegrass, elk sedge, white spirea	ponderosa pine, douglas fir
	60	warm to cool	dry to moist	queencup beadlily, pinegrass, blue huckleberry, false huckleberry	douglas fir, grand fir, lodgepole pine, subalpine fir
	70	cool to cold	moist	grouse whortleberry, beargrass, bluejoint, smooth woodrush	lodgepole pine, subalpine fir
	80	cold	dry	grouse whortleberry, elk sedge	lodgepole pine, subalpine fir, whitebark pine

[1] Characteristic species existing in the canopy or regenerating in the understory.

Table 6-24. Total area (thousands of hectares and percent of region) predicted by regression analysis to be covered by species belonging to each of three grizzly bear food-plant groups, and predicted distribution of area within each proposed recovery boundary across the coverage value classes mapped in Figures 6-16 and 6-17. (Modified from Hogg, Weaver, Craighead et al. [1999]; similar data from other sub-regions in the Salmon-Selway ecosystem that are included in Hogg, Weaver, Craighead et al. [1999], but are not defined by an alternative in this FEIS, were omitted from this table.)

		ALTERNATIVE 1			ALTERNATIVE 2			ALTERNATIVE 4		
FOOD GROUP	COVERAGE CLASS	Estimated area in coverage class[1] Thousands of hectares	(%)	Estimated area covered by food group[2] (thousands of hectares)	Estimated area in coverage class[1] Thousands of hectares	(%)	Estimated area covered by food group[2] (thousands of hectares)	Estimated area in coverage class[1] Thousands of hectares	(%)	Estimated area covered by food group[2] (thousands of hectares)
Primary berries										
	0-1%[3]	308.0	(20)		156.3	(12)		903.1	(19)	
	1-5%	276.8	(18)		241.6	(18)		1,084.6	(23)	
	5-15%	495.5	(33)		569.1	(43)		1,622.5	(34)	
	15-25%	139.9	(9)		43.8	(3)		407.1	(8)	
	25-50%	298.4	(20)		318.2	(24)		751.0	(16)	
	50-100%	0.5	(0)		0.0	(0)		1.6	(0)	
	All classes	1,519.1	(100)	187.6	1,329.0	(100)	186.0	4,769.9	(100)	533.2
Secondary berries										
	0-1%[3]	747.5	(49)		522.3	(39)		2,120.8	(44)	
	1-5%	362.7	(24)		202.9	(15)		1,091.8	(23)	
	5-15%	375.9	(25)		497.4	(38)		1,367.9	(29)	
	15-25%	28.9	(2)		83.7	(6)		148.0	(3)	
	25-50%	4.0	(0)		22.6	(2)		41.3	(1)	
	50-100%	0.1	(0)		0.1	(0)		0.1	(0)	
	All classes	1,519.1	(100)	50.1	1,329.0	(100)	69.5	4,769.9	(100)	192.2
Nuts										
	0-1%[3]	1,279.5	(84)		1,206.4	(91)		4,052.0	(85)	
	1-5%	133.1	(9)		96.1	(7)		426.7	(9)	
	5-15%	85.9	(6)		23.6	(2)		245.5	(5)	
	15-25%	16.5	(1)		2.1	(0)		36.2	(1)	
	25-50%	4.0	(0)		0.7	(0)		9.2	(0)	
	50-100%	0.1	(0)		0.1	(0)		0.3	(0)	
	All classes	1,519.1	(100)	16.4	1,329.0	(100)	5.7	4,769.9	(100)	44.4

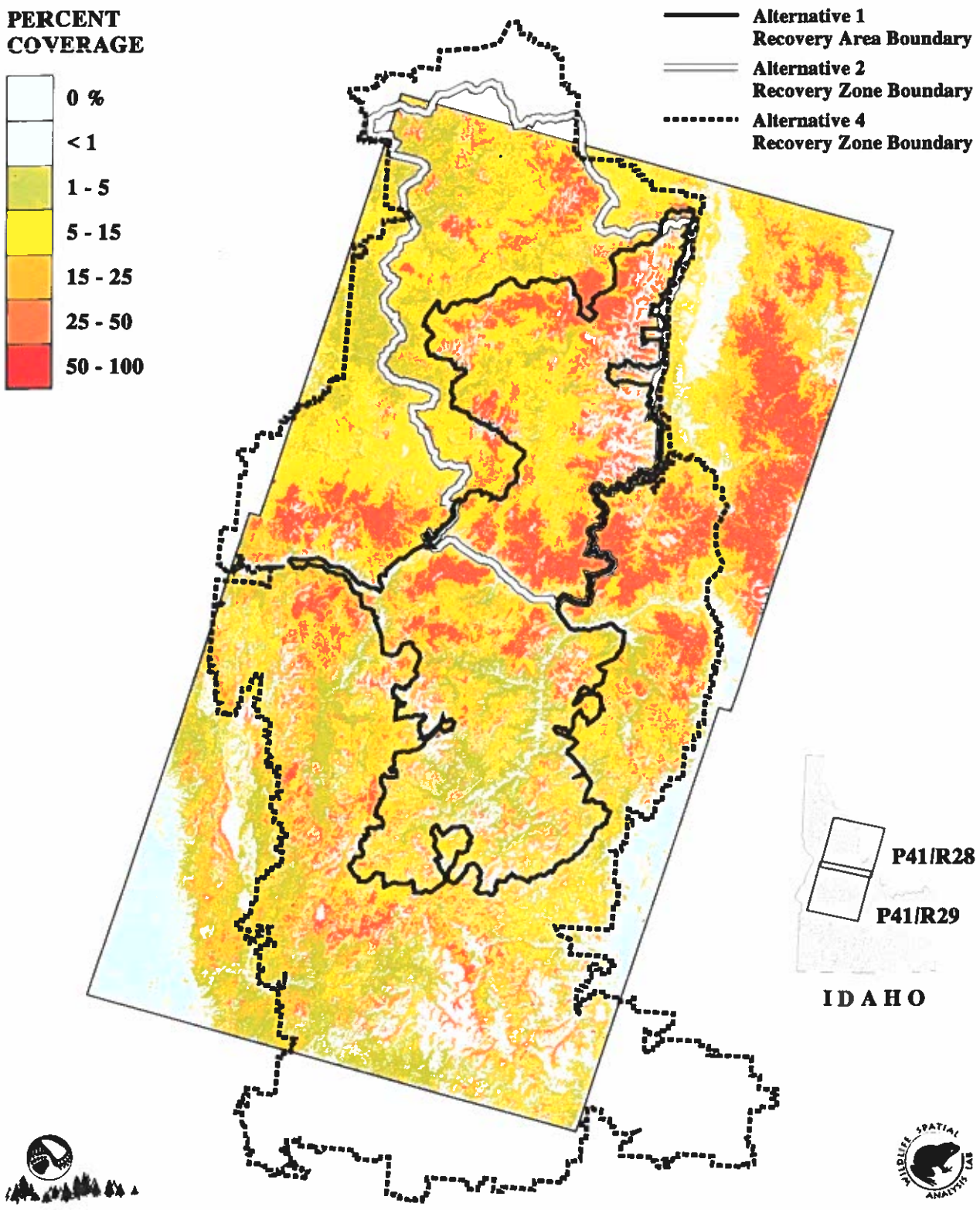
[1]Calculated as the sum of areas for all polygons in the region of interest predicted to have a food group coverage within the range specified for the coverage class.
[2]Calculated as the product of polygon area and predicted coverage summed over all polygons in the region of interest.
[3]This class includes regions mapped white and blue in Figures 6-16 and 6-17.



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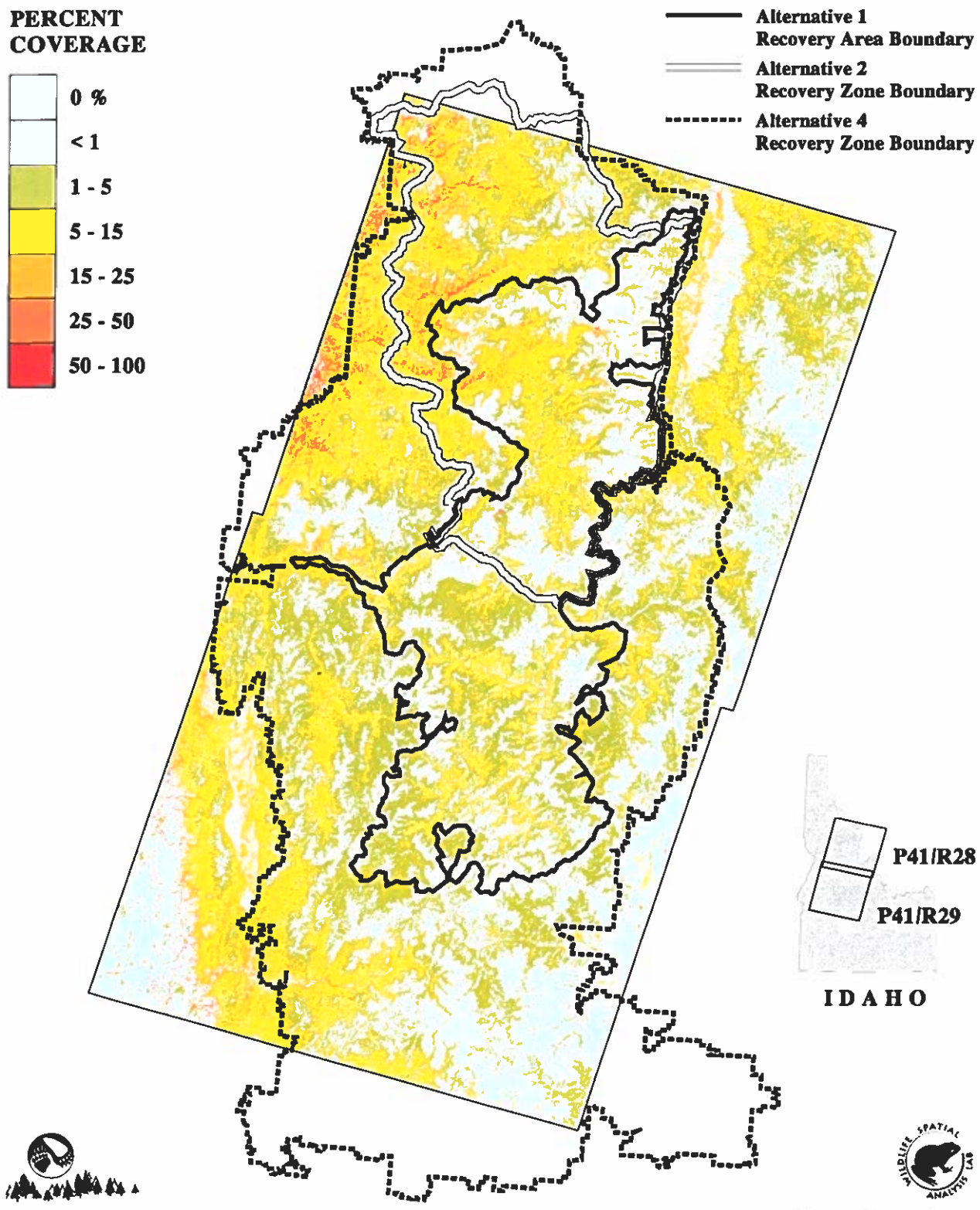
Figure 6-15. Estimated distributions of Mixed Whitebark Pine Forest and Mesic Shrublands vegetation complexes in the Salmon-Selway Ecosystem.



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Figure 6-16. For the Salmon-Selway Ecosystem, estimated percent coverage of plants that produce berries reported to be of primary importance to grizzly bears in other ecosystems.



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Figure 6-17. For the Salmon-Selway Ecosystem, estimated percent coverage of plants that produce berries reported to be of secondary importance to grizzly bears in other ecosystems.

LITERATURE CITED

Butterfield, B. R. and J. Almack. 1985. Evaluation of grizzly bear habitat in the Selway-Bitterroot Wilderness Area. Idaho Department of Fish and Game Project No. 04-78-719. Cooperative Fish and Wildlife Research Unit, Univ. of Idaho, Moscow. 66 pp.

Cooper, S. V., K. E. Neiman, D. W. Roberts. 1991. Forest habitat types of northern Idaho: A second approximation. General Technical Report INT-236. U.S. Department of Agriculture, Forest Service, Intermountain Research Station, Ogden, UT. 143 pp.

Craighead, D. J. and J. J. Craighead. 1987. Tracking caribou using satellite telemetry. National Geographic Research, Vol. 3 (4), 462-479.

Craighead, D. J. 1998. Integrated technique to evaluate grizzly bear habitat use. Ursus, Vol. 10, 187-201.

Craighead, J. J. 1976. Studying grizzly habitat by satellite. National Geographic, Vol.150 (1), 148-158.

Craighead, J. J. 1982. Satellite imagery: An alternative future. Western Wildlands, Vol. 8 (1), 18-27.

Craighead, J. J., F. L. Craighead, D. J. Craighead. 1986. Grizzly bear habitat symposium: Using satellites to evaluate ecosystems as grizzly bear habitat. General Technical Report INT-207. U. S. Department of Agriculture, Forest Service, Intermountain Research Station, Ogden, Utah.

Craighead, J. J., F. L. Craighead, D. J. Craighead, R. L. Redmond. 1988. Mapping arctic vegetation in northwest Alaska using Landsat MSS imagery. National Geographic Research, Vol. 4, 496-527.

Craighead, J. J., J. S. Sumner, J. A. Mitchell. 1995. The grizzly bears of Yellowstone: Their ecology in the Yellowstone Ecosystem, 1959-1992. Island Press, Washington, DC. 535 pp.

Craighead, J. J., J. S. Sumner, G. B. Scaggs. 1982. A definitive system for analysis of grizzly bear habitat and other wilderness resources. University of Montana, Missoula, MT. 279 pp.

Cressie, N. A. C. 1992. Statistics for spatial data. John Wiley and Sons, New York, NY. 900 pp.

Davis, D. and B. Butterfield. 1991. The Bitterroot grizzly bear evaluation area: A report to the Bitterroot Technical Review Team. Interagency Grizzly Bear Committee, Denver, Colo. 56 pp.

Hogg, J. T., N. S. Weaver, J. J. Craighead, M. L. Pokorny, B. M. Steele, R. L. Redmond, and F. B. Fisher. 1999. Abundance and spatial distribution of grizzly bear plant-food groups in the Salmon-Selway Ecosystem: A preliminary analysis and report. Craighead Wildlife-Wildlands Institute, Missoula, Mont.

Interagency Grizzly Bear Committee. 1987. Grizzly bear compendium. USFWS, Missoula, Mont. 540 pp.

Kendall, K. C. 1995. Whitebark pine monitoring network guide. Glacier Field Station, National Biological Service, Glacier National Park, MT. 33 pp.

McLachlan, G. J. 1992. Discriminant analysis and statistical pattern recognition. John Wiley and Sons, New York, NY. 526 pp.

Nemani, R., L. Pierce, S. Running, L. Band. 1993. Forest ecosystem processes at the watershed scale: Sensitivity to remotely sensed leaf-area index estimates. International Journal of Remote Sensing, Vol. 14, 2519-2534.

Scaggs, G. B. 1979. Vegetation description of potential grizzly bear habitat in the Selway-Bitterroot Wilderness Area, Montana and Idaho. M.S. Thesis. Univ. of Montana, Missoula. 148 pp.

Snedecor, G. W. and W. G. Cochran. 1980. Statistical methods, 7th edition. Iowa State Press, Ames, Iowa. 507 pp.

Steele, B. M., J. T. Hogg, R. L. Redmond. In Prep. Predicting attributes of multi-layer forests from Landsat imagery and vegetation sampling.

Steele, B. M., and D. A. Patterson. 1998. Ideal bootstrap estimation of expected prediction error for nearest neighbor classifiers: Applications for classification and error assessment. Statistics and Computing. -submitted.

Steele, B.M. and R. L. Redmond. 1998. A method of exploiting spatial information for improving classification rules: Application to the construction of polygon-based land cover maps. International Journal of Remote Sensing. - submitted.

Steele, B. M., J. C. Winne, R. L. Redmond. 1998. Estimation and mapping of misclassification probabilities for thematic land cover maps. Remote Sensing and the Environment, Vol. 66, 192-202.

Steele, R., R. D. Pfister, R. A. Ryker, J. A. Kittams. 1981. Forest habitat types of central Idaho. General Technical Report INT-114. U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station, Ogden, UT. 138 pp.

University of Montana Cooperative Wildlife Research Unit. 1997. Montana and Idaho vegetation and land cover classification system. Missoula, MT. Unpublished.

APPENDIX 22. PRELIMINARY IDENTIFICATION OF HUMAN-RELATED ATTRACTANT SITES FOR WILDLIFE IN THE BITTERROOT ECOSYSTEM

This appendix contains a reprint of the report, *"Survey of Attractant Sites, Selway-Bitterroot Ecosystem"* which was prepared for Defenders of Wildlife, Intermountain Forest Products Association and the National Wildlife Federation. The report was compiled by Brown Bear Resources, Inc. of Missoula, Montana, and was released in December 1998. Figure 6-18 has been adapted from the GIS data mapped with this report, and is included in this appendix to give the reader an overview of the general location of sites identified in the report.

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Survey of Attractant Sites

Selway-Bitterroot Ecosystem

Prepared for Defenders of Wildlife, Intermountain Forest Products Assocation and the National Wildlife Federation.

December, 1998

Compiled by Brown Bear Resources, Inc. Mapping by Geodata, Inc.

Brown Bear Resources, Inc. 222 North Higgins, Missoula, Montana 59802

Chapter 6 - Appendix 22

Survey of Attractant Sites: Selway - Bitterroot Ecosystem

December, 1998

Brown Bear Resources conducted a private survey of attractant sites in the Selway- Bitterroot Ecosystem that have resulted in, or have the potential to result in, wildlife-human conflicts. The primary purpose of the survey was to identify area where food and/or garbage are found in close proximity to humans which provide an attractant to wildlife.

The survey covers portions of the Selway-Bitterroot Ecosystem north of the Magruder corridor. It is intended to be a proactive document which will allow managing agencies to remedy problems such as open dumpsters, poorly stored food in campgrounds, etc., in an attempt to reduce human injuries and wildlife loss.

Information was gathered from Montana Fish, Wildlife and Parks; Idaho Department of Fish and Game; Animal Damage Control; Bureau of Land Management; and the U.S. Forest Service. In addition, field inspections were made at several sites to verify information and/or determine the existence of sites.

High priorities determined by project partners include those sites within wilderness areas which contain garbage or readily available foods and stock feed. Simple remedies include food storage poles, wildlife resistant panniers and "food tubes," and general education for wilderness travelers. Additional priorities are for bear resistant dumpsters along Highway 12 and elsewhere as noted on the survey map (GIS map in FEIS Project File in Missoula office).

Funding to address container and education needs will be sought by a coalition of private and public sector agencies. However, it is expected that the project will require several years in order to financially provide for remediation at all sites.

Anecdotal information indicates there is an immediate need to provide orientation and education materials to campground hosts, wilderness guards and recreational hosts who may not at this time be aware of the dangers - both to bears and to humans - associated with food conditioned wildlife. Education programs should also be made a priority for wilderness users on well-traveled routes such as the Selway River, the Lolo Trail and at destination sites such as private lodges.

Final maps are available in a GIS format to allow frequent updates, corrections and evaluation of data by specific categories.

For additional information, please contact Patrick O'Herren at Brown Bear Resources, 222 North Higgins, Missoula, Montana 59802. This project was jointly funded by Brown Bear Resources, the National Wildlife Federation, Intermountain Forest Industry Association, and Defenders of Wildlife. GIS mapping was provided by GEODATA, INC. Of Missoula, Montana.

Priority Summary

The groups funding this project determined priorities for remediation based on the immediate need for reduction of human-wildlife conflicts. Consequently, the highest priority was given to sites along Highway 12 and the Lolo Trail was of the Idaho-Montana border. Theses sites see the highest frequency of visitors and experience problems with bears on a yearly basis. The project partners are working to provide bear-resistant dumpsters for these sites in 1999. Educational materials will also be needed for posting at campgrounds and for campground hosts (where applicable) to distribute. General information to those passing through the area is a much lower priority than for those individuals who camp along the highway or Lolo Trail.

The second series of priorities involves sites along the northern border of the study area west of St. Regis and south to Highway 12. Most of these sites involve state or federal campgrounds (developed and dispersed) as well as outfitter camps. Project partners are developing an instructional program for outfitters, backpackers and other backcountry users based on successful programs in the NCDE and GYE.

Backcountry airstrips, lodges and river camps compose the third set of priorities. These sites are currently "pack-in, pack out" areas. However, it is always tempting for pilots, rafters, canoeists and kayakers to minimize weight in their craft by leaving select items behind. A strong educational effort is planned for these sites, including river launch sites and ranger stations at airstrips. Project partners will work with the USFS on permits for lodges and river users in order to address the attractants frequently found in these areas.

The final priority involves general educational efforts for infrequent, short-term wilderness travelers, lookouts, and neighboring private property owners. The best efforts here would involve a "bear management specialist" similar to those found in the NCDE and GYE. Project partners will work with state and federal agencies to pursue this option.

Over 200 sites were initially identified in the survey. It is important to note that the project did not involve an *inventory* of attractant sites, simply a survey of those that appeared to be the most egregious. As new sites are found and as existing sites are removed from the category of "attractants," the partners will adjust the map and priorities accordingly. It is envisioned that this project will take several years and significant funding to complete. However, no sites were found that can not be remedied by existing technology and private sector- public agency cooperation.

Editors Note: See Figure 6-18 for a general overview of the location of identified sanitation sites in the Bitterroot area of central Idaho and western Montana. This figure is adapted from the GIS map included with the original report.



Figure 6-18. Overview of the location of identified sanitation sites in the Bitterroot Ecosystem.

Selway - Bitterroot Attractant Survey

KEY:

Land Manager: **PVT** = Private Land; **NPNF** = Nez Perce National Forest; **CWNF** = Clearwater National Forest; **BRNF** = Bitterroot National Forest; **LLNF** = Lolo National Forest; **SJNF** = St. Joe National Forest; **PC** = Plum Creek Timber Company.

Attractant: **G** = Garbage; **F** = Food; **Food Prep.** = Food is cooked at site; **Stock** = stock feed.

Definitions: **"Remedial Action"** refers to programs needed to remove a source of potential wildlife attractants. **"Education"** indicates that a site may benefit from brochures, signage, visits with outfitters, campground hosts, etc. to provide information regarding storage of foods, garbage, stock, feed, etc. **"Container"** indicates a site may need food poles or other such structures. **"Dumpster"** indicates the need for a bear-resistant dumpster.

Site names referred to as "sites" with unknown attractant status are generally historic sites or points of interest along USFS Road #500, the Lochsa Highway or the Lolo Trail. They may draw human visitors; however most have no facilities.

SITE NUMBER	LOCATION (STATE / LAND MANAGER)	Township-Range - Section	SITE NAME	ATTRAC-TANT TYPE	PRIORITY (Low, Medium, High)	REMEDIAL ACTION NEEDED
1	ID / NPNF	32-9-32	Glover recreation area & campground	G, F	M	Education, Container
2	ID / NPNF	32-9-32	25-Mile Bar rec. area & campground	G, F	M	Education, Container
3	ID / NPNF	32-8-26	23-Mile Camp rec. area & campground	G, F	M	Education, Container
4	ID / NPNF	32-8-27	Boyd Creek rec. area & campground	G, F	M	Education, Container
5	ID / NPNF	32-8-28	Slide Ck. rec. area & campground	G, F	M	Education, Container
6	ID / NPNF	32-8-28	20-Mile recreation area & campground	G, F	M	Education, Container
7	ID / NPNF	32-8-30	Rackliff recreation area & campground	G, F	M	Education, Container
8	ID / NPNF	32-7-25	O'Hara recreation area & campground	G, F	M	Education, Container
9	ID / NPNF	32-7-25	3C recreation area & campground	G, F	M	Education, Container
10	ID / NPNF	32-7-26	Cedar Flat Job Corps Center	G, F, food prep.	M	Container
11	ID / NPNF	32-7-23	Fenn Ranger Station	G, F, food prep.	H	Container, Education

SITE NUMBER	LOCATION (STATE / LAND MANAGER)	Township-Range - Section	SITE NAME	ATTRAC-TANT TYPE	PRIORITY (Low, Medium, High)	REMEDIAL ACTION NEEDED
13	ID / CWNF	33-8-24	Coolwater Lookout	G, F, food prep.	H	Education, Container
14	ID / NPNF	32-11-11	Bearwallow Lookout	G, F	L	Education
15	ID / PVT	32-21-2	Private residence	G, F	L	Is this private or permit?
16	ID / NPNF	32-12-11	Moose Creek Ranger Station	G, F, food prep, airstrip	H	Container, Education
17	MT / BRNF	5-23-32	Schumaker campground	G, F	M	Education
18	MT / BRNF	4-23-05	Lost Horse Ranger Station	G, F, food prep.	L	Education, Container
19	MT / BRNF	4-23-05	Bear Creek Pass campground, trailhead, and heliport	G, F	M	Education
20	MT / BRNF	4-22-12	Lost Horse Creek trailhead	G, F	M	Education
21	MT / BRNF	4-22-12	Lost Horse Observation Point		L	Education
22	ID / NPNF	33-12-36	Seminole Ranch	G, F	H	Container, Education
23	ID / NPNF	33-12-27	Shissler Peak Lookout	G, F, food prep.	H	Education, Container
24	ID / CWNF	33-8-4	Knife Edge recreation area & campground	G, F	H	Education, Container, Dumpster
25	ID / CWNF	33-8-5	Major Fenn recreation area & campground	G, F	H	Education, Container, Dumpster
26	ID / CWNF	33-7-12	Glade Creek recreation area & campground	G, F	H	Education, Container, Dumpster
27	ID / CWNF	33-7-11	Apgar recreation area & campground	G, F	H	Education, Container, Dumpster
28	ID / CWNF	34-7-4	Mex Mountain Ranger Station	G, F	H	Education, Container
29	ID / CWNF	34-9-23	Huckleberry Butte Lookout	G, F	L	Education
31	ID / CWNF	34-14-1	Hoodoo Lake recreation area & campground	G, F, stock	H	Stock feed, Container
32	ID / CWNF	34-15-8	Diablo Mountain Lookout	G, F	L	Education
33	ID / CWNF	34-16-6	Cabin at Big Sand Lake?	unknown	H	Education, Food Poles
34	MT / BRNF	6-22-21	Cabin at High Lake?	unknown	L	Education
35	MT / BRNF	6-22-11	Cabin at Hauf Lake	G, F	L	Education
36	ID / CWNF	35-16-16	Hidden Peak Lookout	G, F	L	Education

SITE NUMBER	LOCATION (STATE / LAND MANAGER)	Township-Range - Section	SITE NAME	ATTRAC-TANT TYPE	PRIORITY (Low, Medium, High)	REMEDIAL ACTION NEEDED
37	ID / CWNF	35-14-36	Elk Summit Ranger Station	G, F, food prep.	H	Education, Container, food poles
38	ID / CWNF	35-14-25	Muleshoe Creek Camp	G, F, stock	H	Education, Container, food poles
39	ID / CWNF	35-14-8	Grave Peak Lookout	G, F	L	Education
40	ID / CWNF	35-11-34	Fish Lake Cabin & airstrip	G, F	H	Container
41	ID / CWNF	35-11-17	Gold Meadows Cabin	unknown: G F assumed	L	Education
42	ID / CWNF	35-10-3	Boulder Creek horse camp	G, F, stock	M	Education
45	ID / CWNF	35-9-26(34)	Wilderness Gateway campground	G, F	H	Education, Dumpster
46	ID / CWNF	35-9-27	Lochsa Historic Ranger Station & heliport	G, F, food prep.	H	Education, Dumpster
48	ID / CWNF	35-8-24	Obia Cabin	G, F	L	Education
49	ID / CWNF	35-8-23	Hungry Creek Camp historic site	G, F assumed	L	Education
52	ID / CWNF	35-7-18	Jerusalem Artichoke Camp historic site	G, F	L	Education
53	ID / CWNF	35-7-14	Homesteak Meadow Camp historic site	G, F assumed	L	Education
54	ID / CWNF	35-7-24	Jackson's Cow Camp	stock	H	Education
55	ID / CWNF	35-7-9	Pete Forks campground	G, F	H	Education
56	ID / CWNF	36-7-7	Hemlock Butte LO	G, F	L	Education
57	ID / CWNF	36-7-20	Camp Martin campground	G, F	L	Education
58	ID / CWNF	36-7-11	Foottrot Corrals site	?unknown	M	Education
59	ID / CWNF	36-7-1	Savage Camp	G, F, stock	M	Education
60	ID / CWNF	36-8-6	19-Mile Camp	G, F, stock	M	Education
61	ID / CWNF	36-8-29	Weitas Meadows campground	G, F	H	Education
62	ID / CWNF	36-8-20	Rocky Ridge Lake campground	G, F	H	Education
63	ID / CWNF	36-8-10	Weitas Butte Lookout	G, F	L	Education
64	ID / CWNF	36-9-32	Horse Sweat Pass trailhead	G, F, stock	L	Education
65	ID / CWNF	36-9-34	Spirit Revival Ridge site	unknown	M	Education
66	ID / CWNF	36-9-12	Liz Creek Cabin Hunter Camp	G, F	H	Education, Food Pole?
67	ID / CWNF	36-9-24	Dry Camp site	?unknown	L	Education

SITE NUMBER	LOCATION (STATE / LAND MANAGER)	Township-Range - Section	SITE NAME	ATTRAC-TANT TYPE	PRIORITY (Low, Medium, High)	REMEDIAL ACTION NEEDED
68	ID / CWNF	36-10-17	Greensward Camp site	unknown	M	Education
69	ID / CWNF	36-10-28	Castle Butte Lookout (rental) & heliport	G, F	L	Education, Food Pole
70	ID / CWNF	36-10-1	Smoking Place site	?unknown	M	Education
71	ID / CWNF	36-10-1	Indian Grave site	?unknown	M	Education
72	ID / CWNF	36-11-13	Weir Creek Hot Springs	G, F, heavy night use	H	Education, Dumpster
73	ID / CWNF	36-12-26	Bear Mt. Lookout	G, F	L	Education
74	ID / CWNF	36-12-15	Colgate Licks Trail	G, F	L	Container, Dumpster
75	ID / CWNF	36-12-12	Jerry Johnson campground	G, F	H	Container, Dumpster
76	ID / CWNF	36-13-17	Jerry Johnson Hot Springs	G, F, heavy night use	H	Container
77	ID / CWNF	36-14-5	Jay Point Lookout	G, F	L	Education
78	ID / CWNF	36-14-20	Tom Beal Park Trailhead	G, F	L	Education
79	ID / CWNF	36-15-25	Colt Creek Cabin	G, F	L	Education
80	ID / CWNF	37-16-10	Beaver Ridge Lookout	G, F	L	Education
81	ID / CWNF	37-14-2	Rocky Pt. Lookout	G, F	L	Education
82	ID / CWNF	37-14-23	DeVoto Memorial Cedar Grove	G, F	M	Container, Dumpster
83	ID / CWNF	37-14-34	White Sand campground	G, F	M	Container, Dumpster
84	ID / CWNF	37-14-33	Powell Ranger Station and residences	G, F, food prep.	H	Container, Dumpster
85	ID / CWNF	37-14-33	Lochsa Lodge	G, F, food prep.	H	Container, Dumpster
86	ID / CWNF	37-14-32	Powell campground	G, F	H	Container, Dumpster
87	ID / CWNF	37-14-16	Bear camp	G, F	L	Education
88	ID / PCPVT	37-14-5	13-Mile Camp site	?unknown	L	Education, Dumpster
89	ID / CWNF	37-13-36	Whitehouse campground	G, F	H	Container, Dumpster
90	ID / CWNF	37-13-35	Wendover campground	G, F	H	Container
91	ID / CWNF	37-13-15	Wendove Ridge site	?unknown	L	Education
92	ID / CWNF	37-13-3	Snowbank Camp site	unknown	L	Education
93	ID / CWNF	37-12-2	Bear Oil & Roots site	?unknown	L	Education
94	ID / CWNF	37-12-17	Indian Post Office site	unknown	M	Education
95	ID / CWNF	37-12-18	Lonesome Cove Camp site	unknown	L	Education

SITE NUMBER	LOCATION (STATE / LAND MANAGER)	Township-Range - Section	SITE NAME	ATTRAC-TANT TYPE	PRIORITY (Low, Medium, High)	REMEDIAL ACTION NEEDED
96	ID / CWNF	37-11-22	Howard Camp site	?unknown	M	Education
97	ID / CWNF	37-11-28	Devil's Chair site	unknown	L	Education
98	ID / CWNF	37-11-32	Saddle Camp	G, F, stock	H	Education
99	ID / CWNF	37-11-31	Sinque Hole site	?unknown	L	Education
100	ID / CWNF	37-10-12	Windy Ridge Camp	G, F, stock	M	Education
101	ID / CWNF	37-9-6	Horse Camp	G, F, stock	M	Education
102	ID / CWNF	37-8-15	Weitas Ranger Station	G, F	H	Education
103	ID / CWNF	37-8-32	Wedge Camp	G, F, stock	L	Education
104	ID / CWNF	38-8-15	Weitas campground & heliport	G, F	H	Education
105	ID / CWNF	38-8-11	Youth Camp	G, F, food prep	M	Container
106	ID / CWNF	38-9-20	Camp George	G, F, stock	H	Education
107	ID / CWNF	38-11-4	Cayuse Airstrip	G , F, stock	H	Education
108	ID / CWNF	38-15-32	21-Mile Camp site	?unknown	L	Education
109	ID / CWNF	38-15-11	Lolo Pass Visitor Center	G, F	M	Education, Two Dumpsters
110	ID / PCPVT	38-15-21	Glade Creek Camp site	?unknown	L	Education
111	ID / CWNF	39-11-16	Kelly Creek Ranger Station & heliport	G, F	H	Container
112	ID / CWNF	39-11-9	Ruby Creek campground	G, F	H	Education
113	ID / CWNF	39-11-9	Idaho F&G Cabin at Kelly Creek	G, F	M	Education
114	ID / CWNF	39-11-30	Scurvy Mountain Lookout	G, F	L	Education
115	ID / CWNF	39-10-18	Kelly Forks campground	G, F	H	Education
116	ID / CWNF	39-9-13	Kelly Forks RS & heliport	G, F	H	Education
117	ID / CWNF	39-9-25	Junction Mt. Lookout	G, F	L	Education
118	ID / CWNF	39-9-14	Cold Springs Ranger Station	G, F	L	Education
119	ID / CWNF	39-9-32	Noe Creek campground	G, F	H	Container
120	ID / CWNF	39-7-22	Washington Creek campground	G, F	H	Container
121	ID / CWNF	40-7-5	Aquarius campground	G, F	H	Container
122	ID / CWNF	40-7-4	Canyon Ranger Station & heliport	G, F	H	Container
123	ID / CWNF	40-8-1	Wallow Mountain Lookout	G, F	L	Education
124	ID / CWNF	40-10-3	Hidden Creek campground	G, F	H	Education

SITE NUMBER	LOCATION (STATE / LAND MANAGER)	Township-Range - Section	SITE NAME	ATTRAC-TANT TYPE	PRIORITY (Low, Medium, High)	REMEDIAL ACTION NEEDED
125	ID / PVT	40-11-29	Moose City site	G, F assumed	L	Education
126	ID / CWNF	40-11-12	Osier Ridge Lookout	G, F	L	Education
128	ID / PCPVT	41-11-32	Dispersed camps	G, F assumed	L	Education
129	ID / CWNF	41-11-28	Olsen Grave site	?unknown	L	Education
130	ID / CWNF	41-11-28	Cedars campground	G, F	H	Education
131	ID / CWNF	41-7-23	Black Mountain Lookout	G, F	L	Education
132	ID / CWNF	41-7-31	Isabella Landing dispersed camp site	unknown	H	Education
133	ID / SJNF	42-6-12	Trappers Cabin site	?unknown	L	Education
134	ID / SJNF	42-7-11	Surveyor's Ridge Lookout	G , F	L	Education
135	ID / CWNF	42-7-36	Mallard Peak Lookout	G, F	L	Education
136	ID / CWNF	42-10-24	Cabin - mining claim	?unknown	H	Education
137	ID / CWNF	42-11-23	Hoodoo Pass Trailhead	G, F	M	Education
140	ID / NPNF	31-9-3	Gedney Creek campground	G, F	M	Education, Container
141	ID / NPNF	31-9-3	Fog Mountain Junction Trailhead	G, F, stock	H	Education, Container
142	ID / NPNF	31-9-2	Selway Falls Ranger Station	G, F, stock, food prep.	H	Container, Dumpster, Education
144	ID / NPNF	31-9-11	Race Creek Takeout, Trailhead, and Campground	G, F, stock	H	Container, Education
145	ID / NPNF	31-9-11	Selway Falls campground	G, F, stock, food prep.	M	Container, Education
148	ID / NPNF	31-9-14	Slims campground	G, F, stock, food prep.	M	Container, Education
149	ID / NPNF	31-10-29	Indian Hill Lookout	G, F, food prep.	H	Container, Education
150	ID / NPNF	31-13-28	Shearer Ranger Station & Airstrip	G, F, stock, food prep.	H	Education, Container
151	ID / PVT	31-13-21	Selway Lodge	G, F, stock, food prep.	H	Container, Education
152	ID / BRNF	30-14-6	Gardiner Peak Lookout (not manned)	G, F, food prep.	L	Education, Container
153	ID / PVT	30-13-15	North Star Ranch and airstrip	G, F, stock, food prep.	L	Container, Education

SITE NUMBER	LOCATION (STATE / LAND MANAGER)	Township-Range - Section	SITE NAME	ATTRAC-TANT TYPE	PRIORITY (Low, Medium, High)	REMEDIAL ACTION NEEDED
154	ID / PVT	30-13-27	Running Creek Ranch and airstrip (Hornocker)	G, F, stock, food prep.	L	Container, Education
155	ID / NPNF	30-8-2	Limber Lake campground	G, F	L	Education, Container
156	ID / NPNF	29-9-3	Anderson Butte Lookout	G, F	M	Education
157	ID / NPNF	29-10-4	Meadow Creek Ranger Station	G, F	H	Education, Container
158	ID / NPNF	29-12-13	Trailhead	G, F, stock	L	Education
159	ID / BRNF	29-14-9	Paradise campground	G, F	H	Container, Education
160	ID / BRNF	29-14-9	Paradise Ranger Station	G, F, stock	H	Container, Education
161	ID / BRNF	29-15-4	Coopers Flat Ranger Station, and Trailhead	G, F	L	Education
162	ID / BRNF	28-16-32	Nez Perce Pass Trailhead	G, F, stock	M	Education
163	ID / BRNF	28-14-34	Deep Ck. campground	G, F	H	Container, Education (or pack in/out)
164	ID / BRNF	28-14-29	Magruder Crossing campground	G, F	L	Education
165	ID / BRNF	28-14-6	Indian Creek campground & Trailhead	G, F, stock	L	Education
166	ID / BRNF	28-14-7	Echo Creek Trailhead	G, F, stock	L	Education
167	ID /BRNF	28-14-18	Raven Creek campground	G, F	L	Education
169	ID / BRNF	28-13-4	Spot Mountain Lookout	G, F	L	Education
170	ID / NPNF	28-11-36	Poet Creek campground	G, F	M	Education, stock feed, Container, food pole
171	ID / NPNF	28-11-15	Green Mt. Lookout: non-operational	unknown	L	Education, food pole
172	ID / NPNF	28-11-32	Granite Spring campground	G, F	L	Education, food pole
173	ID / NPNF	27-10-12	Boston Mountain Trailhead	G, F, stock	L	unknown
174	ID / BRNF	27-12-27	Sabe Vista site	?unknown	L	Education
175	ID / BRNF	27-12-36	Horse Heaven Saddle & Trailhead	G, F, stock	M	Education, food pole, stock feed, Container
176	ID / BRNF	26-13-4	Trailhead 119 near salmon basecmp	G, F, stock	M	Education
178	ID / BRNF	27-13-23	Observation Pt. on Magruder Road	unknown	L	Education
179	ID / BRNF	27-13-12	Magruder Saddle Trailhead	G, F, stock	M	Education
180	ID / BRNF	27-14-18	Kim Creek Saddle Trailhead	G, F, stock	M	Education, Stock feed, Container
181	ID / BRNF	27-15-5	Cayuse Mountain Trailhead	G, F, stock	M	Education

SITE NUMBER	LOCATION (STATE / LAND MANAGER)	Township-Range - Section	SITE NAME	ATTRAC-TANT TYPE	PRIORITY (Low, Medium, High)	REMEDIAL ACTION NEEDED
182	MT / BRNF	1-22-14	Boulder Point Lookout (no staff)	G, F	L	Education
183	MT / BRNF	9-21-28	St. Mary's Peak Lookout & Trailhead - Staffed	G, F	L	Education
184	MT / BRNF	10-21-30	Bass Lake	G, F	L	Education, Food pole
185	MT / LLNF	40-25-6	Clearwater Crossing Guard Station	G, F	H	Hunter ed., food storage, possible dumpster
186	MT / LLNF	13-25-6	Clearwater Crossing campground	G, F	H	Education
187	MT / LLNF	12-25-08	Schley Mountain Trailhead	G, F, stock	H	Education
189	ID / SJNF	43-7-30	Snow Pk. Lookout	G, F	L	Education
190	ID / SJNF	44-8-36	Fly Flat campground	G, F	L	Education
191	ID / SJNF	43-9-8	Beaver Creek campground	G, F	L	Education
192	ID / SJNF	43-9-20	Red Ives Ranger Station & Work Ctr.	G, F, food prep.	L	Education, Container
193	ID / SJNF	43-9-29	Spruce Tree campground	G, F	L	Education
194	ID / SJNF	43-10-17	Heller Creek campground	G, F	L	Education
195	ID / SJNF	43-10-15	Gold Nugget Mine	?unknown	L	unknown
196	ID / BRNF	6-21-17	Blodgett campground	F, G	H	Dumpster, Education
197	MT / BRNF	7-18-06	Gold Ck campground	F, G	M	Education
198	MT / BRNF	8-20-10	Big Ck Trailhead & picnic area	F, G	M	Education, Dumpster
199	MT / BRNF	7-20-08	Bear Ck. Trailhead &picnic area	F, G	M	Education
200	MT / BRNF	10-22-27	Alta campground	F, G	H	Education, Dumpster
201	MT / BRNF	10-20-32/28	Bass Ck Rec. Area	F, G	H	Dumpster, Education
213	MT / PVT	Lolo Hot Springs	Resort - multiple complaints	Garbage / grease	H	Education, Litigation Containers, Three Dumpsters
215	MT / BRNF	1-21-19	West Fork Ranger Station	garbage	H	Container, Three Dumpsters
216	MT / BRNF	2-21-27	Trapper Creek Job Corps	garbage	M	Education, Container, Three Dumpsters
217	MT / BRNF	4-21-29/30/32	Como Lake campgrounds	F, G	H	Education, Container
218	MT / BRNF	1-23-16	Fales Flat campground	F, G	M	Education
219	MT / BRNF	1-22-11	Rombo Creek below Painted Rocks	F, G	H	Education, Container

SITE NUMBER	LOCATION (STATE / LAND MANAGER)	Township-Range - Section	SITE NAME	ATTRAC-TANT TYPE	PRIORITY (Low, Medium, High)	REMEDIAL ACTION NEEDED
220	ID / NPNF	29-8-26	Elk City Red River Ranger Station	F, G, food prep.	M	Education, Container
224	General residential development along the Bitterroot National Forest in the Bear Creek, Sawtooth-Roaring Lion Creek, Owens Creek, Boulder Creek and West Fork of the Bitterroot are generally continual problems for Montana Department of Fish, Wildlife, and Parks wardens. General human-wildlife conflicts in these areas should be addressed through education and proper storage of foods and garbage.					
225	Educational materials are needed along the Magruder Corridor / West Fork of the Bitterroot River on federal lands.					

APPENDIX 23. LETTER CLARIFYING CONCLUSIONS OF TWO REPORTS [MELQUIST (1985) AND GROVES (1987)] REGARDING GRIZZLY BEAR PRESENCE IN CENTRAL IDAHO

IDAHO FISH AND GAME
600 South Walnut/Box 25
Boise, Idaho 83707-0025

Philip E. Batt/Governor
Stephen P. Mealey/Director

March 28, 1998

RECEIVED
AND WILDLIFE
GRIZZLY BEAR

Dr. Chris Servheen
Grizzly Bear Recovery Coordinator
U.S. Fish and Wildlife Service
University Hall, Rm. 309
University of Montana
Missoula, MT. 59812

Dear Dr. Servheen:

I would like to clarify some possible misperceptions about a completion report I wrote entitled, ***A preliminary survey to determine the status of Grizzly Bears in the Clearwater National Forest of Idaho***, dated 1 January 1985. In this report, I identified 2 bears as confirmed grizzlies: 1 reported killed in 1909, the rug of which I never observed; 1 reported killed by a Ranger Puckett in 1956 or 1957, which was later determined to actually be a black bear. I also compiled 8 reports of grizzly bears reportedly killed on or adjacent to the Clearwater National Forest between 1909 and 1978; 2 of these were the ones reported as confirmed grizzlies, while the remaining 6 reports could not be confirmed. In Table 6 I list 10 reports of reported sows with cubs observed between 1967 and 1984; none could be confirmed.

In my discussion regarding the "current status" of grizzlies in the Clearwater National Forest, I only speculate on whether or not grizzlies still existed in the Clearwater, based on, for the most part, subjective information provided to me by those I interviewed. The bottom line is that I failed to come up with imperical data to confirm the presence of grizzlies there. If I suggest that " a few grizzlies were likely to be inhabiting the area," it is only a subjective assessment on my part and should not be construed as evidence that grizzlies do indeed occupy the Clearwater country.

Similarly, when Craig Groves was working for me and completed, ***A compilation of grizzly bear reports for central and northern Idaho***, in February 1987, there was no imperical data to confirm the presence of grizzlies in central Idaho. To intepret the information from both reports as evidence grizzlies exist in the Clearwater area and central Idaho would be mere speculation and inappropriate.

Since these reports were completed, 2 remote camera surveys for grizzly bears were conducted in the Bitterroot Grizzly Bear Evaluation Area in 1990 and 1991. Neither survey revealed the presence of grizzly bears. These results, and those reported in 1985 and 1987, do not provide conclusive evidence that grizzlies do not exist in the Bitteroots. However, for all practical purposes, they provide pretty good evidence that grizzlies have probably been absent from the area for at least the past 50 years.

I hope this helps clarify intepretation of the results of the surveys. Please let me know if I can be of further assistance.

Sincerely,

Wayne Melquist

Wayne Melquist, Ph.D.
State Endangered Wildlife Coordinator

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APPENDIX 24. CORRESPONDENCE BETWEEN USFWS AND GOVERNOR OF MONTANA REGARDING GRIZZLY RECOVERY

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Washington, D.C. 20240

In Reply Refer To:
FWS/DTE/CCU98-00622

MAY - 1 1998

Honorable Marc Racicot
Governor of Montana
Helena, Montana 59620-0801

Dear Governor Racicot:

Thank you for your thoughtful letter of March 20 regarding Bitterroot grizzly bear recovery. You raise some important points and we will answer in order of the subjects you raised.

Funding existing recovery efforts: You are correct in stating that the Service record on commitment to funding the existing recovery efforts in both the Northern Continental Divide Ecosystem and the Yellowstone has varied from year to year. Funding for recovery implementation in existing ecosystems such as the NCDE and Yellowstone has declined since 1992. The Service is attempting to maintain efforts to move forward toward recovery of the grizzly bear and to meet the commitments made to the agencies and the public concerning the grizzly bear recovery program. The reasons for reduction in grizzly bear recovery funding, despite increasing levels of recovery funding from Congress for implementing the Endangered Species Act, relate to the changes in how recovery funding is allocated among the Regional Offices of the Service and to the increasing number of species being listed and, thus, increased recovery responsibilities by the Service. We are committed to complete the Bitterroot Environmental Impact Statement. We share your concern about the impact of funding consistency on achieving recovery in existing ecosystems and that the Bitterroot recovery program should not erode existing recovery programs. We will have to see how additional funding for recovery is appropriated by Congress when we make the decision about implementing the alternative selected in the final EIS. Every effort will be made to stabilize recovery implementation funding for the existing ecosystems and to assure you that any actions to implement the Bitterroot recovery alternative will not result in reductions in the funding in existing recovery programs in other ecosystems. We understand that implementation of recovery in the Bitterroot, should that be the decision, will have to be funded above and beyond the funding necessary to continue recovery in existing ecosystems.

Mortality quotas and bear removal: We will not remove bears from either the Yellowstone or the NCDE for the Bitterroot if that would impact the mortality quotas and therefore delay recovery for these populations. Both the NCDE and Yellowstone ecosystems currently meet the mortality limits for total human-caused mortality, but they both exceed the limits for female mortalities. If the proposed action selected is placement of bears into the Bitterroot, the average removal from

the Yellowstone and the NCDE would be 1.5 bears per ecosystem per year for 5 years, and any removals would be males. If the total mortality limit was exceeded for either ecosystem or even close to being exceeded, no bears would be removed from that ecosystem.

While you are correct that any removals from the Bitterroot would be before the fall season when many mortalities take place (bears removed for the Bitterroot would most likely be removed in July), we do have data on food resource and climate conditions each year which will allow us to estimate the level of human-bear conflict and potential bear mortality by midsummer. Working closely with Montana Fish, Wildlife and Parks, we will jointly analyze and decide on the risk of exceeding the mortality limits prior to removing any bears from the NCDE. While this is not completely foolproof, it does allow reasonable and joint judgment on the potential to exceed the mortality limit based on environmental conditions. If mortality figures begin to approach the established limits, bears will not be removed from those affected ecosystems until these figures are again within the prescribed limits. Also, there is potential to remove bears from the Yellowstone ecosystem from beyond 10 miles from the recovery zone line where such removals would not count against the mortality limit in any way.

In reference to your concern about the Service opposing Montana's spring grizzly bear hunt, the Service was initially concerned that such a hunt could exceed mortality quotas if there were no limits on the number of spring hunt kills. Once Montana assured us of their sensitivity to the need for such mortality limits, the Service supported this spring hunt. Such limits on spring hunting mortalities are similar to the limit of 1.5 bears per year on average to be moved into the Bitterroot from the NCDE, should such an alternative be selected.

As to the age of the bears removed, the optimum age would be subadult animals. As you correctly state, we would not want to move bears with a history of bear-human conflict into the Bitterroot. However, we would consider the use of subadult bears from areas where populations can sustain the limit of an average of 1.5 removals per year on average over 5 years. We believe there are many areas in the NCDE which could sustain this modest rate of removal and that such removals may in fact reduce human-bear conflict potential. Any NCDE bears removed would be subadult males which are often the most likely to get into trouble anyway.

An additional issue of concern related to achievement of recovery in Yellowstone or other ecosystems is the fact that current Montana law allows anyone to kill a grizzly bear threatening livestock. This Montana law is currently superseded by Federal law prohibiting persons from killing grizzly bears except in self-defense or defense of others. Before delisting can occur in any ecosystem, State laws must be adequate to allow the State to manage and limit human-caused grizzly mortality. Wyoming had a similar provision in their law. Because Wyoming law would preclude delisting, the Wyoming Game and Fish Department proposed changing this law to the Wyoming legislature in early 1998. The Wyoming legislature passed the law change this year to limit killing of grizzly bears by private persons, thus demonstrating that adequate regulatory mechanisms exist in Wyoming to allow the State to limit grizzly bear deaths. The current Montana law allowing anyone to kill a grizzly bear threatening livestock will preclude the

possibility of delisting the Yellowstone grizzly bears until it is changed. We urge you to support such a change in Montana law so that Montana will have adequate regulatory mechanisms to limit grizzly mortality. It would be unfortunate if the only issue holding up a proposal to delist the Yellowstone grizzly population was Montana law allowing unregulated killing of grizzly bears threatening livestock. Service personnel have discussed this issue in detail with representatives of the Montana Fish, Wildlife and Parks Department. We remain available to assist in the necessary change in State law so that we can proceed with recovery and delisting when the population and habitat criteria have been met in the Yellowstone and other ecosystems.

We hope this answers your concerns in sufficient detail to allow you to continue to support the Bitterroot recovery effort should funding be available and to assure you that removals from existing ecosystems would not impair recovery potential for these ecosystems.

If you or your staff have further concerns and questions about this issue, please contact Regional Director Ralph Morgenweck at (303) 236-7920.

Sincerely,

DIRECTOR

OFFICE OF THE GOVERNOR
STATE OF MONTANA

MARC RACICOT
GOVERNOR

STATE CAPITOL
HELENA, MONTANA 59620-0801

July 1, 1998

Jamie Rapport-Clark
Director, U.S. Fish and Wildlife Service
U.S. Department of the Interior
Washington DC 20240

Dear Director Clark:

Thank you for your May 1, 1998, response regarding the Bitterroot grizzly bear environmental impact statement. We do appreciate your continued effort to explain the Fish and Wildlife Service's position on the various components of this complex issue.

At the outset, let me say, we still believe that a citizen management approach to the Endangered Species Act offers a new opportunity for progress that we have not had before. We strongly believe that collectively we can do a better job managing our shared resources -- which includes fish and wildlife -- while taking into consideration the stability and predictability of our local communities.

Now we are at a point where we need to determine whether the Department of the Interior (DOI) and U.S. Fish and Wildlife Service (Service) can meet the challenges which were laid out by the State of Montana in the formal comments submitted on September 20, 1997. If the challenges cannot be met, then the State will evaluate the situation and further refine our position.

We have continued to stress the importance of completing the current recovery process. In my October 7, 1998, letter referencing the challenges which must be met to receive Montana's support I wrote, there are "two (challenges) requiring the written assurances of the Secretary:

1. to ensure that adequate federal funding is in place for the recovery efforts in the Northern Continental Divide Ecosystem (NCDE) and the Yellowstone Ecosystem (YE), which now are distinctly suffering from lack of federal support prior to funding the Bitterroot reintroduction; and

TELEPHONE: (406) 444-3111 FAX: (406) 444-5529

2. to assure that the removal of bears form the NCDE and YE do not count against the mortality quota or in any way have a negative impact on or delay of delisting in either of the other two ecosystems."

Unfortunately, the written assurance we have received is not sufficient.

Your November 1997 letter stated that the Service "may increase funds in the future to maintain recovery progress in the Northern Continental Divide and Yellowstone Ecosystems. This funding would be in addition to what is needed to accomplish the Bitterroot reintroduction effort." Your May 1, 1998, letter states "Every effort will be made to stabilize recovery implementation funding for the existing ecosystems to assure you that any action to implement the Bitterroot recovery alternative will not result in reductions in the funding in existing recovery programs in other ecosystems." In addition, your recent letter acknowledges grizzly bear recovery funding has decreased since 1992 even though overall funding for recovery has been increased by Congress. You further mention the problem is how recovery funding is allocated among the regional offices of the Service and new listings under the Endangered Species Act. While I appreciate the commitment about the Bitterroot proposal not impacting funding of other efforts, your letter still lacks a commitment to the funding necessary for recovery efforts in existing ecosystems such as the NCDE and YE.

As I mentioned in my March 20, 1998, letter we could provide factual verification of NCDE and YE funding commitments made and not kept by the Service. It is because of this and your recent qualified statements that we remain skeptical about the level of funding for NCDE and YE. Currently, Montana is contributing over $225,000 to recovery efforts while the Service allocated $25,000 in Section 6 funds for grizzly bears in Montana. This is important to mention since the Endangered Species Act actually requires 90 percent federal funding and 10 percent state.

If the Service cannot meet its existing financial commitments, we question the wisdom of creating new financial demands. As I mentioned in March, Montana's commitment to grizzly bear reintroduction is dependent upon a firm and irrevocable commitment that the Service itself will commit in writing to the funding necessary to completely and wholly fund the project as well as meet the considerable current and future financial needs of the NCDE and the YE efforts so that delisting can commence. I hope you can understand our reluctance to see a new effort started when existing priority needs cannot be funded.

We appreciate your clarification of the process for removing bears from the system. This is certainly an improvement over earlier descriptions. However, while it is clearer, we do not see how the process can fully alleviate our concern that removals which count against mortality quotas can lead to delays in recovery given our inability to control other forms of

mortality. We also ask if there are enough bears to move them to the Bitterroot then why are there not enough bears to delist the bear? We who live in this state with the grizzly bear expect that recovery will be achieved and as mentioned earlier have contributed financially toward that goal. Any action that might jeopardize that goal will be dimly viewed, especially if mortality created by relocation out of the ecosystem is associated with a brand new recovery effort.

As to your comments about Montana statutes concerning grizzly bears, we are fully aware of the changes which would be necessary in the federal delisting process. We have asked the Service to brief the Montana legislative Environmental Quality Council, and we will take appropriate action at the appropriate time.

I still support the concept of a stronger citizen role in the Endangered Species Act process. However, I question the feasibility of launching into a new effort without achieving recovery in the current identified ecosystems. We are at a point in this process where we need to have mutually agreeable answers to these challenges and the other mentioned in our formal comments. If these cannot be reached, then I think we need to reevaluate this process.

I look forward to hearing from you.

Sincerely,

MARC RACICOT
Governor

cc: Don Barry, Acting Assistant Secretary for Fish and Wildlife and Parks
Pat Graham, Montana Fish, Wildlife & Parks

APPENDIX 25. DEFINITION REGARDING EXISTENCE OF A MINIMAL GRIZZLY BEAR POPULATION

(Note: The USFWS has been searching for grizzly bears in the Bitterroot Ecosystem since they were listed in 1975, and evaluated historical reports of grizzly bear observations prior to listing. The EIS Team reviewed and researched all sighting reports to date, and concluded there is currently no verified evidence of the presence of grizzly bears in the Bitterroot Ecosystem. Although the USFWS continues to receive sporadic reports of grizzly bears, none have been verified and confirmed. The USFWS continues to follow-up on all credible sightings and reports that are received in a timely manner.)

The process used for developing a definition regarding presence of a population of grizzly bears within the Bitterroot Ecosystem was similar to that used in the Environmental Impact Statement (EIS) for Gray Wolf Reintroduction to Yellowstone National Park and Central Idaho (USFWS 1994). Comments were solicited from 54 biologists familiar with bear populations, to build a definition of population presence for use in determining the feasibility of experimental population status under Section 10j of the Endangered Species Act (ESA). Under Section 10(j), experimental populations must be "wholly separate geographically from nonexperimental populations of the same species." Wells and Richmond's (1995) review of population definitions was provided to those solicited to aid in development of a definition. The initial request for comment was followed later by a second request to those that had not provided comment. The proposed definition was modeled after the definition used in the Gray Wolf EIS and biologists were asked to respond with comments or criticisms. The proposed definition that was provided to those biologists who were solicited follows:

"Documentation (consisting of photos within the area, verified tracks, and/or sightings by reputable scientists or agency personnel) of at least two adult female grizzly bears with young within the previous six years within a geographically distinct area separate from any existing populations."

Comments on this proposed definition were received from 37 biologists. The majority of comments indicated that a definition should include concepts related to reproduction and the occupancy of a geographically defined area. Most respondents believed that observations of females with young were sufficient to indicate reproduction, but there was less agreement on how many females were necessary. Responses ranged from one to five females with young during one to six years. Several biologists thought one female with young could be a "dispersing or erratic individual" and that two females would indicate a higher level of reproductive continuity and likelihood of population persistence.

The question of geographical separation from other populations was raised by several respondents. Suggestions were made to use a distance from other populations that was based on an adult female home range diameter. Other respondents indicated that gene flow was an important factor, but was difficult to measure and dependent on the time frame involved. One respondent suggested that bears should be considered one population until genetic sampling determined otherwise.

There was some consensus that protocol for detection of a minimal population should be separate from the definition of what constitutes a minimal population. There was concern that this process was less a scientific

concern than it was the development of legal semantics to justify a management approach. One respondent suggested that this lack of clear definition in ESA should be addressed through a legislative response.

Based upon comments received from 37 biologists, we amended the proposed definition to the following definition of a population for the purposes of the Final EIS:

"A grizzly bear population is defined by verified evidence within the previous six years, consisting of photos within the area, verified tracks and/or sightings by reputable scientists or agency personnel, of at least two different female grizzly bears with young or one female seen with different litters in two different years in an area geographically distinct from other grizzly bear populations. Verifiable evidence of females with young, to be geographically distinct, would have to occur greater than 10 miles (USFWS 1993) from the nearest non-experimental grizzly bear population recovery zone boundary."

It is important to recognize that this definition represents a minimal grizzly bear population and is not intended to define a recovered or viable population. Minimal population merely identifies an existing population.

Literature Cited

U.S. Fish and Wildlife Service. 1993. Grizzly bear recovery plan. U.S. Fish and Wildlife Service, Missoula, Montana. 181 pp.

United States Fish and Wildlife Service. 1994. Final environmental impact statement. The reintroduction of gray wolves to Yellowstone National Park and central Idaho. USDI Fish and Wildl. Serv., Helena, Mont.

Wells, J. V. and M. E. Richmond. 1995. Populations, metapopulations, and species populations: what are they and who should care? Wildl. Soc. Bull. 23:458-462.

The following biologists were asked to review the definition and provide comment or criticisms. Responses were received from individuals with an asterisk following their name.

Jon Almack
Gary Alt
Keith Aune
Vivian Banci*
John Beecham*
Bonnie Blanchard
Mark Boyce*
Dan Carney*
Jim Claar
Derek Craighead
John Craighead*
Lance Craighead*
Arnold Dood*
David Garshelis*
Mike Gibeau*
Susan Hall*
Tony Hamilton*
Alton Harestad*
Richard Harris*
Steve Herrero*
Fred Hovey*
Charles Jonkel
Wayne Kasworm*
Jeff Keay*
Kate Kendall
Roy Kirkpatrick*
Dick Knight*
Rick Mace
Tim Manley
David Mattson*
Wayne McCrory*
Bruce McLellan*
Wayne Melquist
Lee Metzgar*
Sterling Miller*
Dave Moody
Cliff Musgrave*
Steve Nadeau*
Paul Paquet*
Jim Peek*
Michael Pelton
Tom Puchlerz*
Harry Reynolds*
Bill Ruediger
John Schoen*
Charles Schwartz*
Shawn Sharpe*
Mitchell Taylor
Michael Vaughn*
Wayne Wakkinen*
Robert Weilgus*
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