

BIOLOGICAL OPINION

ON

AMENDMENT 19

TO THE

FLATHEAD NATIONAL FOREST PLAN

U. S. FISH AND WILDLIFE SERVICE  
MONTANA FIELD OFFICE  
HELENA, MONTANA

January 6, 1995

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## Table of Contents

	Page
List of Figures and Tables . . . . .	ii
Introduction . . . . .	1
Background . . . . .	1
Status of the Grizzly Bear . . . . .	3
Description of the Proposed Action . . . . .	6
Environmental Baseline . . . . .	8
Effects of the Proposed Action on Listed Species . . . . .	11
Habituation and Mortality . . . . .	12
Displacement and Security . . . . .	15
Fragmentation and Linkage Zones . . . . .	18
Basis for Opinion . . . . .	18
Cumulative Effects . . . . .	27
Biological Opinion . . . . .	28
Incidental Take . . . . .	29
Reasonable and Prudent Measures . . . . .	32
Terms and Conditions . . . . .	33
Reporting Requirements . . . . .	34
Administrative Amendment to Previous Incidental Take Statements . . . . .	35
Conservation Recommendations . . . . .	35
Reinitiation Requirement . . . . .	37
Literature Cited . . . . .	38
Appendices	
A. List of Acronyms . . . . .	41
B. Interagency Grizzly Bear Guidelines (51 FR 42863) . . . . .	42
C. Proposed Changes to the Forest Plan . . . . .	46
D. Flathead National Forest BMU Subunits . . . . .	53
E. BMU Subunit Total and Open Motorized Access . . . . .	54
F. CEM Habitat Effectiveness Values . . . . .	56

# List of Figures and Tables

	Page
Figure 1. Current Grizzly Bear Ecosystems in the United States . . . . .	4
Figure 2. Northern Continental Divide Grizzly Bear Recovery Zone . . . . .	5
Figure 3. BMU Subunits on the Flathead National Forest . . . . .	9
Table 1. South Fork Study Area BMU Subunit Access Parameters .	23

## Introduction

The following is the Fish and Wildlife Service's (Service) biological opinion prepared in response to an October 27 request from the U.S. Forest Service to initiate formal consultation under section 7 of the Endangered Species Act of 1973, as amended (Act), for Amendment #19 (Amendment) to the Flathead National Forest Land and Resource Management Plan (Forest Plan). The Service has examined the proposed amendment according to the section 7 Interagency Cooperation Regulations (50 CFR 402, 51 FR 19957-19963).

Section 7(b)(3)(A) of the Act requires that the Secretary of Interior issue biological opinions on Federal agency actions that may affect listed species or critical habitat. Biological opinions determine if the action proposed by the action agency is likely to jeopardize the continued existence of listed species or destroy or adversely modify critical habitat. Section 7(b)(3)(A) of the Act also requires the Secretary to suggest reasonable and prudent alternatives to any action that is found likely to result in jeopardy or adverse modification of critical habitat, if any has been designated.

This biological opinion refers to the proposed Amendment to the Forest Plan and refers only to the potential effects of the proposed Amendment on grizzly bears. The Service has reviewed the Biological Assessment prepared for the proposed Amendment (U.S. Forest Service 1994a) and concurs with the Flathead National Forest's (Forest) determination that the proposed Amendment would have no effect on endangered gray wolves (Canis lupus), peregrine falcons (Falco peregrinus), or threatened water howellia (Howellia aquatilis), and may have beneficial effects on bald eagles (Haliaeetus leucocephalus). This biological opinion does not address the overall environmental acceptability of the proposed actions.

This biological opinion also administratively amends previous incidental take statements issued by the Service regarding projects on the Forest. The proposed Amendment would establish programmatic direction for access management on the Forest based on recent information not available at the time the previous incidental take statements were issued.

## Background

On May 15, 1985, the Service (U.S. Fish and Wildlife Service 1985) issued a not likely to jeopardize biological opinion on the Forest Plan (U.S. Forest Service 1985) regarding species listed as threatened or endangered under the Act. The Forest Plan (and amendments) is a general programmatic planning document that provides management goals, objectives, standards, and guidelines, under which project level activities (e.g., timber sales and associated roads) may be planned and implemented. Because of appeals, amendments to the Forest Plan were proposed. Through

formal consultation, the Service reviewed the proposed amendments and issued a not likely to jeopardize biological opinion regarding listed species on February 22, 1989 (U.S. Fish and Wildlife Service 1989a). After issuance of the 1985 biological opinion, the Service revised the regulations that governed the section 7 consultation process. Those regulations (Interagency Cooperation - Endangered Species Act of 1973, as amended (50 CFR 402)) were published in the Federal Register on June 3, 1986. On July 18, 1989, the Service administratively amended the biological opinion on the 1985 Forest Plan and amendments to conform to the revised regulations by providing an incidental take statement (absent in the 1985 opinion) and to clarify the following: (1) scope of agency action consulted on, (2) current status of listed species, (3) effects of the action on listed species, and (4) recommendations made in the 1985 biological opinion (U.S. Fish and Wildlife Service 1989b).

Through this previous informal and formal consultation process, the Service and the Forest developed and incorporated into the Forest Plan and amendments, management guidelines for all listed species and a management framework within which to conduct Forest Plan activities. For the grizzly bear, this management framework consisted of: (1) stratifying grizzly bear habitat into Management Situations 1, 2, and 3 (MS-1, MS-2, MS-3) pursuant to the Interagency Grizzly Bear Guidelines (51 FR 42863, November 26, 1986) (see Appendix B); (2) incorporating within the Forest Plan the definitions and management direction for each Management Situation according to the Interagency Grizzly Bear Guidelines; and (3) developing standards and guidelines for MS-1 and MS-2 that were specific to the Forest, to coordinate multiple-use activities with the needs of grizzly bears. These standards and guidelines were consistent with the management direction for each management situation.

Standards and guidelines were developed for the grizzly bear pursuant to its listing as a threatened species because of the evidence that negative impacts to grizzly bears occurred as a result of logging, roads, recreation, mining, and other human activities. The listing of the grizzly bear required the Federal Agencies to: (1) utilize their authorities to carry out conservation programs for listed species, (2) ensure that their activities not jeopardize the continued existence of the grizzly bear, and (3) ensure that their activities or programs not result in the destruction or adverse modification of critical habitat. Standards and guidelines for the Forest were developed to avoid the likelihood of jeopardy, contribute toward conservation, and coordinate Forest activities with the biological needs of the grizzly bear.

On February 22, 1989, a lawsuit challenging the Forest Plan and the accompanying Environmental Impact Statement was filed by Resources Limited, Inc., Swan View Coalition, Inc., Friends of the Wild Swan, Five Valleys Audubon Society, and the Sierra Club. The District Court initially decided in favor of the Forest Service, but following an appeal, the Ninth Circuit Court amended

that decision on July 5, 1994. The Ninth Circuit Court reversed the District Court ruling in part and "set aside the Forest Service's determination that implementation of the Plan would not jeopardize the continued existence of listed species." The Court ruled that the Forest must reinitiate formal consultation with the U.S. Fish and Wildlife Service regarding the current Forest Plan, or amend the Forest Plan to include an amended Allowable Sale Quantity (ASQ) in consideration of listed species.

Based on several factors, including recent information regarding the effects of roads on grizzly bears and recent biological opinions submitted by the Service regarding roads and bears, the Forest chose to amend the Forest Plan and ASQ.

The direction in the proposed Amendment will be in effect until the Forest Plan is revised. The Forest Plan revision will tier to analysis, guidance, and decisions contained in the Upper Columbia River Basin Assessment and associated Montana-Idaho Environmental Impact Statement, and the management recommendations of the Interagency Grizzly Bear Committee's Taskforce on motorized access in grizzly bear habitat.

#### Status of the Grizzly Bear

The grizzly bear was classified as threatened on July 28, 1975. The grizzly bear was originally distributed in various habitats throughout western North America from Central Mexico to the Arctic Ocean. South of Canada, its current distribution is less than 2 percent of its former range.

In the conterminous 48 States, 6 areas in mountainous ecosystems, National Parks, and Wilderness Areas of Washington, Idaho, Montana, and Wyoming currently contain either self-perpetuating or remnant populations of grizzly bears, or have been identified for bear recovery (U.S. Fish and Wildlife Service 1993a) (Figure 1.). The Forest administers 40 percent of the 9,633 square mile Northern Continental Divide Ecosystem (NCDE). Portions of four other National Forests (Helena, Kootenai, Lewis and Clark, and Lolo), including four wilderness areas (Bob Marshall, Mission Mountains, Great Bear, and Scapegoat) and one wilderness study area (Deep Creek North), occur in the NCDE (Figure 2.). National Forest encompasses a total of 63 percent of the NCDE. Additionally, the NCDE recovery zone includes Glacier National Park, portions of the Flathead and Blackfeet Indian Reservations, Bureau of Land Management lands, and a significant amount of State and private lands.

The Grizzly Bear Recovery Plan (Recovery Plan) (U. S. Fish and Wildlife Service 1993a) established recovery strategies for grizzly bears throughout each of 6 recovery zones. The Recovery

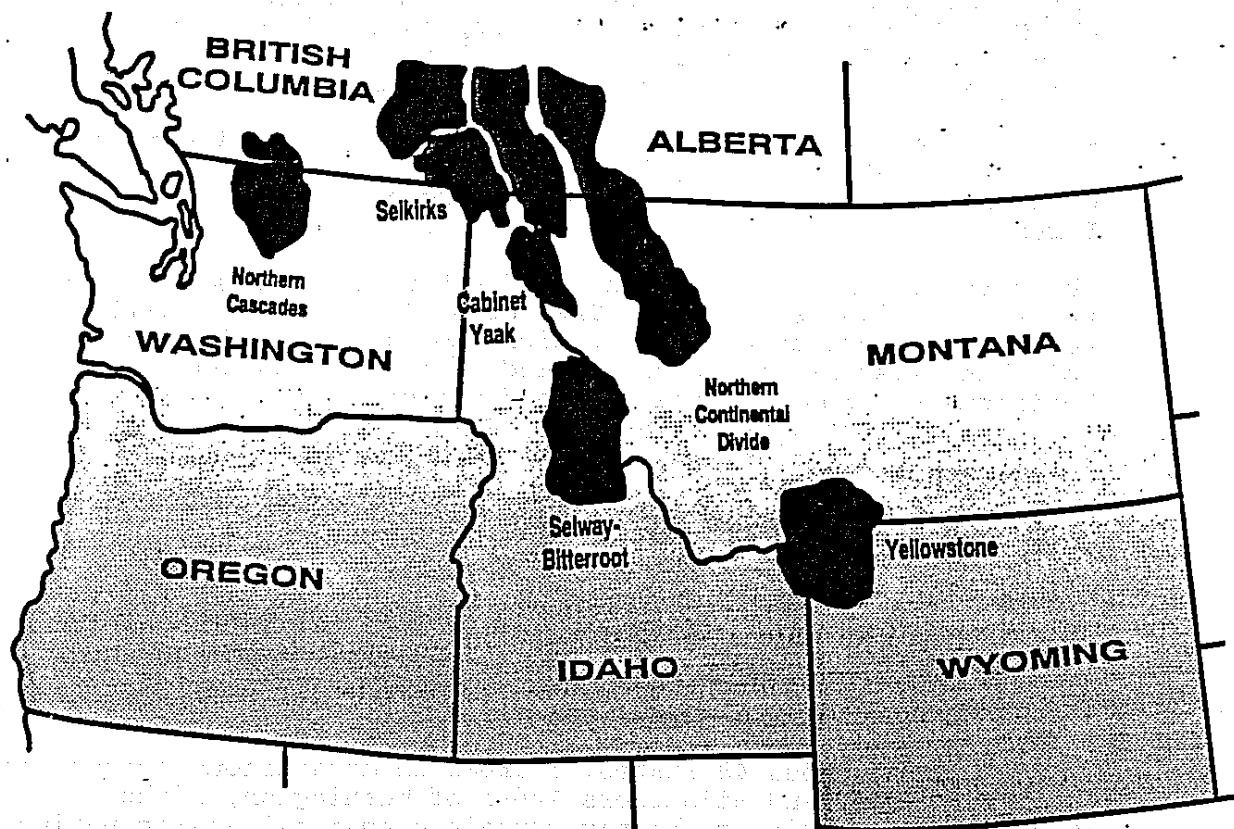


Figure 1. Current grizzly bear ecosystems in the United States.

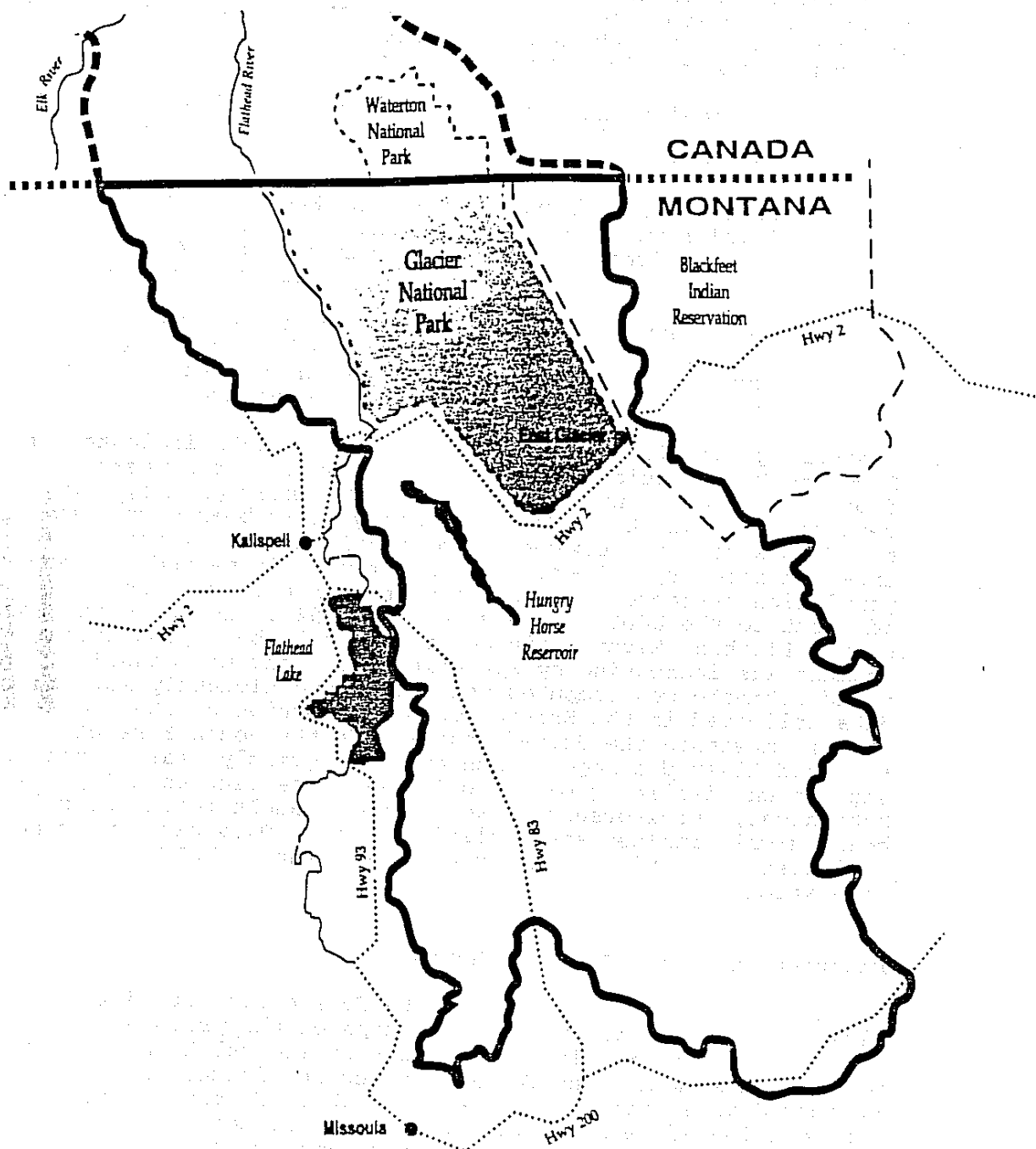


Figure 2. Northern Continental Divide Ecosystem.

Plan defined a recovered population as one that can sustain the existing level of known and unknown human-caused mortality that exists in the ecosystem, and is well-distributed throughout the recovery zone. For the NCDE, the Recovery Plan specifies the following demographic recovery criteria:

1. 10 females with cubs inside and 12 females with cubs outside Glacier National Park as a running 6-year average;
2. 21 of 23 Bear Management Units (BMUs) occupied by females with young as a running 6-year sum of observations; mandatory occupancy of the Mission Mountains; and no two adjacent BMUs unoccupied;
3. known, human-caused mortality not to exceed 4% of the minimum population estimates based on the most recent three-year sum of females with cubs; and no more than 30% of known, human-caused mortality shall be females.

Monitoring data for the period 1987 through 1993 indicated the Recovery Plan population recovery parameters for numbers of females with cubs, numbers of BMUs with family groups, occupancy requirements, and total human-caused grizzly bear mortality in the NCDE were met. However, female grizzly bear mortality exceeded recovery criteria limits during this period. Recently, population trajectories were computed for two areas in and adjacent to the NCDE (Servheen et al. 1994). In the North Fork of the Flathead River drainage, the grizzly bear population segment was increasing by approximately 6 percent annually. This trend estimate was computed using disproportionately more bear data collected in the British Columbia portion of the drainage than from within the United States. In the South Fork of the Flathead River drainage in Montana, the grizzly bear population segment was declining by approximately 4 percent annually. In both areas, survivorship of adult and subadult female grizzly bears highly influenced population trend. Data bases were not sufficient to estimate the trend of the entire NCDE grizzly bear population.

#### Description of the Proposed Action

In an Environmental Assessment, the Forest identified 4 alternatives that are within the scope of the proposed Amendment (U.S. Forest Service 1994b). In its Biological Assessment of the proposed Amendment, the Forest focused on effects of the preferred alternative, alternative 3 (U.S. Forest Service 1994a). This opinion addresses those objectives, standards, and guidelines that are to be added, modified, or deleted under the preferred alternative.

The proposed Amendment to the Forest Plan updates objectives and standards for management of the grizzly bear, and amends the ASQ for a specified planning period, 1995-1999. The Biological

Assessment details the proposed changes to the Forest Plan objectives and standards and guidelines (U.S. Forest Service 1994a) (Appendix C). Specifically, the proposal is to amend certain Forest-wide objectives in the Forest Plan (U.S. Forest Service 1985), pages II-7 through II-8 and standards and guidelines, pages II-24 through II-33, and to delete Appendix M, Part F (Ten-year Timber Sale Offerings).

The amended ASQ of 54 million board feet (MMBF) specified by the preferred alternative (3) was derived in two steps. First, the ASQ was adjusted for existing Forest Plan standards after conducting a spatial analysis. This adjustment resulted in an ASQ of 64 MMBF. To develop new Forest Plan objectives and standards, the Forest incorporated the definitions and approach contained in the Interagency Grizzly Bear Committee (IGBC) Taskforce Report (IGBC 1994). Three parameters recommended for access management, open and total motorized access and core areas, form the basis for proposed Forest objectives in alternatives 3 (preferred) and 4. The ASQ was then adjusted to be consistent with the preferred alternative's new standards and objectives. Specifically, the ASQ was adjusted to accommodate existing core areas and additional areas to approximate that needed to meet the objectives for core area under the preferred alternative. This second adjustment resulted in an amended ASQ of 54 MMBF.

Under the preferred alternative, the proposed changes in Forest Plan standards would ensure, for BMU Subunits: (1) no net decrease in core area of any BMU Subunit, (2) no net increase in total motorized access density greater than 2 miles of road per mile of any BMU Subunit, and (3) no net increase in open motorized access density greater than 1 mile of road per mile of any BMU Subunit. Additionally, Forest actions would result in a net gain toward the motorized access and core area objectives.

Under the preferred alternative, the proposed Forest Plan objectives for BMU Subunits with predominantly National Forest ownership (> 75 percent National Forest) include a 10-year objective for core areas of 55 to 100 percent of the BMU Subunit. The minimum size for area that could contribute to core areas would be 2500 acres. Core areas of at least 55 percent would be established in all BMU Subunits within 5 years.

For MS-1 and MS-2 habitat in BMU Subunits with predominantly National Forest ownership, precise road density 10-year objectives are no more than 13 percent of a BMU Subunit exceeding 1 mile of open motorized access per square mile, and no more than 18 percent of a BMU Subunit exceeding 2 miles of total motorized access per square mile.

In all BMU Subunits that are predominantly National Forest, open and/or total motorized access densities in excess of the current Forest averages would be reduced to at least the average within 5 years. On the Forest, the current BMU Subunit average for area exceeding 1 mile per square mile of open motorized access density

is 20 percent, and the BMU Subunit average for area exceeding 2 miles per square mile of total motorized access density is 24 percent.

Within BMU Subunits with intermingled ownership and/or not predominantly National Forest, Forest actions would not result in an increase in total motorized access or in a reduction of core area.

### Environmental Baseline

Under the provisions of section 7 (a)(2), when considering the "effects of the action" on listed species, the Service is required to consider the environmental baseline. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area (50 CFR 404.02), including Federal actions in the area that have already undergone section 7 consultation.

Previously, the NCDE grizzly bear recovery zone was subdivided into smaller units to facilitate both the assessment of projects and recovery objectives. Twenty-three BMUs were formally delineated throughout the NCDE; the Flathead National Forest encompasses all or portions of 11 BMUs. BMUs were designed to:

1. assess the effects of existing and proposed activities on grizzly bear habitat without having the effects diluted by consideration of too large an area;
2. address unique habitat characteristics and bear activity/use patterns;
3. identify contiguous complexes of habitat which meet year-long needs of the grizzly bear; and
4. establish priorities for areas where land use management needs would require cumulative effects assessment (U.S. Forest Service 1990).

Recently, the Forest further divided BMUs into 70 smaller units, termed BMU Subunits (Figure 3.) (Appendix D). BMU Subunits are approximately the size of an adult female grizzly bear home range (50 square miles) and provide the basic scale for the analysis of impacts associated with the proposed Amendment. Fifty-four BMU Subunits were analyzed for the proposed Amendment; the 16 BMU Subunits entirely within designated wilderness were not included. Of these 54 BMU Subunits, 40 are predominantly National Forest.

The current Forest Plan (1985 and 1989, amended) contained road management standards that pertain to densities of open

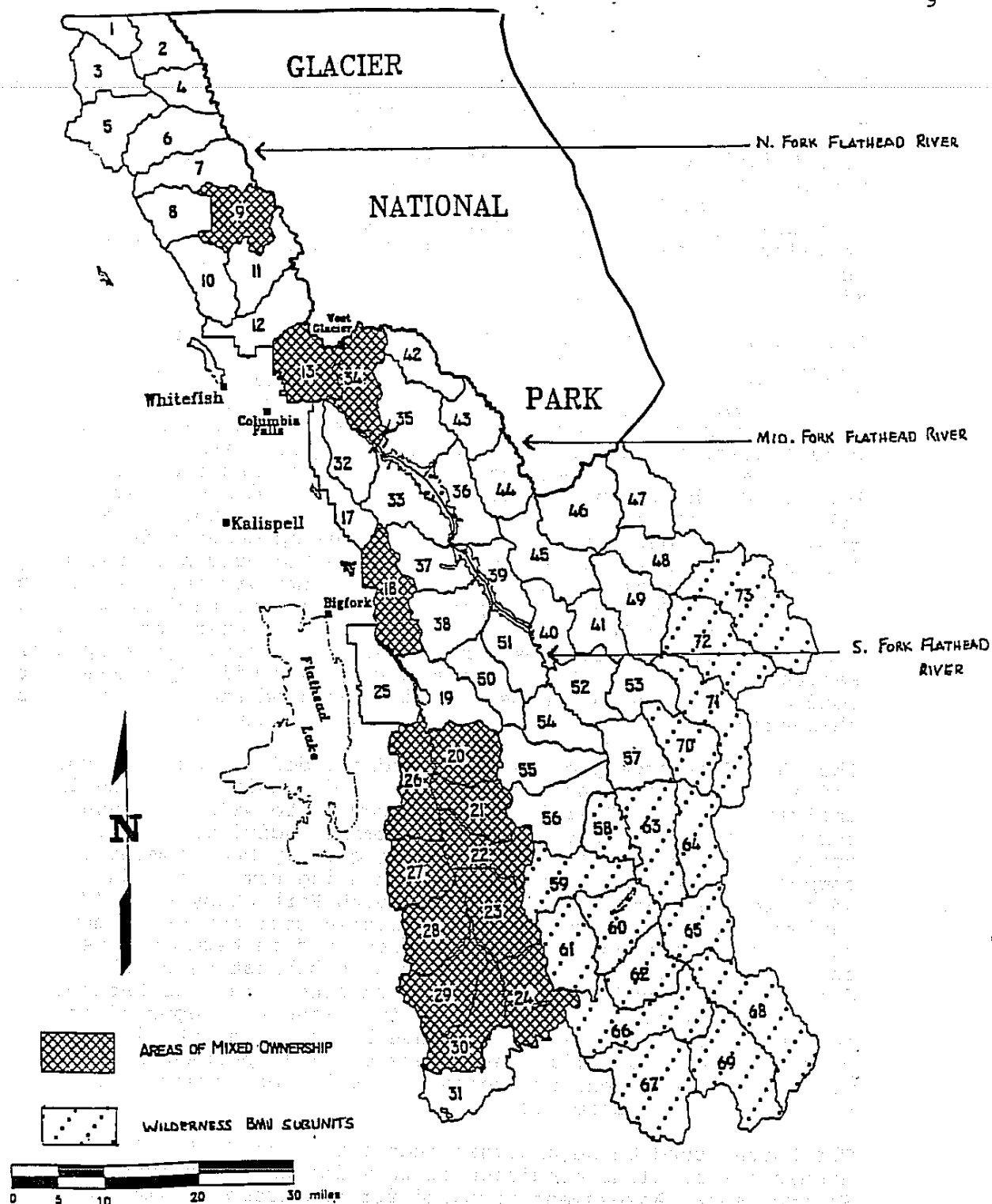


Figure 3. Flathead National Forest BMU Subunits (adapted from U.S. Forest Service 1994b).

roads. The miles of open road on the Forest had increased substantially during the late 1970's and early 1980's because of an aggressive program to harvest insect-infested lodgepole pine stands (U.S. Forest Service 1994b). However, since 1986, the Forest implemented significant changes in road management and updated its road inventory; the miles of open road have decreased by one-fourth, the miles of roads restricted year-long have decreased by almost one-third, and the miles of roads closed year-long increased by over one-half. The number of miles of roads open in 1993 was approximately equivalent to the number of miles open in the early 1970's.

Recently, the South Fork Flathead River Grizzly Bear Project (South Fork Study) progress report (Mace and Manley 1993) indicated that former techniques for calculating road densities resulted in inadequate assessments of grizzly bear response to roads. Average road density derived from large areas did not detail precise road densities within smaller areas. Open road density alone discounted the influence of closed roads on grizzly bears. Further, adult female bears maintained home ranges with substantive blocks of unroaded habitat (greater than .5 miles from roads). New analysis techniques, using Geographic Information Systems (GIS), were developed to precisely measure both open and total road densities. Preliminary analyses in the South Fork Study progress report indicated that habitat with greater than 1 mile per square mile "precise" open road density was used significantly less than expected by adult grizzly bears. Habitat with greater than 2 miles per square mile "precise" total road density (open and closed roads) was used significantly less than expected by all sex/age classes of grizzly bears.

The IGBC Taskforce provided standardized definitions for roads and standardized methods to measure road densities and define analysis areas (IGBC 1994). As is common to wildlife management for many species, conservation of female individuals is generally considered fundamental to increasing grizzly bear numbers. A composite home range was constructed using home range data on adult female grizzly bears in the South Fork Study area (Mace and Manley 1993). This adult female grizzly bear composite home range (composite home range) was described in terms of open and total motorized access density and core habitat using the definitions provided by the IGBC Taskforce (Flathead National Forest, in litt. 1994). Analysis indicated that approximately 13 percent of the composite home range had an open motorized access density exceeding 1 mile per square mile; 19 percent had a total motorized access density exceeding 2 miles per square mile; and 67.5 percent was core area.

The Forest used these analysis techniques and definitions to assess the baseline condition of nonwilderness BMU Subunits. The Environmental Assessment prepared for the proposed Amendment summarized the existing precise open and total motorized access densities, and percent core habitat, in all nonwilderness BMU Subunits (U.S. Forest Service 1994b) (Appendix E). The Forest-wide average for percent of area in BMU Subunits that exceeds 1

mile per square mile of open motorized access density is 20 percent, for area that exceeds 2 miles per square mile of total motorized access density is 24 percent, and for area of core habitat in Subunits is 60 percent.

Of the 40 BMU Subunits that are predominantly National Forest, 16 currently meet the proposed long-term objective for open motorized access density of 13 percent, 21 meet the proposed long-term objective for total motorized access density of 18 percent, and 28 meet the proposed objective for 55 to 100 percent core area.

Of 14 BMU Subunits that have mixed ownership, none currently meet the proposed long-term objective for open motorized access density, 1 meets the proposed long-term objective for total motorized access density, and 3 meet the proposed objective for core area.

#### Effects of the Proposed Action on Listed Species

Under section 7(a)(2), "effects of the action" refers to the direct and indirect effects of an action on the species or critical habitat, with the effects of other activities interrelated or interdependent with that action. Under section 7 the Federal agency is responsible for these effects. The effects of the action are added to the environmental baseline to determine the future baseline, and form the basis for the determinations in this opinion. Should the effects of the Federal action result in a jeopardy situation, the Service may propose reasonable and prudent alternatives that the Federal agency can take to avoid violation of section 7(a)(2). The impacts discussed below are the result of direct and indirect impacts of the proposed Forest Service actions. Indirect effects are those caused by the proposed action and are later in time, but still are reasonably certain to occur (50 CFR 402.02).

Timber harvest in grizzly bear habitat can result in a variety of effects, some adverse, others beneficial (IGBC 1987). Beneficial effects include increased bear food production, such as berries and succulent forbs. To minimize adverse effects of timber harvest on grizzly bears, the existing Forest Plan includes the direction recommended in the Interagency Grizzly Bear Guidelines (51 FR 42863) (Appendix A) and Timber Management Standards and Guidelines for MS-1 and MS-2 grizzly bear habitat. The Forest's amended ASQ of 54 MMBF resulted from spatial analysis and tests of feasibility that occurred in two steps: an adjustment to ASQ to accommodate existing Forest Plan standards, and a second incremental adjustment to accommodate the proposed new standards and objectives (see discussion on page 7). These existing Forest Plan standards (and guidelines) were previously reviewed by the Service. As described earlier, the Service reviewed the Forest Plan and Amendments and issued not likely to jeopardize biological opinions regarding species listed as threatened or endangered under the Act (U.S. Fish and Wildlife Service 1985, 1989a, 1989b).

Therefore, the Service believes that the Forest Plan, as amended, provides adequate direction for timber harvesting activities and that 54 MMBF is a realistic estimate of the ASQ that potentially may be harvested without causing jeopardy to the grizzly bear. The greatest impact of timber harvest on grizzly bears (assuming the Forest Plan's standards and guidelines are adhered to) is the access created by the associated construction/reconstruction of roads (interrelated and interdependent activities). The remainder of this biological opinion focuses on analysis and discussion of the direct and indirect effects of the Forest's proposed motorized access management objectives and standards on the grizzly bear and the on environmental baseline as affected by existing road densities.

The Forest based its proposed Amendment on the most recent information regarding the effects of roads on grizzly bears. Roads and excessive road densities are among the most serious adverse impact of timber harvest on grizzly bears. Negative impacts associated with roads and excessive road densities influenced grizzly bear population and habitat use patterns in numerous, widespread areas. The Grizzly Bear Compendium (IGBC 1987) summarized impacts reported in the literature including:

1. avoidance/displacement of grizzly bears away from roads and road activity;
2. changes in grizzly bear behavior, especially habituation, due to ongoing contact with roads and human activities conducted along roads;
3. habitat loss, modification, and fragmentation due to roads and road construction, including vegetative and topographic disturbances; and
4. direct mortality from road kills, legal and illegal harvest, and other factors resulting from increased human-bear encounters.

Under the preferred alternative in the proposed Amendment, the Forest directs substantive changes in motorized access management in grizzly bear habitat. The following sections summarize the effects of roads on grizzly bears as reported in pertinent literature and the effects likely to result from the proposed Amendment.

#### Habituation and Mortality

Mortalities are the most serious consequences of roads in grizzly habitat. Mortalities result directly from illegal shooting, or more indirectly, through habituation. Continued exposure to human presence, activity, noise, etc., without negative consequences can result in habituation, the loss of a bear's natural wariness of humans. High forest road densities and associated increases in human access into grizzly bear habitat

can lead to the habituation of grizzly bears to humans. Habituation in turn increases the potential for conflicts between people and bears. Habituated bears often obtain human food or garbage and become involved in nuisance bear incidences, and/or threaten human life or property. Such bears generally experience high mortality rates; they are eventually destroyed or removed from the population through management actions. Habituated bears are also more vulnerable to illegal killing because of their increased exposure to people. In the Yellowstone region, humans killed habituated bears over 3 times as often than non-habituated bears (Mattson et al. 1992).

The specific relationship between roads and mortality risk to bears is difficult to quantify. The level of human use of roads is likely one of several factors influencing the mortality risk associated with any road. However, research has supported the general premise that forest roads facilitated human access into grizzly bear habitat, which in turn directly or indirectly increased mortality risk to bears. Grizzly bears experienced increased vulnerability to illegal and legal harvest as a consequence of increased road access by humans in Montana (Mace et al. 1987) and in the Yellowstone region (Mattson et al. 1992). In southeastern British Columbia, McLellan and Shackleton (1988) reported roads increased access for legal hunters and poachers, the major source of adult grizzly mortality. McLellan (1989b) reported that 7 of 13 successful legal hunters interviewed had been on a road when they shot their grizzly bear. McLellan and Mace (1985) found that a disproportionate number of mortalities occurred near roads. In the Yellowstone ecosystem, Mattson and Knight (1991) reported that areas influenced by secondary roads and major developments were most lethal to bears. Aune and Kasworm (1989) reported 63 percent of known human-caused grizzly deaths on the east front of the Rocky Mountains occurred within 1 kilometer of roads, including 10 of 11 known female grizzly deaths. In Montana, Dood et al. (1986) reported that 48 percent of all known, nonhunting mortalities during 1967-1986 occurred within 1 mile of roads. Bears were also killed by vehicle collision, the most direct form of road-related mortality (Greer 1985, Knight et al. 1981, Palmisciano 1986).

The Biological Assessment prepared for the proposed Amendment (U.S. Forest Service 1994a) summarized known, human-caused mortality on the Forest. Twenty-nine known, human-caused grizzly bear mortalities occurred from 1988 through 1993 from the following causes: management removal of habituated bears - 7, illegal - 5, illegal hunter (mistaken for black bear) - 3, legal hunter - 2, train - 5, defense of life - 3, defense of property - 1, road kill - 1, and unknown cause - 2. Of these 29 mortalities, 6 occurred in wilderness BMUs and 23 occurred in BMUs with roaded habitats. The record may be biased because potentially higher numbers of bear mortalities are detected and reported in areas outside wilderness. Also, mortalities of bears radio-collared through research or management action are detected more often and such bears typically inhabit roaded areas. Regardless, the information suggests that habitat that is roaded

or otherwise highly influenced by people poses a considerable mortality risk to grizzly bears.

Mortality data from the Forest suggested subadult bears are more often vulnerable to habituation and illegal killing, or they conflict with people and are removed through management action. Subadults frequently traverse long distances or unknown territory, increasing the likelihood of encountering roads, human residences, or other developments where human food or other attractants are available, increasing the potential for habituation and/or conflicts with people. Between 1988-1993, 6 of 7 grizzly bear management removals from the Forest and surrounding area were subadults (U.S. Forest Service 1994a). In the Yellowstone ecosystem, roads impacted individual age and sex classes of bears differently. Subadults and females with young were most often located near roads, perhaps displaced into roaded, marginal habitat by dominant bears (Mattson et al. 1987, Mattson et al. 1992).

The roaded environment in the South Fork Study area coincides with significant human-caused grizzly bear mortality rates. Thirteen of 24 mortalities of monitored grizzly bears during 1988 through 1994 were known human-caused. Six of these 13 mortalities were related to road or trail access (T. Manley, Mont. Dep. of Fish, Wildl., and Parks, pers. comm. 1994). Subadult bears were especially vulnerable to the mortality risks posed by roaded habitats. Of 8 nonhunting, known, human-caused mortalities or management removals, 7 were subadult bears. Three, possibly 4, of these 7 subadult mortalities were related to road or trail access (T. Manley, pers. comm. 1994).

Known, human-caused grizzly bear mortality in the South Fork Study area during the 6-year period of 1988-1994 appeared relatively high when compared to other studies. During a 9-year period of research in southeastern British Columbia, McLellan (1989b) reported fewer human-caused grizzly bear mortalities (11) than occurred during 6 years of research in the South Fork Study area (13) (excluding legal hunter and research-caused mortalities). Although the British Columbia study area was roaded for gas exploration, timber harvest, and other uses, the area had few permanent human residents and generally received lower use by humans than did the South Fork Study area in Montana. Recently, grizzly bear population trajectories for the two study areas were computed (Servheen et al. unpublished). In the British Columbia study area, high survivorship rates of adult and subadult females resulted in an upward trend in the grizzly population. In the South Fork Study area, relatively low adult and subadult female survivorship rates resulted in an annual decline in the grizzly bear population. Adult female grizzly bear mortality was the most important factor in determining trend and most known grizzly bear mortalities were determined to be human-caused.

This comparison illustrates that the presence of forest roads alone does not necessarily result in direct mortality of grizzly bears, but that the proximity of the forest to human population centers, resulting high numbers of people using forest roads, and dispersed recreation in habitat around roads can pose considerable risks to grizzly bears. Social values and attitudes also contribute to the level of mortality risk to bears. However, incidental or accidental human-caused grizzly bear mortality, along with even a few individuals intent on illegally shooting bears, can collectively result in serious, harmful effects on grizzly bear populations. As more people gain access into grizzly bear habitat, mortality risk generally increases. Access management can be instrumental to reducing mortality risk to grizzly bears by managing the present and anticipated future road use-levels resulting from continued timber harvesting and the increasing human population in western Montana.

#### Displacement and Security

Some bears, particularly subadults, readily habituate to humans and consequently suffer increased mortality risk. However, many grizzly bears under-use or avoid otherwise preferred habitats that are highly influenced by humans. Such under-use of preferred habitat represents modification of normal behavior. Negative association with roads arises from the bears' fear of vehicles, vehicle noise and other human-related noise around roads, human scent along roads, and hunting and shooting along or from roads. Bears that experience such negative consequences learn to avoid the disturbance and annoyance generated by roads. Such animals may not change this resultant avoidance behavior for long periods after road closures and lack of negative reinforcement. Even occasional human-related vehicle noise can result in annoying bears to the extent that they continue to avoid roads.

All factors contributing to direct links between roads and displacement from habitat have not been quantified. As with mortality risk, the level of road-use by people is likely an important factor in assessing the potential displacement caused by any road. However, research indicated that grizzly bears consistently were displaced from roads and the habitat surrounding roads, often despite even low levels of human use (Mattson et al. 1987, McLellan and Shackleton 1988, Aune and Kasworm 1989, Kasworm and Manley 1990). In Montana, Aune and Stivers (1982) reported that bears avoided roads and surrounding corridors even when the area contained preferred habitat for breeding, feeding, shelter, and reproduction. McLellan and Shackleton (1988) found that bears used areas near roads less than expected in southeastern British Columbia and estimated that 8.7 percent of the total area was rendered incompatible for grizzly use because of roads. In Montana, Mace and Manley (1993) reported use of habitat by all sex/age classes of grizzly bears was less than expected in habitats where total road densities exceeded 2 miles per square mile. Twenty-two percent of the

South Fork Study area exceeded 2 miles per square mile. Adult grizzly bears used habitats less than expected when open road density exceeded 1 mile per square mile. Further, female bears in the South Fork Study area tended to use habitat more than .5 mile from roads or trails greater than expected. In their comments on the South Fork Study progress report (Mace and Manley 1993), the IGBC Research Subcommittee (in litt. 1993) indicated that although results were preliminary, the analysis of differences within and outside female home ranges seemed to agree with other analyses in the report that suggested higher road densities means lower bear use. In Yellowstone, Mattson et al. (1992) reported wary bears avoided areas within 2 kilometers of major roads and 4 kilometers of major developments or townsites.

When roads are located in important habitats such as riparian zones, snowchutes, and shrub fields, habitat loss through avoidance behavior can be significant. If human related disturbances such as road use or timber harvest continue in preferred habitats for extended periods of time, historical bear use of the area may be lost, particularly to female bears. Zager (1980) reported the avoidance of roads by females with cubs. Aune and Kasworm (1989) and McLellan (1989a) found that female cubs generally established their home range within or overlapping with their mother's home range; males generally dispersed from their mother's home range. Long-term displacement of a female from a portion of her home range may result in the perpetual under-use of that area by female bears because cubs have limited potential to learn to use the area. In this way, learned avoidance behavior could persist for several generations of bears before grizzly bears again utilize habitat associated with closed roads. Thus, displacement from preferred habitats may significantly modify normal grizzly bear behavioral patterns.

Low elevation riparian habitats are of significant seasonal importance to bears in the NCDE. Grizzly bears typically use the lowest elevations possible for foraging during spring. Craighead et al. (1982) described the value of low elevation habitats to grizzly bears. The Montana Department of Fish, Wildlife, and Parks concluded that maximum numbers of grizzly bears can be maintained only if the species continues to have the opportunity to use both the temperate and subalpine climatic zones (Dood et al. 1986).

Research identified the following individual home-range selection patterns in local grizzly bear population segments: (1) some individual animals live almost exclusively (except for denning) in low elevation habitats; (2) other individuals maintain home ranges in more mountainous or remote locations; and (3) some individuals migrate elevationally on a seasonal basis (Servheen 1981, Aune and Stivers 1982). Specific causes or factors involved in the selection or preferences for certain home ranges by grizzly bears are not well understood. Mace and Manley (1993) found that grizzly bear home ranges in the South Fork Study area included remote areas in high elevations. South Fork Study

grizzly bear habitat-use data, road density analyses of the South Fork Study area, previous studies (cited above), and Cumulative Effects Model (CEM) analysis (U.S. Forest Service 1994a), suggested that low elevation habitats were not freely available to grizzly bears because of high road densities and associated human use in these areas. High road densities in low elevation habitats may result in avoidance of or displacement from important spring seasonal habitat for some bears, or high mortality risk for those individuals that venture into and attempt to exploit resources contained in these low elevation areas.

The Service considers significant declines in expected use of habitat by grizzly bears a serious consequence of high road densities. Significant declines in bear use of MS-1 habitat (habitat areas key to the survival of the grizzly where seasonal or year-long activity, under natural, free-ranging conditions is common) (see definitions in Appendix B), especially those habitat components with high seasonal values, indicate that habitat needed for survival and recovery is less available. Ideal grizzly bear habitat provides some areas isolated from excessive levels of human impact. Because grizzlies can conflict with humans and their land uses, grizzly populations require a level of safety from direct human-caused mortality and competitive use of habitat such as settlement, roading, recreation, excessive logging, mining, and livestock grazing. As described previously, human use of areas near and within grizzly habitat has resulted in avoidance of preferred habitat by bears, habituation of bears, and/or increased mortality risk to bears.

Preliminary analyses in the South Fork Study progress report (Mace and Manley 1993) indicated the importance of unroaded habitat, especially for females with cubs. Adult females used habitat further than .5 miles from roads or trails more than expected; 21 percent of the composite home range had no trails or roads and 46 percent was unroaded (greater than .5 miles from a road). Substantive blocks of unroaded habitat were components of all adult female home ranges. Of the adult female locations within unroaded polygons, 83 percent occurred within 7 polygons that exceeded 2,260 acres in size. Based on grizzly bear habitat use data from the Yellowstone ecosystem, Mattson (1993) recommended that microscale security areas in that region be an absolute minimum of 6 kilometers in diameter or 28 square kilometers and should be secure for a minimum of 5, preferably 10, years.

The IGBC Taskforce (IGBC 1994) recognized the importance of "secure" areas to grizzly bears. The Taskforce defined "core areas" as those areas with no motorized access (during the non-denning period) or heavily used foot/livestock trails, providing some level of secure habitat for grizzly bears. Motorized use, such as snowmobiling or that associated with timber harvest, could occur within core areas during the denning (winter) period. The Taskforce recommended the establishment of core areas in all BMU Subunits, the size of core area should depend on ecosystem-

specific habitat conditions, and that a core area remain intact on the landscape for at least 10 years. The NCDE Access Committee is currently developing standards for core area, but results are not yet available. In the South Fork Study area of the NCDE, approximately 68 percent of the adult female composite home range was core area.

### Fragmentation and Linkage Zones

Habitat fragmentation is significant to large carnivores requiring wide vegetative and topographic habitat diversity (Servheen 1986). Loss and fragmentation of habitat is particularly relevant to the survival of grizzly bears. Grizzlies are large animals with great metabolic demands requiring extensive home ranges. Movements of grizzly bears may exceed 60 airline miles and their home ranges can encompass from 50 to over 100 square miles in the NCDE. Large expanses of unfragmented habitat are important for feeding, breeding, sheltering, traveling, and other essential behavioral patterns. Grizzly bears occur at low densities, have low reproductive rates, exhibit individualistic behavior, and are largely dependent on riparian habitats also used extensively by people; thus bear populations are susceptible to human influences. Historically, as human settlements, developments, and roads increased in bear habitat, bear populations became fragmented. As fragmented population segments become smaller and/or isolated, they are more vulnerable to extinction, especially when human-caused mortality pressures continue.

The Biological Assessment (U.S. Forest Service 1994a) stated that the CEM clearly indicated grizzly bear habitat is being fragmented by human developments and activities that are concentrated in intermountain valleys, such as the Swan Valley and North Fork of the Flathead River Valley. These valleys have substantial amounts of intermingled public and private land ownership. The Biological Assessment recognized the importance of habitat linkages between the Swan Mountains and the Mission Mountains to achieving the recovery goal of maintaining occupancy of the Mission Mountains by grizzly bears. Linkage zones are rather recent concepts in broad management direction for grizzly bears and other large-ranging species (Servheen and Sandstrom 1993). Linkage zones, or zones of habitat connectivity within or between populations of animals, foster the genetic and demographic health of the species.

### Basis for Opinion

Habitat effectiveness on the Forest is essential to the recovery of grizzly bears in the NCDE. The Forest administers approximately 3,985 square miles (40 percent) of the NCDE grizzly bear recovery zone. The Forest designated 94 percent of the recovery zone as MS-1 and 5 percent as MS-2 grizzly bear habitat, as defined in the Interagency Grizzly Bear Guidelines (51 FR

42863). Of 70 BMU Subunits delineated on the Forest, 54 are entirely or partially nonwilderness and would be directly affected by the proposed Amendment. Of these, 40 are entirely or mostly National Forest (> 75 percent) and 14 are intermingled Forest-private owned. Thus, the proposed Amendment would effect changes that are significant to grizzly bear recovery in the NCDE.

Under the preferred alternative, the Service believes that the Amendment and amended ASQ would result in an overall increase in security for grizzly bears and associated decreases in habituation, displacement, and human-caused mortality risk. Within 5 years, objectives specify that 16 of 40 BMU Subunits that are predominantly National Forest would show reductions in open motorized access density to less than 20 percent of any Subunit exceeding 1 mile per square mile, and 14 of the 40 BMU Subunits would show reductions in total motorized access density to less than 24 percent of any Subunit exceeding 2 miles per square mile. Combined, 45 percent (18 of 40) of BMU Subunits would show reductions in open and/or total motorized access density within 5 years. These reductions in open and total motorized access would occur in BMU Subunits with highest existing road densities.

Within 10 years, attainment of the proposed objectives would require that 24 of 40 BMU Subunits that are predominantly National Forest show reductions in open motorized access density to less than 13 percent of any Subunit exceeding 1 mile per square mile, and that 19 of the 40 BMU Subunits show reductions in total motorized access density to less than 18 percent of any Subunit exceeding 2 miles per square mile. Combined, 63 percent (25 of 40) of BMU Subunits would show reduced open or total motorized access densities over this 10-year period.

Motorized access conditions found in the composite home range would be applied or exceeded, on a BMU Subunit basis, across most Forest lands within the recovery zone. In the South Fork Study area, open and total road densities outside the composite home range were higher than within (Mace and Manley 1993). Therefore across the recovery zone, on lands that are predominantly National Forest, the implementation of long-term Forest objectives would result in access conditions that are actually improved for grizzly bears over those found in the South Fork Study area. In areas of predominantly Forest ownership, objectives direct the maintenance or creation of access conditions similar to those of the composite home range of female bears that have demonstrated survival to adulthood and have produced cubs. Therefore, it is reasonable to assume that over time, these access management conditions, applied Forest-wide, would promote grizzly bear recovery goals through decreased displacement and mortality risk.

The proposed Amendment includes a standard that core area occur in blocks at least 2500 acres in size and be distributed to provide all seasonal habitats and elevations. In the South Fork

Study area, most adult female locations within unroaded habitat occurred within polygons exceeding 2260 acres (U.S. Forest Service, in litt. 1993). Results of the CEM analysis revealed that core area was most limited during spring, indicating that currently most core area exists at higher elevations and is blanketed by snow during spring. In many areas lower elevation habitat may be snow-free during spring but it is highly roaded and extensively used people. The proposed standard emphasizes the creation of core areas at low elevations, which would decrease displacement of grizzly bears from essential spring habitat.

However, the Environmental Assessment (U.S. Forest Service 1994b) states "there is some risk that 55 percent (core habitat) may not be an adequate level to avoid habituation and human-caused mortality". The Service agrees. Under the preferred alternative, the Forest would deviate from using South Fork Study area composite home range data as the long-term objective for BMU Subunit core areas and from using the Forest-wide average for BMU Subunit core size (60 percent) as the short-term 5-year objective. Using definitions provided in the IGBC Taskforce Report (1994), the South Fork Study area composite home range was described in terms of 3 attributes: open and total motorized access density and core area (Flathead National Forest, in litt. 1994). The specific or relative importance of any one of these to grizzly bear recovery is presently unknown, however these attributes may be interrelated to form an environment that reasonably can be assumed as conducive to sustaining adult female grizzly bears. Further, adult female grizzly bears in the South Fork Study area tended to use unroaded habitat without trails more than expected (Mace and Manley 1993). Under the preferred alternative, the proposed Forest objectives for open and total motorized access density are based on composite home range data. For an appropriate translation of composite home range characteristics to habitat management objectives, it follows that the Forest would also base objectives for core area on composite home range information.

The South Fork Study area composite home range was approximately 68 percent core area. The proposed Amendment specifies a range of 55 to 100 percent core area as both the 5- and 10-year objectives for core area. The Forest based this objective upon research from the Yellowstone region (Mattson 1993) and upon the range of core area size within the largest annual home range of 7 adult female bears in the South Fork Study. Within the largest annual home range of each of the 7 bears, one bear maintained the least amount of core area at approximately 58 percent of home range, one maintained 67 percent core area, and five of the adult females maintained home ranges that included from 80 to 86 percent core area (Flathead National Forest, in litt. 1994). Use-availability information was not available for this sample.

The Service remains concerned over the proposed short- and long-term objective for minimum size requirement for core area, 55 percent, because: (1) 6 of 7 adult female bears in the South Fork

study area utilized largest annual home ranges with considerably more than 55 percent core area; data from all 7 bears should be considered, and should include individual behavior traits, age, survivorship, cub survivorship, and especially habitat use-availability patterns; and (2) minimum core area size estimated from habitat-related research in the Yellowstone ecosystem may not be applicable to the NCDE because of the wide disparities in habitat and food resources between the two regions.

Therefore the Service does not support the core area objective under the preferred alternative, nor the Forest's biological rationale for departing from the use of the composite home range data to determine minimum size for core area. Rather, the Forest should use the existing Forest-wide core area average of 60 percent as a 5-year objective and the composite home range core area of 68 percent as the 10-year objective for BMU Subunits that are predominantly National Forest (refer to Terms and Conditions). Accomplishing these core area objectives may or may not require an adjustment to the amended ASQ.

In BMU Subunits not predominantly National Forest, the proposed Amendment states that Forest actions would not result in increased total motorized access densities or reductions in core areas. In 14 of 54 BMU Subunits, 25 percent or more of the land is private or corporate owned. Computer simulations and analyses revealed that in areas of intermingled ownership, reductions in road density or the creation of core areas on National Forest lands alone could not effect meaningful levels of habitat improvement for grizzly bears on a landscape level.

To reduce fragmentation of grizzly bear habitat and to promote habitat linkages, the Biological Assessment (U.S. Forest Service 1994a) identified the need for a coordinated management strategy between public and private landowners in areas of intermingled ownerships such as the Swan Valley. The proposed Amendment would modify existing Management Situations immediately south of Swan Lake from MS-2 to MS-1 in recognition of the area's capability to function as a linkage between the Swan and Mission Range. Because the area is the only consolidated tract of National Forest across the Swan Valley, it represents the best opportunity for the Forest Service to provide habitat connectivity between the Swan and Mission Ranges.

The Service recognizes the complexities of management in areas of intermingled ownership. Although there is no commitment to numerical objectives on National Forest in areas of intermingled ownership, proposed standards direct that Forest Service actions would result in net gains towards objectives for open and total motorized access density and core areas, and would not result in increases in open motorized or total motorized access routes. Furthermore, the proposed Amendment includes an objective that Forest actions and activities would not increase total motorized access or reduce core area in BMU Subunits with intermingled

landownership. Therefore, the Service believes that in such areas, Forest Service actions would promote habitat linkages and not contribute to further degradation of habitat.

Although the proposed Amendment will result in overall habitat improvements for bears, the Biological Assessment (U.S. Forest Service 1994a) states that both the preferred alternative and alternative 4, requiring a minimum of 68 percent core area in BMU Subunits, may cause public backlash and animosity toward grizzly bears. This animosity may result in increased mortality risk to grizzly bears. To foster public acceptance and approval of the proposed changes in access management, the short-term (5-year) objectives and gradual achievement of long term objectives over 10 years allows many traditional uses of the Forest to continue unimpeded. Further, the proposed objectives include a public information and education program that could increase the public's awareness of the biological basis for the proposed changes for grizzly bears and the benefits to other Forest resources, and reduce any animosity that may result. The Service considers public acceptance and support of grizzly bear recovery to be critical to recovery efforts.

The Service recognizes that habitat effectiveness and security for grizzly bears cannot be prescribed entirely by motorized access management. Factors such as seasonal habitat value, timber harvest units, concentrated human-use areas such as town sites and campgrounds, heavily used non-motorized trails, high levels of dispersed human-use of forest, and the presence of attractants also influence the effectiveness of grizzly bear habitat. For instance, five of 13 known human-caused grizzly bear mortalities in the South Fork Study area during 1988 through 1994 were related to sanitation (T. Manley, pers. comm. 1994).

The CEM was developed to analyze the numerous variables, including timber harvest, motorized access, and human use of roads, that influence grizzly bear habitat effectiveness. The Forest has completed CEM analysis on most of its BMU Subunits. The Biological Assessment (U.S. Forest Service 1994a) summarizes the CEM habitat effectiveness levels (Appendix F). Thresholds for minimum CEM habitat effectiveness levels have not yet been developed. At this time however, CEM provides a useful descriptive, comparative, and monitoring tool with which to assess changes in grizzly bear habitat. Results of CEM analysis, and various research, indicated that motorized access is a factor that significantly affects habitat effectiveness. The proposed Amendment and resulting reductions in road densities would result in increased CEM habitat effectiveness levels in many BMU Subunits.

At this time, of factors influencing grizzly bear populations and use of habitat, motorized access management and associated use of roads by people are among the most easily defined and measurable factors that can be evaluated (IGBC Taskforce 1994). Therefore the Service agrees with the precise road density analysis that forms the basis for the open and total motorized access density

objectives in the proposed Amendment, and with the use of the definitions and methods presented by the IGBC Taskforce to define the composite home range.

The Service also agrees with the use of the composite home range in the South Fork Study area as a template for grizzly bear habitat objectives. A recent population trajectory indicated an approximate 4 percent annual decline in the grizzly bear population segment in the South Fork Study area (Servheen et al. 1994). Information and sample size were not adequate to assess population trajectories from other areas of, or for the entire, NCDE. Although the estimated grizzly population trajectory in the South Fork area was downward, the Service believes that the motorized access conditions within the composite home range represent a valid approach to habitat management for the following reasons:

(1) The proposed objectives are based on motorized access conditions within the composite home range of adult females in the South Fork Study area. Portions of the study area outside the composite home range had higher open and total road densities and lesser amounts of unroaded habitat (Mace and Manley 1993). Therefore, the application of composite home range access conditions throughout entire BMU Subunits would result in a net improvement in habitat conditions over that of the entire South Fork Study area.

For example, in the South Fork Study area, of 6 nonwilderness BMU Subunits, 4 currently have less core area than the Service's recommended objective of 68 percent, 4 exceed the proposed open motorized access objective of 13 percent, and 4 exceed the proposed total motorized objective of 18 percent (Table 1). The Service assumes that these conditions contributed to the recent downward population trend. However, implementation and attainment of the proposed objectives would improve motorized access conditions for grizzly bears in the South Fork Study area and elsewhere within the NCDE.

TABLE 1. SOUTH FORK STUDY AREA BMU SUBUNIT ACCESS PARAMETERS

	JEWEL GRAVES	WHEEL QUINT	BALL BRANCH	KAH SOLDIE	JUNGLE ADD	BUNKER CREEK	*** obj.
CORE	55%	58%	88%	50%	58%	75%	68%
*OMA	33%	17%	3%	28%	31%	5%	13%
**TMA	23%	30%	12%	39%	29%	17%	18%

- \* open motorized access > 1 mi/square mile
- \*\* total motorized access > 2 miles/square mile
- \*\*\* objectives as supported by the Service

(2) The composite home range was constructed with data from adult females that have demonstrated survival to adulthood and utilize the composite home range. The adult female grizzly bears upon which the composite home range is based do not necessarily reflect the fate of the entire grizzly population segment in the South Fork Study area. The recent downward population trajectory was based on adult, subadult, and yearling females, and cubs in the South Fork Study area (Servheen et al. 1994).

In addition to new Forest objectives and standards related to open and total motorized access and core area, the proposed Amendment does not alter the existing Forest Plan Standards and Guidelines for timber, fire, range, recreation, minerals, and special uses (U.S. Forest Service 1985). The amended ASQ of 54 MMBF is based, in part, upon these guidelines. These Standards and Guidelines were previously reviewed by the Service. As described earlier, the Service reviewed the Forest Plan and amendments and issued not likely to jeopardize biological opinions regarding species listed as threatened or endangered under the Act (U.S. Fish and Wildlife Service 1985, 1989a, 1989b).

The proposed Amendment also retains the "3 and 7", "5 and 5" rules for entry/re-entry into compartments for major activities in MS-1 and MS-2 respectively until core areas are effective. These rules were conservation recommendations submitted by the Service in the 1989 biological opinion on the amendments to the Forest Plan (U.S. Fish and Wildlife Service 1989a).

The proposed Amendment would delete the Forest Plan standard requiring an adjacent displacement area and replace it with core area objectives and standards. This standard required that adjacent displacement areas of 5000 to 15000 acres with less than one mile open road per square mile be provided during periods of major Forest activity, such as timber harvest. In comparison, core areas have no motorized access during the non-denning period and the proposed standard stipulates that core area blocks be at least 2500 acres in size and remain in place for a minimum of 10 years. Further, within the BMU Subunits, road densities outside core areas would be limited by open and total motorized access density objectives.

The Service agrees that core areas provide a suitable alternative to the displacement area standard by providing adequate amounts of relatively secure areas for grizzly bears during periods of timber extraction or other major Forest activities. Currently, all 54 nonwilderness BMU Subunits have core areas larger than 20 percent of the BMU Subunit. Based on a typical BMU Subunit of about 30000 acres, this equates to approximately 6000 acres of core or more. The Forest-wide average for existing amounts of core area within BMU Subunits is 60 percent, or approximately 18000 acres of core. During the 5 years following implementation

of the proposed Amendment, priority for increased core area size would be assigned to those BMU Subunits with less than 55 percent core. The proposed objective of at least 55 percent core area equates to a minimum of approximately 16500 acres of core area within each BMU Subunit; the Service's recommendation of 68 percent core area equates to a minimum of 20400 acres.

Some existing Forest Plan standards for grizzly bears were actually statements of objectives and accordingly have been redefined as such. Other standards and guidelines have been slightly modified to update or clarify intent. A complete summation of proposed changes to objectives, standards, and guidelines is provided in the Biological Assessment (U.S. Forest Service 1994b) (see Appendix C).

The Service believes that the proposed Amendment and amended ASQ of 54 MMBF, based on new, existing, or modified objectives and standards and guidelines described under the preferred alternative in the Biological Assessment and Environmental Assessment prepared for the proposed Amendment (U.S. Forest Service 1994a and 1994b), would over time eventuate an overall benefit to individual bears and preclude jeopardizing the grizzly bear population in the NCDE.

However, although the proposed Amendment would result in long-term gains for grizzly bears, the Service remains concerned over the condition of the existing environmental baseline in several BMU Subunits on the Forest because of high road densities and the associated adverse affects on grizzly bears. The Service believes that the environmental baseline of certain nonwilderness BMU Subunits within the Forest is resulting in the following direct and indirect effects:

1. increased direct human-caused mortality to grizzly bears because of high road densities and the resulting increased human access to the Forest and increased visual access through the Forest environment;
2. increased habituation of some grizzly bears to human activities along roads, thereby increasing the human-caused mortality risk to these bears;
3. displacement from critical, seasonally important feeding sites (i.e., spring and fall ranges) which actually kills or injures bears by significantly impairing essential behavior patterns such as foraging, breeding, and sheltering;
4. habitat fragmentation which actually kills or injures bears by significantly impairing essential behavior patterns by displacing bears from important constituent habitat elements including food, cover, solitude and space; and

5. loss of habitat needed for security which results in actual injury or death of grizzly bears.

On September 3, 1993, the Service issued a biological opinion on the Lost Silver Timber Sale that identified "taking" of grizzly bears because of high road densities in the environmental baseline. Further, in an October 5, 1993, letter to the Forest Supervisor, Flathead National Forest, the Service restricted, for the present time, the application of the precise open and total road density thresholds and security criteria established in the September 3, 1993, Lost Silver opinion to the South Fork Flathead River drainage.

In the Lost Silver biological opinion and October 5 letter, the Service recognized that South Fork Study analyses were preliminary in nature and may change with additional data collection or analysis. However, the requirements set forth in 50 CFR 402.14 (b), require that the Federal agency requesting formal consultation shall provide the Service with the best scientific and commercial data available, or which can be obtained during consultation, for an adequate review of the effects that an action may have upon listed species or critical habitat.

The concepts of precise open and total motorized access density to assess and manage the effects of roads on grizzly bear habitat has received widespread acceptance by public land and wildlife managers and biologists. Recently, the IGBC Taskforce (1994) espoused the concepts of open and total motorized access density management and core habitat. Using definitions provided by the IGBC Taskforce, the NCDE Access Committee is currently developing the recommended levels at which open and total motorized route density and core area in grizzly bear habitat should be managed. This guidance will be based on NCDE-specific information and will serve as interim management until the South Fork Study findings have been finalized and until further information on the population trend in the NCDE is available. This interim guidance is not yet available. The Forest employed the composite home range information from the South Fork Study progress report and the definitions and analysis recommended by the IGBC Taskforce (1994) to formulate Forest objectives for grizzly bear habitat.

The Service finds no biological rationale at the present time to deviate from defining take in terms of adverse habitat modification or loss caused by high road densities. Significant under-use of habitat by grizzly bears occurred when open road density exceeded 1 mile per square mile and when total road density exceeded 2 miles per square mile (Mace and Manley 1993). In the Lost Silver biological opinion (U.S. Fish and Wildlife Service 1993b), the Service maintained that this under-use of otherwise suitable habitat resulted in incidental take. The Service used South Fork Study composite home range information to generate reasonable and prudent measures to reduce levels of incidental take.

Existing motorized access conditions in 15 of 40 BMU Subunits (predominantly National Forest lands) on the Forest are comparable to, or improved over those existing in the South Fork Study composite home range upon which the Service defined take in the Lost Silver biological opinion (U.S. Fish and Wildlife Service 1993b). However, 25 of 40 BMU Subunits that are predominantly National Forest lands, and 14 of 14 BMU Subunits with intermingled ownership, exceed the open and/or total motorized access density levels found in the South Fork Study composite home range. The Service is unaware of scientific or commercial information that could be used to quantify the exact level of incidental take as a result of the various road densities in these BMU Subunits. However, adverse effects of high levels of motorized access in these BMU Subunits will continue to negatively affect grizzly bears for 5 to 10 years after implementation of the proposed Amendment.

### Cumulative Effects

Cumulative effects are those effects of future non-Federal (State, local government, or private) activities on endangered and threatened species or critical habitat that are reasonably certain to occur during the course of the Federal activity subject to consultation. Future Federal actions are subject to the consultation requirements established in section 7 of the Act and, therefore, are not considered cumulative to the proposed action.

Actions on private lands, such as residential development, logging, road building, and recreation, will continue to contribute to habitat degradation and loss which may affect the grizzly bears' ability to adequately utilize important habitats in the NCDE. The development of private lands and associated loss and fragmentation of habitat is expected to continue as secondary development creates a demand for new public services and facilities. Tourism and the residential population in northwestern Montana have increased in recent years. Flathead County is considered one of the fastest growing counties in the State. Year-long distribution of visitors and types of recreational pursuits have changed from seasonal peaks, mainly spring, summer, and fall, to year-round activity. The number of residential and recreation homesites is also increasing in northwestern Montana. Disturbances caused by human development in low elevation areas has, and will continue to have, a cumulative impact on grizzly bears through loss of habitat and displacement of bears.

Fourteen of the 54 nonwilderness BMU Subunits delineated on the Forest encompass more than 25 percent private or corporate lands along with Forest Service lands. On these BMU Subunits with intermingled landowners, it is reasonable to assume that additional road building, timber harvest, and residential or other human development, will continue. The combined effects of such activities on grizzly bears are unknown at this time. The

proposed Amendment includes a standard that stipulates Forest Service activities not lead to increases in total or open motorized access densities or reduction of existing core in such areas and that on National Forest lands, Forest activities will result in net gains toward Forest objectives for these three parameters. The Biological Assessment (U.S. Forest Service 1994a) also indicates the need for a coordinated land-use strategy to be developed between public, corporate, and private landowners in areas of intermingled ownership, in order to effect any meaningful changes in the environmental baseline as it affects grizzly bears. Therefore, the Service believes that adverse cumulative effects to bears will continue as a consequence of non-Federal actions on private lands. However, according to the proposed Amendment, Forest actions would not contribute to, and in certain areas may alleviate, the impacts of some of these adverse affects.

### Biological Opinion

It is the Service's biological opinion that implementation of the proposed Forest Plan Amendment #19 is not likely to jeopardize the continued existence of the NCDE grizzly bear (*Ursus arctos horribilis*) population but will result in incidental take.

The section 7 regulations (50 CFR 402) define "jeopardy" as an action that would be expected, directly or indirectly, to appreciably reduce the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species. While the existing environmental baseline has direct and indirect effects on grizzly bears, actions taken to meet the objectives in the Amendment would result in adequate improvements in grizzly bear habitat effectiveness, so that the influence on both numbers of bears and the geographical area sufficiently precludes jeopardizing both survival and recovery of the NCDE grizzly bear population.

Our determination is based in part on the information presented in the Biological Assessment and the Environmental Assessment (U.S. Forest Service 1994a and 1994b) prepared by the Forest for the proposed Amendment, and upon informal discussions between Service and Forest Service biologists and administrators.

Although the Service has reached a not likely to jeopardize conclusion on the entire NCDE grizzly bear population, there remains a serious concern with the condition of the environmental baseline and the incidental take of grizzly bears as defined in the Act.

## Incidental Take

Sections 4(d) and 9 of the Act, as amended, prohibit taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct) of listed species of fish or wildlife without a special 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 patterns such as breeding, feeding, or sheltering. Harass is defined as actions that create the likelihood of injury to listed species by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. As part of the consultation process, the Service may conclude that an action, or the action with the implementation of any reasonable and prudent alternatives, and the resultant incidental take of listed species, will not violate section 7(a)(2). This is done by providing a biological opinion with an incidental take statement. 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 a prohibited taking provided that such taking is in compliance with the terms and conditions of the incidental take statement. Should the amount or extent of incidental taking be exceeded, the Federal agency must reinitiate consultation immediately.

Section 7 consultation includes responsibility for direct and indirect effects together with the effects of other activities that are interrelated or interdependent with that action. These effects are added to the existing environmental baseline to determine the impact on the species. Section 9 liability for taking has not been defined by the Service to include or exclude legal responsibility for this range of the effects of the action. Since it is not an enforcement activity, the section 7 consultation process does not address liability, although it does address the biological judgement on causal connection between agency action and direct and indirect effects that result in takings. The incidental take protections provided through the incidental take statement are to ensure the consulting Federal agency that it may proceed with the proposed action free from any risk of section 4(d) or 9 taking liability. Such a statement does not serve to affirmatively define the scope of legal responsibility under section 4(d) or 9 to include the effects of the action definition applicable to the section 7 consultation process. In other words, the scope of the statement is not intended to define legal responsibilities or takings under section 9.

It is the biological judgement of the Service that the existing high road densities in the environmental baseline of several BMU Subunits results in significant habitat modification or degradation which results in actual injury to grizzly bears by significantly disrupting normal behavioral patterns, including breeding, feeding, or sheltering. It is the biological judgement of the Service that direct and indirect effects of the proposed

Amendment and associated activities would not add significant new effects, other than those considered in relation to roading and road management.

The effects of the proposed Amendment are largely unquantifiable in the short term, and may be measurable only as long-term effects on the species' habitat and population levels. Therefore, even though the Service believes incidental take will occur from the effects of the proposed Amendment, the best scientific and commercial data available are not sufficient to enable the Service to quantify a specific amount of incidental take of the species itself. In instances such as these, the Service designates the expected level of individual incidental take as unquantifiable.

The anticipated level of incidental take of grizzly bears on the Forest as a result of the proposed Amendment is as follows:

The incidental take of grizzly bears in terms of numbers of bears is numerically unquantifiable.

It is the Service's biological judgement that "harm" of grizzly bears is likely to occur when:

1. The precise open motorized access density exceeds 1 mile per square mile in over 13 percent of a BMU Subunit. Research has demonstrated that when open road densities exceeded 1 mile per square mile of habitat, adult grizzly bear use of habitat significantly declined from expected use. It is reasonable to assume that some level of under-use of habitat may occur before essential behavior patterns are significantly impaired to the point of causing injury or death to individual bears. Research has also demonstrated that adult females utilizing home ranges encompassing some area of open road density greater than 1 mile per square mile were able to survive and produce cubs. Thirteen percent of the adult female composite home range in the South Fork study area had open motorized access density exceeding 1 mile per square mile.

Therefore, until additional research or analysis indicates otherwise, if within 5 years, all BMU Subunits meet or fall below the Forest-wide BMU Subunit average density for area exceeding 1 mile of open motorized access per square mile (20 percent), and if within 10 years, all BMU Subunits meet or exceed the proposed Forest objective for area exceeding 1 mile per square mile (13 percent), then the intent of the open motorized access density biological objectives will be met and Forest-wide conditions will be within acceptable levels of "taking".

2. The precise total motorized access density exceeds 2 miles per square mile in over 19 percent of a BMU Subunit. Research has suggested that when total road densities exceeded 2 miles per square mile of habitat, use of habitat by all sex and age classes of grizzly bears significantly declined from expected. It is reasonable to assume that some level of under-use of habitat may occur before essential behavior patterns are significantly impaired to the point of causing injury or death to individual bears. Research has also demonstrated that adult females utilizing home ranges encompassing some area of total road density greater than 2 miles per square mile were able to survive and produce cubs. Nineteen percent of the adult female composite home range in the South Fork study area had total motorized access density exceeding 2 miles per square mile.

Therefore, until additional research or analysis indicates otherwise, if, within 5 years, all BMU Subunits meet or fall below the Forest-wide BMU Subunit average density for area exceeding 2 miles of total motorized access per square mile (24 percent), and if within 10 years, all BMU Subunits meet or exceed the Forest objective for area exceeding 2 miles total motorized access per square mile (or 19 percent), then the intent of the total motorized access density biological objectives will be met and Forest-wide conditions will be within acceptable levels of "taking".

The Service has determined that these levels of incidental take are not likely to result in jeopardy to the species because:

1. Adult females are well represented in the South Fork Study area, which encompasses the composite home range upon which the objectives for open and total motorized access density and core area are based.
2. Motorized access management comparable to or improved over that in the composite home range of adult females in the South Fork Study area would be applied to all areas of the recovery zone on the Forest, resulting in an improvement over existing Forest conditions and over South Fork conditions where females are known to have reproduced.
3. The 5-year objectives place priority for reductions in open and total motorized access and increased core area in areas that currently have the lowest security for grizzly bears.

4. Monitoring data for the period 1987 to 1993 indicate the Recovery Plan population recovery parameters for 6-year averages for numbers of females with cubs, occupancy of BMUs by family groups, and total human-caused grizzly bear mortality limits in the NCDE are being met. Female grizzly bear mortality limits are not being met.
5. The Forest is committed to revising the Forest Plan within the next 3 to 5 years. Recommendations from the IGBC Access Subcommittee, the final paper on the effects of roads and bears from the South Fork Study, and other new or relevant information will be considered at that time. The Forest will also initiate formal consultation with the Service at that time.

The Federal agency has a continuing duty to regulate the activity that is covered by this incidental take statement. If the agency fails to adhere to the terms and conditions of the incidental take statement, the protective coverage of section 7(o)(2) lapses.

This biological opinion provides reasonable and prudent measures which are expected to reduce the amount of incidental take. The measures described below are nondiscretionary and must be implemented by the agency in order for the exemption in section 7(o)(2) to apply.

#### Reasonable and Prudent Measures

The IGBC Taskforce recommended three parameters:

- (1) open road and open motorized trail route density,
- (2) total motorized access route density, and
- (3) percent of analysis area in core area(s),

to be incorporated into access management programs to provide adequate habitat security for grizzly bears (IGBC 1994). The proposed Amendment bases Forest objectives on these parameters. The Service believes that these parameters are necessary and appropriate to minimize the incidental take of grizzly bears caused by high road densities in the existing environmental baseline and by roads associated with timber harvest activities related to the amended ASQ, and therefore serve as reasonable and prudent measures.

The Service believes that the following reasonable and prudent measures are necessary and appropriate to minimize take:

1. Open Road and Open Motorized Trail Route Density. Implement a road and motorized trail management program that regulates the density of open road and open motorized trails to adequately minimize incidental take.
2. Total Motorized Access Route Density. Implement a road and motorized trail management program that regulates the total motorized access route density to adequately minimize incidental take.
3. Percent of Analysis Area in Core Area(s). Assure that timber harvest programs and associated transportation network maintains existing core areas or creates core areas within each BMU Subunit to adequately minimize take.
4. Information Program. Implement an information program that provides the public with accurate and accessible information regarding the biological basis for and the resulting effects of the Amendment #19, to adequately minimize take.

#### Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Forest Service must comply with the following terms and conditions, which implement the reasonable prudent measures described above:

1. For those BMU Subunits that are predominantly National Forest (>75 percent), compliance with the Forest objective of no more than 13 percent of a BMU Subunit exceeding 1 mile of open motorized access per square mile will be achieved within 10 years of the initiation of Amendment #19. Within 5 years, BMU Subunits will meet or fall below the current Forest-wide average for open motorized access density of not more than 20 percent of a Subunit exceeding 1 mile open motorized access per square mile.

For those BMU Subunits that are not predominantly National Forest (<75 percent), Forest activities will not result in an increase in open motorized access density in any BMU Subunit.

2. For those BMU Subunits that are predominantly National Forest (>75 percent), compliance with no more than 19 percent of a BMU Subunit exceeding 2 miles of total motorized access per square mile will be achieved within 10 years of the initiation of Amendment #19. Within 5

years, BMU Subunits will meet or fall below the current Forest-wide average for total motorized access density of not more than 24 percent of a Subunit exceeding 2 miles of total motorized access per square mile.

For those BMU Subunits that are not predominantly National Forest (<75 percent), Forest activities will not result in an increase in total motorized access density in any BMU Subunit.

3. For those BMU Subunits that are predominantly National Forest (>75 percent), minimum core area will be 68 percent or greater of a Subunit and will be achieved within 10 years of the initiation of Amendment #19. Within 5 years, BMU Subunits will meet or exceed the current Forest-wide average for core area of 60 percent of a BMU Subunit.

The Forest will, in consultation with Montana Department of Fish, Wildlife, and Parks and the Service, insure that core areas contain seasonal habitat approximately proportional to its availability in the BMU Subunits. The habitat overlay and Seasonal Habitat Index created by the Grizzly Bear West Side NCDE Cumulative Effects Model will aid in ensuring that this objective is accomplished.

For those BMU Subunits that are not predominantly National Forest (<75 percent), Forest activities will not result in a decrease in existing core area in any BMU Subunit.

4. Within one year of issuance of the proposed Amendment, develop and implement a public information program on the positive effects of road closures for fish and wildlife, water quality, and other Forest resources. The effort should focus on both information that is available and relevant at a local, district level and on information pertinent to a more broad-based Forest level approach. The public should be provided a thorough and understandable analysis of existing road densities and future road densities resulting from implementation of the Amendment. The net reduction in open motorized access density and the remaining opportunities for motorized public access, timber extraction, recreation, and other Forest uses should be emphasized.

#### Reporting Requirements

The Forest shall submit an annual report the Service in December of each year. The report shall detail the progress in achieving the open and total motorized access densities and core area criteria in the BMU Subunits. The Service will use this report

to ascertain whether sufficient progress is being made towards realizing the Forest's 5-year and 10-year objectives.

Within 90 days after meeting the open and total motorized access densities and core area requirements in each BMU Subunit, the Forest shall provide the Service with a final report for that BMU Subunit detailing all activities undertaken in association with terms and conditions of this biological opinion.

Should the incidental take limit be exceeded once compliance with 5- and 10-year objectives is achieved, the Forest shall immediately cease the activity resulting in the take and reinitiate consultation with the Service to avoid violation of section 9 of the Act. The proposed actions must be stopped in the interim period between the initiation and completion of the new consultation. The Forest should provide an explanation of the causes of the taking.

#### Administrative Amendment to Previous Incidental Take Statements

This incidental take statement and its associated reasonable and prudent measures, terms and conditions, and reporting requirements as defined above, shall replace those included in previous biological opinions on:

1. Lost Silver Timber Sale (September 3 and October 5, 1993)
2. Rock Creek, Firefighter Winter Range Project, Emma Creek Salvage, Tent Creek Salvage and Pearl Point Timber Salvage sales (January 14, 1994)
3. Bent Flat Timber Sale (April 20, 1994)

The Service amends the incidental take statements in these biological opinions because of new information presented in the IGBC Taskforce Report (1994), and described earlier in this opinion, which was not available at the time the opinions were submitted. The "no jeopardy" conclusions set forth in the above-listed opinions remain unchanged.

#### Conservation Recommendations

Sections 2(c) and 7(a)(1) of the Act direct Federal agencies to use their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. The term "conservation recommendations" has been defined as Service suggestions regarding discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat or regarding development of information. The recommendations

provided here relate only to the proposed action and does not necessarily represent complete fulfillment of the agency's section 7(a)(1) responsibility for the species.


1. Grizzly bears will concentrate in certain areas during specific time periods to take advantage of concentrated food sources (e.g. highly productive huckleberry fields, insect concentrations, spawning fish, etc.) or because the area provides a high seasonal food value due to diversity in vegetation and plant phenology (e.g. important spring or fall range). Where these situations are known or can be predicted to occur, roads and trails in the areas should receive priority consideration for obliteration or for seasonal restrictions on open motorized access, so as to minimize mortality risk, habituation, and displacement of grizzlies.
2. The IGBC Taskforce (1994) definitions make allowances for the occurrence of restricted roads within core areas. Although restricted roads in core areas must be barriered in such a way to prevent motorized access, the presence of a roadbed within a core area increases the potential for illegal motorized use. Therefore, in addition to a substantive barrier to motorized access, such roads should be signed as restricted to motorized use during the non-denning period.
3. Road reclamation/obliteration should be emphasized in core areas. The number of restricted roads in core area should be minimized.
4. Roads constructed or reconstructed for timber sale purposes should be single purpose roads according to the Interagency Grizzly Bear Guidelines. New roads or road reconstruction should be of minimum design specifications and placed on the landscape so that they can easily be recontoured to slope. This will help reduce costs and facilitate reclamation of the roads after the timber sale is completed.
5. Motorized access management is only one of several factors influencing grizzly bear habitat and grizzly bear security. The presence of attractants is a major factor leading to the food conditioning and habituation, and the eventual direct mortality or management removal, of grizzly bears. The Service supports the Forest's efforts to develop a food storage order for the NCDE, especially the effort expended to create a range of alternative food storage options to accommodate a variety of forest user groups. The Service encourages the implementation of the order at the earliest date possible.

### Reinitiation Requirement

This concludes formal consultation on Amendment #19 to the Flathead National Forest Plan as outlined in the October 27, 1994, request. As required by 50 CFR 402.16, reinitiation of formal consultation is required if:

1. the amount or extent of incidental take is exceeded;
2. new information reveals effects of the agency action that may affect listed species or habitat in a manner or to an extent not considered in this opinion;
3. the agency action is subsequently modified in a manner that causes an effect to the listed species or habitat not considered in this opinion; or
4. a new species is listed or critical habitat designated that may be affected by the action.

In instances where the amount or extent of incidental take is exceeded, any operations causing such take must be stopped in the interim period between the initiation and completion of the new consultation if any additional taking is likely to occur.

 1/6/95  
Field Supervisor  
Montana Field Office  
U.S. Fish and Wildlife Service

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# Appendix A. List of Acronyms

ASQ	Allowable Sale Quantity
BMU	Bear Management Unit
CEM	Cumulative Effects Model
IGBC	Interagency Grizzly Bear Committee
MMBF	million board feet
MS	Management Situation
NCDE	Northern Continental Divide Ecosystem

## Appendix B. Intergency Grizzly Bear Guidelines (51 FR 42863-42866).

Federal Register

Vol. 51, No. 228

Wednesday, November 26, 1986

This section of the FEDERAL REGISTER contains documents other than rules or proposed rules that are applicable to the public. Notices of hearings and investigations, committee meetings, agency decisions and rulings, delegations of authority, filing of petitions and applications and agency statements of organization and functions are examples of documents appearing in this section.

### DEPARTMENT OF AGRICULTURE

#### Forms Under Review by Office of Management and Budget

November 21, 1986.

The Department of Agriculture has submitted to OMB for review the following proposals for the collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35) since the last list was published. This list is grouped into new proposals, revisions, extensions, or reinstatements. Each entry contains the following information:

(1) Agency proposing the information collection; (2) Title of the information collection; (3) Form number(s), if applicable; (4) How often the information is requested; (5) Who will be required or asked to report; (6) An estimate of the number of responses; (7) An estimate of the total number of hours needed to provide the information; (8) An indication of whether section 3504(h) of pub. L. 96-511 applies; (9) Name and telephone number of the agency contact person.

Questions about the items in the listing should be directed to the agency person named at the end of each entry. Copies of the proposed forms and supporting documents may be obtained from: Department Clearance Officer, USDA, OIRM, Room 404-W Admin. Bldg., Washington, DC 20250 (202) 447-2118.

Comments on any of the items listed should be submitted directly to: Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503 Attn: Desk Officer for USDA.

If you anticipate commenting on a submission but find that preparation time will prevent you from doing so

Desk Officer of your intent as early as possible.

#### Extension

- **Foreign Agricultural Service**  
Licenses for Importation/Transfer of Sugar to be Re-Exported in Sugar-Containing Products  
Recordkeeping; On occasion  
Businesses or other for-profit; Small businesses or organizations; 345 responses; 575 hours; not applicable under 3504(h)  
Carol Brick-Turin (202) 447-2916
- **Food and Nutrition Service**  
Shelters for Battered Women and Children—Part 273  
Recordkeeping; On occasion  
Individuals or households, State or local governments; Federal agencies or employees; 137 responses; 106 hours; not applicable under 3504(h)  
Mildred Kriegel (703) 756-3429
- **Rural Electrification Administration**  
Certification of Authority  
REA-675  
On occasion  
Small businesses or organizations; 450 responses; 45 hours; not applicable under 3504(h)  
Bert Huntington (202) 382-1966

#### Reinstatement

- **Economic Research Service**  
Cotton Distribution Survey  
Once in 5 to 6 years  
Businesses or other for-profit; 387 responses; 194 hours; not applicable under 3504(h)  
Edward H. Glade, Jr. (202) 786-1840
- **Food and Nutrition Service**  
Federal-State Special Supplemental Food Program Agreement  
FNS-339  
Annually  
State or local governments; 87 responses; 44 hours; not applicable under 3504(h)  
Laurie Hickerson (703) 756-3710

Jane A. Benoit,

Departmental Clearance Officer.

[FR Doc. 86-25671 Filed 11-25-86; 8:45 am]

### DEPARTMENT OF AGRICULTURE Forest Service

### DEPARTMENT OF THE INTERIOR

#### Bureau of Land Management

#### Fish and Wildlife Service

#### National Park Service

#### Intergency Grizzly Bear Committee; Intergency Guidelines on Management of Grizzly Bear

**AGENCIES:** Forest Service, USDA; Bureau of Land Management, Fish and Wildlife Service, National Park Service, USDI.

**ACTION:** Notice of the Intergency Grizzly Bear Guidelines as approved by the Intergency Grizzly Bear Committee.

**SUMMARY:** Based on comments received in response to the May 28, 1985 (50 FR 21696) request for public comments, the above-named Federal agencies, as members of, and representing the Intergency Grizzly Bear Committee (IGBC), announce the adoption of the final Intergency Guidelines on Management of Grizzly Bear. The Guidelines, which affect the management of grizzly bears in Idaho, Montana, Washington, and Wyoming, will be integrated into each agency's directive system and implemented through each agency's land and resource management activities.

**EFFECTIVE DATE:** November 26, 1986.

#### FOR FURTHER INFORMATION CONTACT:

Lorraine Mintzmyer, Regional Director, National Park Service, USDI, P.O. Box 25287, Denver, Colorado 80225, (303) 234-2500

Calen Buterbaugh, Regional Director, Fish and Wildlife Service, USDI, P.O. Box 25406, Denver Federal Center, Denver, Colorado 80225, (303) 234-2269

James C. Overbay, Regional Forester, Forest Service, USDA, P.O. Box 7669, Missoula, Montana 59807, (406) 329-3310

Dean Stepanek, State Director, Bureau of Land Management, P.O. Box 30157, Billings, Montana 59107

#### SUPPLEMENTARY INFORMATION:

#### History of the Guidelines

In 1983, the Secretaries of Agriculture and the Interior established an

Interagency Grizzly Bear Committee to provide a consistent and coordinated approach toward achieving grizzly bear recovery, as mandated by the Endangered Species Act of 1973, as amended (16 U.S.C. 1531-1536, 1538-1540). Committee members include representatives from the Forest Service, National Park Service, Bureau of Land Management, Fish and Wildlife Service, and the Fish and Wildlife agencies of the States of Idaho, Montana, Wyoming, and Washington.

In 1979, several of the agencies participated in developing Guidelines for Management Involving Grizzly Bears in the Greater Yellowstone Area ("Guidelines"). Since then, the Guidelines have undergone several revisions as agencies developed first-hand experience in implementing them. They were submitted to the Fish and Wildlife Service in May 1979, for formal consultation, in accordance with the Endangered Species Act. The biological opinion of the Fish and Wildlife Service concluded that implementation of the Guidelines will promote the conservation of the grizzly bear.

#### Overview of Guidelines

The Guidelines identify and describe five Grizzly Bear Management Situations and contain specific guidelines for managing grizzly bears and other resources in these areas. Each Management Situation has a description of the grizzly bear population and habitat conditions, followed by general management direction applicable to lands containing those conditions. Appendix A to this notice provides the text of each of the Grizzly Bear Management Situations contained in the Guidelines.

The full text of the Guidelines also includes resource management guidelines for coordinating management of wildlife, timber, fire, range, recreation, mineral, watershed, and special uses in relation to grizzly bears. The resource guidelines differ somewhat for each Management Situation, according to the bear population, habitat conditions, and associated management direction emphasis. Guidance consists of ways to maintain and improve habitat, ways to minimize the potential for grizzly-human conflict, and recommendations to resolve grizzly-human conflicts.

The document also contains several appendices useful to resource managers. The appendices deal with interagency responsibilities, methods for dealing with nuisance grizzly bears, methods of evaluating grizzly bear habitat quality and of estimating consequences of proposed management activities, the Biological Opinion rendered by the Fish

and Wildlife Service on use of the Guidelines, and the agreement establishing the Interagency Grizzly Bear Committee.

#### Summary of the Review, Proposals, Comments, and Responses

The Interagency Grizzly Bear Committee (IGBC) published the text of the Management Situations and proposed changes, and issued a request for public comments on May 28, 1985 (50 FR 21696) and then held 19 public meetings on the Guidelines in Idaho, Montana, Washington, Wyoming.

In addition to the public comments received at the meetings, the IGBC received one hundred twenty-five (125) written comments. An interagency team reviewed a content analysis of the comments and modified the proposed changes. The team also added an item on preventive control of known nuisance grizzly bears. These proposals were then circulated to all line officers who held the public meetings. Based on comments, one further change was made in definition and direction for Management Situation 2.

*Proposal: Broaden the Scope and Application of Guidelines.* The Guidelines originally were developed for application in the Greater Yellowstone Area. The Committee proposed changing the name from "Guidelines for Management Involving Grizzly Bears in the Greater Yellowstone Area" to "Interagency Grizzly Bear Guidelines". Further, the Committee proposed formal application of the Guidelines on National Forest System, National Park System, and Bureau of Land Management lands throughout occupied grizzly bear ecosystems in the States of Idaho, Montana, Washington, and Wyoming per the Grizzly Bear Recovery Plan.

*Comments:* Several respondents supported this proposal; others commented that the different grizzly bear ecosystems need guidelines tailored to the specific region.

*Committee Response:* The IGBC believes the Guidelines provide sound principles and general practices that are suitable for the various grizzly bear ecosystems and allow for appropriate consistency across those ecosystems. The IGBC adopted the proposal, with one change in the recreation management guidelines under Management Situation 1.

This change provides the flexibility to tailor the strictness of sanitation standards to local conditions. Thus, mandatory standards can be applied in areas where conflicts with people have been documented, or where grizzly bear populations are relatively small and survivorship of individual bears is

considered crucial for recovery of the species. Mandatory sanitation standards may not be needed in areas with a low likelihood of conflicts, or where grizzly populations are larger and individual survival is less crucial for recovery.

*Proposal: Create a Sixth Management Situation Designation.* The Committee proposed to add a new section, Management Situation 2A, to provide guidance for interim management of lands where additional biological data is needed to classify an area as Management Situation 1 (necessary for recovery) or Management Situation 2 (unnecessary for recovery). The proposed section was designed to deal with the fact that none of the five Management Situations in the original guidance provided guidelines for areas where additional information is needed to fully determine whether habitat resources are necessary for recovery. In cases of such uncertainty, there is a risk that certain land uses could impinge on recovery.

*Comments:* The proposal to add Management Situation 2A received considerable comment. Reasons for support centered on the need for interim guidance for lands where biological information is insufficient. Reasons for opposition included mistrust of such stratifications and concern about continued ambiguity and management uncertainty. Also, some respondents expressed a preference for a conservative management approach, whereby habitat of uncertain value for grizzly bear recovery would be protected until such time that it could be classified as either Management Situation 1 or Management Situation 2.

*Committee Response:* The IGBC believes the Guidelines and the attendant Management Situations represent a comprehensive and integrated approach to the goal of grizzly bear conservation.

Although the context and direction for management varies legitimately across Management Situations, it is the overall integration of management actions and human activities in Management Situations 1, 2, 3, and 4 that has direct or indirect relationships to the conservation and recovery of the grizzly. Based on the comments received, the Committee believes that a revision in Management Situation 2, rather than a separate description, is the best way to reflect this variable but integrated management approach to species recovery and to reduce the risks involved in cases of uncertainty.

The Committee made three substantive changes in Management Situation 2. Initially, Management Situation 2 described areas where

grizzlies occur but which lack distinct population centers, and are considered unnecessary for survival and recovery of the species. As revised, Management Situation 2 now also includes areas where the necessity of the habitat resources for recovery has not yet been determined.

Another change in Management Situation 2 concerns the effect of major Federal actions or programs. The original description of Management Situation 2 indicated major Federal activities or programs might affect the conservation of the grizzly bear by contributing to human-caused bear mortalities. The revision adds a statement recognizing that major Federal activities or programs also might affect bear conservation by long-term displacement where the zone of influence could affect habitat use in areas classified as Management Situation 1.

The third change in Management Situation 2 addresses management direction for areas where there is uncertainty about importance of the habitat resource for recovery. In such cases, when grizzly population and/or habitat use and other land uses are mutually exclusive, other land uses may prevail provided they do not cause irretrievable or irreversible resource commitments which preclude the possibility of future classification to Management Situation 1 (necessary for recovery). This change reduces the level of risk to recovery that exists when there is uncertainty about the importance of an area to meeting recovery goals.

**Proposal: Allow Modification of Guidelines on Administrative Units.** The original guidelines were written to address occupied grizzly bear habitat throughout the Greater Yellowstone Area. The proposal was to allow modification of the resource management guidelines on a given administrative unit of the Forest Service, National Park Service, or Bureau of Land Management to address more specifically the resource situation on a given unit.

**Comments:** Nearly all respondents on this subject supported the need for flexibility but differed regarding the appropriate management level. Most respondents indicated that: (a) Modification of the resource management guidelines should be an interagency decision at an ecosystem level (i.e., Ecosystem Management Subcommittee), and (b) refinement of vegetation prescriptions would best be handled by a local administrative unit (i.e., National Forest).

**Committee Response:** The IGBC concurs with the sentiment expressed in the public comments and modified the proposal to provide appropriate flexibility. An Interagency Ecosystem Management Subcommittee may recommend changes (as necessary) in the resource management guidelines for approval by the Interagency Grizzly Bear Committee. Administrative units within the National Forest, Park Service, or Bureau of Land Management may modify the Guidelines only to develop more precise vegetation prescriptions which support the direction and objectives for a Management Situation.

#### Response to Other Concerns of Respondents

**Other Concerns:** Several respondents expressed concern that the Guidelines lacked an administrative mechanism for preventing problem grizzly-human conflicts, particularly where public land classified as Management Situation 1 adjoins private lands. Suggestions for proactive management ranged from a "buffer zone" concept to guidelines for intercepting a specific bear(s).

**Committee Response:** The IGBC believes that responsiveness to this valid concern is vital to successful conservation of the species. First, it should be noted that the present Guidelines state that grizzly habitat enhancement will not be done in close proximity to private property or other areas which could bring grizzlies in contact with humans. Nevertheless, the lands of concern may be important seasonal range for grizzlies, and bears may be there using existing habitat components without causing trouble. Hence, creation of a "buffer zone" does not appropriately address the concern of adjacent private landowners.

The IGBC recognizes that certain grizzlies have known behavior patterns, which, when combined with location, time, and other factors, indicate that an incident is highly probable. To provide guidance for these situations which require the safe removal of target bears, the Committee has added a section entitled Preventive Action (included as Appendix B in this notice) to the Guidelines. This guidance provides the involved agencies with an appropriate mechanism for proactive management of probable conflict situations. Such action could 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.

For copies of the full text of the Interagency Grizzly Bear Guidelines, contact James C. Overbay, Regional

Forester, USDA Forest Service, P.O. Box 7669, Missoula, Montana 59807 (406-329-3316).

For the Forest Service:  
Dated: November 5, 1986.

R. Max Peterson,  
Chief.

For the Bureau of Land Management:  
Dated: November 19, 1986.

Robert F. Burford,  
Director.

For the Fish and Wildlife Service:  
Dated: November 17, 1986.

Frank Dunkle,  
Director.

For the National Park Service:  
Dated: November 18, 1986.

William Penn Mott, Jr.,  
Director.

#### Appendix A—Text of Management Situations

The five Management Situations and related management direction which the specific guidelines address are as follows:

##### Management Situation 1

**Population and habitat conditions.** The area contains grizzly population centers (areas key to the survival of grizzlies where seasonal or year-long grizzly activity, under natural, free-ranging conditions is common) and habitat components needed for the survival and recovery of the species or a segment of its population. The probability is very great that major Federal activities or programs may affect the grizzly (that is, will have direct or indirect relationships to the conservation and recovery of the grizzly).

**Management direction.** Grizzly habitat maintenance and improvement and grizzly-human conflict minimization will receive the highest management priority. Management decisions will favor the needs of the grizzly bear when grizzly habitat and other land use values compete. Land uses which can affect grizzlies and/or their habitat will be made compatible with grizzly needs or such uses will be disallowed or eliminated. Grizzly-human conflicts will be resolved in favor of grizzlies unless the bear involved is determined to be a nuisance. Nuisance bears may be controlled through either relocation or removal but only if such control would result in a more natural free-ranging grizzly population and all reasonable measures have been taken to protect the bear and/or its habitat (including area closures and/or activity curtailments).

##### Management Situation 2

**Population and habitat conditions.** Current information indicates that the area lacks distinct population centers; highly suitable habitat does not generally occur, although some grizzly habitat components exist and grizzlies may be present occasionally. Habitat resources in Management Situation 2 either are unnecessary for survival and recovery of the species, or the need has not yet been determined but habitat resources may be necessary. Certain management

actions are necessary. The status of such areas is subject to review and change according to demonstrated grizzly population and habitat needs. Major Federal activities may affect the conservation of the grizzly bear primarily in that they may contribute toward (a) human-caused bear mortalities or (b) long-term displacement where the zone of influence could affect habitat use in Management Situation 1.

**Management direction.** The grizzly bear is an important, but not the primary, use of the area. In some cases, habitat maintenance and improvement may be important management considerations. Minimization of grizzly-human conflict potential that could lead to human-caused mortalities is a high management priority. In this management situation, managers would accommodate demonstrated grizzly populations and/or grizzly habitat use in other land use activities if feasible, but not to the extent of exclusion of other uses. A feasible accommodation is one which is compatible with (does not make unobtainable) the major goals and/or objectives of other uses. Management will at least maintain those habitat conditions which resulted in the area being stratified Management Situation 2. When grizzly population and/or grizzly habitat use and other land use needs are mutually exclusive, the other land use needs may prevail in management consideration. In cases where the need of the habitat resources for recovery has not yet been determined, other land uses may prevail to the extent that they do not result in irretrievable/irreversible resource commitments which would preclude the possibility of eventual reclassification to Management Situation 1. If grizzly population and/or habitat use represents demonstrated needs that are so great (necessary to the normal needs or survival of the species or a segment of its population) that they should prevail in management considerations, then the area should be reclassified under Management Situation 1. Managers would control nuisance grizzlies.

#### \* Management Situation 3

**Population and habitat conditions.** Grizzly presence is possible but infrequent. Developments, such as campgrounds, resorts or other high human use associated facilities, and human presence result in conditions which make grizzly presence untenable for humans and/or grizzlies. There is a high probability that major Federal activities or programs may affect the species' conservation and recovery.

**Management direction.** Grizzly habitat maintenance and improvement are not management considerations. Grizzly-human conflict minimization is a high priority management consideration. Grizzly bear presence and factors contributing to their presence will be actively discouraged. Any grizzly involved in a grizzly-human conflict will be controlled. Any grizzly frequenting an area will be controlled.

#### Management Situation 4

**Population and habitat conditions.** Grizzlies do not occur in the area but habitat and human conditions make the area potentially suitable for grizzly occupancy,

and the area is needed for the survival and recovery of the species. The probability is very great that major Federal activities and programs may affect the species' conservation and recovery.

**Management direction.** The grizzly bear is an important potential use on the area. Grizzly habitat maintenance and improvement are important management considerations. Grizzly-human conflict minimization is not a management consideration. Habitat and human conditions making the area suitable for grizzly occupancy will not be degraded pending decisions regarding reestablishment of grizzlies.

#### Management Situation 5

**Population and habitat conditions.** Grizzlies do not occur, or occur only rarely in the area. Habitat may be unsuitable, unavailable, or suitable and available but unoccupied. The area lacks survival and recovery values for the species or said values are unknown. Major Federal activities and programs probably will not affect species conservation and recovery.

**Management direction.** Consideration for grizzly bears and their habitat in other resource related decisions is not directed. Maintenance of grizzly habitat is an option. Any grizzly involved in a grizzly-human conflict will be controlled.

#### Appendix B—Guidelines for Preventive Action

Under the Appendix, "Plan for Determining Grizzly Bear Nuisance Status and for Controlling Nuisance Grizzly Bears", add:

#### IV. 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).

[FR Doc. 86-26619 Filed 11-25-86; 8:45 am]

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#### DEPARTMENT OF COMMERCE

##### Agency Forms Under Review by the Office of Management and Budget (OMB)

DOC has submitted to OMB for clearance the following proposals for collection of information under the provisions of the Paperwork Reduction Act (44 U.S.C. Chapter 35).

Agency: National Oceanic and Atmospheric Administration  
Title: Fishermen's Contingency Fund

Form Number: Agency—NOAA 88-164, 88-166; OMB-0648-0082

Type of Request: Extension of the expiration date of a currently approved collection

Burden: 1,365 respondents; 13,650 reporting hours

Needs and Uses: The purpose of the Fishermen's Contingency Fund is to compensate commercial fishermen for losses or of damages to fishing gear or vessels attributable to oil and gas activities on the Outer Continental Shelf. The application form and 15-day report are required in order to file claims against the fund.

Affected Public: Businesses or other for-profit institutions; small businesses or organizations; individuals

Frequency: On occasion

Respondent's Obligation: Required to obtain or retain a benefit

OMB Desk Officer: Sheri Fox 395-3785

Agency: National Oceanic and Atmospheric Administration  
Title: Fishing Vessel and Gear Damage Compensation Fund

Form Number: Agency—NOAA 88-178; OMB-0648-0094

Type of Request: Extension of the expiration date of a currently approved collection

Burden: 400 respondents; 8,000 reporting hours

Needs and Uses: The application form is required of commercial fishermen who file claims against the Fishing Vessel and Gear Damage Compensation Fund in accordance with Section 10 of the Fishermen's Protective Act of 1967. The purpose of the Fund is to compensate fisherman for vessel casualties caused by foreign vessels and for gear casualties caused by any other vessel, whether foreign or domestic.

Affected Public: Businesses or other for-profit institutions; small businesses or organizations; individuals

Frequency: On occasion

Respondent's Obligation: Required to obtain or retain a benefit

OMB Desk Officer: Sheri Fox 395-3785

Copies of the above information collection proposals can be obtained by calling or writing DOC Clearance Officer, Edward Michals, (202) 377-4217, Department of Commerce, Room 6622, 14th and Constitution Avenue, NW., Washington, DC 20230.

Written comments and recommendations for the proposed information collections should be sent to Sheri Fox, OMB Desk Officer, Room 3235, New Executive Office Building, Washington, DC 20503.

Appendix C. Proposed Changes to the Forest Plan  
(from U.S. Forest Service 1994b)

Forest Plan Amendment #19

Appendix A

Under Alternative 3, proposed changes are:

Alternative 1	Alternative 3 (preferred)
<p><b>Forest Plan Objective A.4 (Forest Plan page II-7):</b></p> <p>Complete Grizzly Bear Habitat Component Analysis for the Trail Creek Grizzly Bear Management Area (MA 11) and the Bunker Creek area of the Spotted Bear Ranger District (MA 11A) prior to implementation of management activities.</p>	<p><b>a. Grizzly Bear</b></p> <p>(1) The Flathead National Forest lies within the Northern Continental Divide recovery area. Within each Bear Management Unit, ensure occupancy by reproducing females and limit mortality to achieve recovery goals in the Recovery Plan.</p> <p>(2) Lands within the recovery zone are to be designated as Management Situation 1, 2, or 3 as defined in the Interagency Grizzly Bear Guidelines (Forest Plan unbound appendix OO). Management Situations are shown on page II-24. Objectives for Management Situation 1 are to provide high-quality habitat for seasonal foraging needs, free-ranging movement and dispersal of resident grizzly bears, and low risk of mortality due to human/bear conflicts. Objectives for MS-2 are to provide adequate habitat conditions for short-term occupancy, movement and dispersal, and low risk of mortality due to human/bear conflicts. Objectives for MS-3 are to discourage occupancy by grizzly bears and to minimize risk of human/bear conflicts.</p> <p>(3) Habitat conditions adequate to provide for a successfully reproducing adult female will be provided in all BMU Subunits.</p> <p>(4) In BMU Subunits that are predominantly National Forest (jurisdiction greater than 75%), the following desired levels will be attained within 10 years:</p> <ul style="list-style-type: none"> <li>(a) security core areas are 55 to 100 percent;</li> <li>(b) total motorized access is less than 15% of the MS-1 and MS-2 with density greater than 2 miles/square mile;</li> <li>(c) open motorized access is less than 15% of the MS-1 and MS-2 having density greater than 1 mile/ square mile.</li> </ul> <p>Within 5 years, the following will be attained:</p> <ul style="list-style-type: none"> <li>(a) provide at least 55% core area;</li> <li>(b) BMU Subunits that have total motorized access exceeding the current Forest average of 24% with density &gt;2 miles/ square mile will be brought to no more than 24% in MS-1 and MS-2;</li> <li>(c) BMU Subunits that have open motorized access exceeding the current Forest average of 20% with density &gt;1 mile/ square mile will be brought to no more than 20% in MS-1 and MS-2.</li> </ul> <p>(5) Within BMU Subunits with an intermingled ownership pattern and/or are not predominantly National Forest, Forest Service activities will not result in an increase in total motorized access or a reduction in core areas. Efforts will be made to improve habitat effectiveness of BMU Subunit through cooperative management, land adjustments, or other means.</p> <p>(6) Establish an active public information and education program that explains goals and objectives of grizzly bear management and steps required to recover the population.</p>

## Forest Plan Amendment #19

## Appendix A

Alternative 1	Alternative 3 (preferred)
<p><u>Forest-wide General Standard No. 1, page 11-15 [Forest Plan Amendment No. 8]</u></p> <p>1. Standards are not discretionary. They apply to all National Forest System Lands and will be followed unless the standards are amended. Any and all amendments of the LRMP standards will be undertaken in compliance with NEPA and the amendment process of the NFMA regulations (36 CFR 219.10(e)), and with public involvement. Amendments may be undertaken in two ways: 1) Standard(s) may be amended for all future activities, or 2) Standard(s) may be amended for a single project only. A project-specific amendment of a Forest Plan standard may be undertaken if it is demonstrated during project analysis that it will fulfill the objective of the standard and related goals. The rationale for project-specific amendments to Forest Plan standards must be described in the project's Decision Memo, Decision Notice, or Record of Decision. A project-specific amendment authorizing an exception to a Forest Plan standard must be issued, by the Forest Supervisor, concurrent with the project decision. Project-specific amendments of Forest Plan standards will in every instance be made in compliance with the Forest Service's legal requirements under the Endangered Species Act, Clean Water Act, NFMA, NEPA, and all other applicable laws.</p> <p>Standards established for threatened and endangered species conservation and protection are mandatory, and thus take precedence when there are conflicting uses. Project-specific amendments of such standards may be considered if they will fulfill the Forest Plan goals related to the conservation of threatened and endangered species. Any amendment to standards established for threatened and endangered species conservation and protection must be preceded by consultation with the U.S. Fish and Wildlife Service.</p> <p><u>Forest-wide General Standard No. 4 (page 11-15) [Forest Plan Amendment No. 11]</u></p> <p>4. Initiate informal consultation procedures with the U.S. Fish and Wildlife Service in the early planning phases of site-specific projects if a "no effect/may affect" determination is unclear. If a "may affect" determination is made, formal consultation with the U.S. Fish and Wildlife Service is required.</p>	<p>[No change]</p> <p>[No change]</p> <p>[No change]</p> <p>[No change]</p>
<p><u>Forest-wide Standards for Grizzly Bear (pages 11-25 through 11-33)</u></p> <p>a. Introduction [page 11-25, not reproduced here]</p> <p>b. Management Situations and Direction Ensure that all management activities and projects are planned, designed, and implemented in accordance with the Interagency Grizzly Bear Guidelines (Interagency Grizzly Bear Committee 1986, see unbound Appendix OO to the Forest Plan). [Forest Plan Amendment No. 9]</p>	<p>[Delete]</p> <p>[No change]</p>

# Forest Plan Amendment #19

## Appendix A

### c. Flathead National Forest Grizzly Bear Situation

Administrative Unit	Current Occupied Habitat							Total
	Mgmt. Sit. 1	Mgmt. Sit. 2	Mgmt. Sit. 3	Total	Mgmt. Sit. 1	Mgmt. Sit. 2	Mgmt. Sit. 3	
NF Acres	1,923,168	111,360	21,120	2,055,648	1,992,785	100,635	12,997	2,106,397
Percent of Occupied Habitat	94%	5%	1%	100%	94%	5%	1%	100%

Alternatives 1 and 2	Alternative 3
<p>The grizzly bear is a highly mobile animal. It is imperative to understand that although the grizzly's habitat has been stratified by management units, the ecosystem must continue to function as a whole; i.e. although areas are mapped as Situation 2, many bears will need to be on these areas during the spring as part of their total home range.</p> <p>The precise carrying capacity of the Flathead National Forest's part of the Northern Continental Divide Ecosystem to support grizzly bears is not known at this time. The highest known densities in the continental United States occur in the Northern Continental Divide population. The Flathead National Forest must provide habitat capable of sustaining one bear per 15.5 square miles of occupied habitat to provide its contribution of 207 bears toward a recovered population.</p>	<p><i>[Delete-- refer to Forest Plan objectives]</i></p> <p><i>[Delete-- refer to Forest Plan objectives]</i></p>
<p><b>d. Grizzly Bear Recovery Objectives</b></p> <p>The Flathead National Forest's objectives for meeting the Northern Continental Divide Ecosystem's recovery goals are as follows:</p> <ol style="list-style-type: none"> <li>(1) Achieve the recovery goal for the Northern Continental Divide Ecosystem.</li> <li>(2) Manage all "Situation 1" areas with the grizzly bear as a primary resource which must be maintained or enhanced.</li> <li>(3) Manage "Situations 2 and 3" areas in a manner that multiple-use activities will be compatible with the conservation and recovery of the species.</li> </ol>	<p><i>[Delete-- refer to Forest Plan objectives]</i></p>

## Forest Plan Amendment #19

## Appendix A

Alternatives 1 and 2	Alternative 3
<p><b>e. Management Direction</b></p> <p><u>All Management Functions, All Management Situations</u></p> <p>(1) Maintain close contact with research organizations to ensure that current research data are being used in resource planning and administration affecting grizzlies.</p> <p>At least once a year, District Rangers and biologists will meet to review current research findings and discuss their application in resource management. Review and revise guidelines as necessary to keep them current. Address research needs in terms of Forest management activities.</p> <p>(2) Biological evaluations of all significant projects are required. Refer to General Standard 4, p. II-15, for direction regarding consultation with U.S. Fish and Wildlife Service. [Forest Plan Amendment No. 11]</p> <p>(3) Identify and evaluate for each project proposal the cumulative effects of all activities, both existing uses and other planned projects, relative to both public and private lands.</p> <p>(4) Measures to be taken to protect, maintain, and/or improve grizzly bear habitat and populations as a result of the biological evaluation will be specified in project design.</p> <p>(5) Refine Management Situation stratification based on current grizzly bear habitat suitability, population, and distribution trends. All biological evaluations will assess the current status of management situation stratifications for accuracy and provide analysis data and recommendations for updating as necessary.</p> <p>(6) Establish an active public information and education program discussing grizzly bear management, stressing goals, objectives, and steps required to recover the population.</p> <p>(7) Carcasses of wildlife, livestock, or other attractants along highways, roads, and trails will be removed a distance of one-fourth mile from the roadway or otherwise made unavailable to bears. Removal should occur within 24 hours.</p> <p>(8) The riparian zone is a basic component of suitable grizzly habitat. Its management will maintain grizzly bear habitat and will generally follow established guidelines within the Forest Plan.</p> <p>(9) Active grizzly bear trapping sites that are not tended will be closed to other human use. Warning signs will be posted prior to installation of the trap.</p>	<p>[No change]</p> <p>[No change]</p> <p>[No change]</p> <p>(3) Identify and evaluate for each project proposal the cumulative effects of all activities, both existing uses and other planned projects, relative to both public and private lands.</p> <p>(4) Measures to be taken to protect, maintain, and/or improve grizzly bear habitat and populations {} will be specified in project design.</p> <p>(5) Refine Management Situation stratification based on current grizzly bear habitat suitability, population, and distribution trends. All biological evaluations will assess the current Management Situations for accuracy and provide recommendations and rationale for updating as necessary. Changes to Management Situation stratifications will be made by amending the Forest Plan.</p> <p>[Moved to Objectives section]</p> <p>[No change]</p> <p>[No change]</p> <p>[No change]</p>

## Forest Plan Amendment #19

## Appendix A

Alternatives 1 and 2	Alternative 3
<p>(10) Contracts and permits will include a clause providing for the cancellation, suspension, or temporary cessation of activities if such is needed to resolve a grizzly/ human conflict situation. Permits for temporary onsite facilities will require that camps be located to avoid seasonally important bear habitats and contain the grizzly bear clauses developed to prevent people/bear conflict. Contractor and permittees' cooperation in meeting grizzly management goals will be attained with applicable clauses and stipulations.</p> <p>(11) Operating plans and special-use permits involving concerns over human or domestic stock food storage, handling, and garbage disposal will have appropriate clauses applied.</p> <p>(12) Road management will be conducted to assist in meeting grizzly bear habitat management goals. When warranted, roads will be closed seasonally or yearlong, and where appropriate, area closures will be applied. Transportation plans and Forest visitor plans as well as individual project road systems will be evaluated regarding their impacts on habitat effectiveness.</p> <p>(13) Feeding of bears will be prohibited.</p> <p>(14) Areas with a history of grizzly bear/human encounters or areas with documented increased use by bears may be closed to human use temporarily, seasonally, or yearlong, in Situations 1 and 2.</p> <p>(15) No open garbage dumps will be permitted. The Forest will work toward bear proofing all garbage handling facilities.</p> <p>(16) Within Management Situations 1 and 2, provide security areas immediately adjacent to the influence zone of the project area. Decide on a site-by-site basis. Security areas should be 5,000 acres or larger in areas that are roadless or where the open road density averages 1 mile/square mile or less over the area during the bear use period.</p> <p>(17) All land adjustment cases will be evaluated using the biological evaluation process for determining effects on the grizzly bear.</p>	<p>[No change]</p> <p>(11) Operating plans and special-use permits will specify measures to be taken regarding human and domestic stock food storage and garbage disposal in grizzly bear habitat.</p> <p>(12) Human access will be managed to meet grizzly bear recovery goals. When warranted, roads will be closed seasonally or yearlong, and where appropriate, area closures will be applied. On National Forest lands within each BMU Subunit, there will be no net increase in density of open motorized access routes or total motorized access routes. Forest Service activities will result in a net gain towards meeting objectives for total and open motorized access and security core areas.</p> <p>[No change]</p> <p>(14) Areas with a history of grizzly bear/human encounters or areas with important seasonal use by bears may be closed to human use temporarily, seasonally, or yearlong in Management Situations 1 and 2.</p> <p>(15) On National Forest lands within the recovery zone, garbage handling facilities will be bear-resistant.</p> <p>(16) On National Forest lands within each BMU Subunit, there will be no net decrease in the size or amount of core areas that provide security. Core areas will be at least 2500 acres in size, and will be distributed to provide all seasonal habitats and elevations. Once established and effective, core areas will remain in place for at least 10 years.</p> <p>[No change]</p>
f. Guidelines [refer to pages II-30 through II-33, not reproduced here]	[No change]

## Forest Plan Amendment #19

## Appendix A

The proposed changes to the Forest Plan related to ASQ are:

Alternative 1	Alternative 3
<p><b>Forest Plan Objective A5 (Forest Plan page II-7):</b></p> <p>a. Treatments - Program the following treatments during the first decade:</p> <ul style="list-style-type: none"> <li>(1) Regeneration harvest on 68,080 acres</li> <li>(2) Reforestation on 68,080 acres</li> <li>(3) Intermediate harvest on 25,300 acres (sanitation, salvage, and commercial thinning)</li> <li>(4) Selection harvest on 680 acres</li> <li>(5) Slash disposal on 92,060 acres</li> <li>(6) Timber stand improvement on 34,000 acres</li> </ul> <p>b. Program management - During the first decade, program up to the allowable sale quantity of 1 billion board feet of timber harvest from suitable lands. So that the uncut volume under contract will remain near 300 MMBF (million board feet), the annual program of sale offerings may range from 70 MMBF to 130 MMBF during this period.</p> <p>In order to support the goal of providing timber offerings keyed to economic demand, the following specific objectives are established for management of programmed sale offerings for the first decade:</p> <ul style="list-style-type: none"> <li>(1) Maintain an annual sell program that will provide at least 20 MMBF in class 5 (2.0 MMBF) and smaller sales.</li> <li>(2) Maintain an average annual program of nonchargeable timber offerings from unsuitable land and/or nonstandard logs of 5 MMBF per year in addition to chargeable volume from suitable lands.</li> <li>(3) Maintain a mix of sale offerings for various logging systems needed to implement the Forest Plan and support local and regional logging systems capabilities.</li> <li>(4) Maintain offerings of firewood and other miscellaneous forest products at least at current levels.</li> <li>(5) Minimize losses from the mountain pine beetle through harvest of 28,850 acres of high and medium risk lodgepole pine stands.</li> </ul> <p>Refer to Appendices E, F, H, I, and L in support of these objectives.</p>	<p>a. Treatments - Program the following treatments during the time period 1995-1999. Treatment methods will be compatible with natural disturbance regimes.</p> <ul style="list-style-type: none"> <li>(1) Regeneration harvest on 18,455 acres</li> <li>(2) Reforestation on 18,455 acres</li> <li>(3) Intermediate harvest on 12,645 acres (sanitation, salvage, and commercial thinning)</li> <li>(4) Selection harvest on 530 acres</li> <li>(5) Slash disposal on 31,630 acres</li> <li>(6) Timber stand improvement on 17,000 acres</li> </ul> <p>b. Program management - During the time period, 1995-1999, program up to the allowable sale quantity of 54 million board feet of timber harvest from suitable lands.</p> <ul style="list-style-type: none"> <li>(1) Offer a mix of large and small (&lt; 2.0 MMBF) sales.</li> <li>(2) Maintain an annual program of nonchargeable offerings from lands not suited for timber production and/or nonstandard logs in addition to chargeable volume from suitable lands. [No change]</li> <li>(4) Maintain offerings of firewood and other miscellaneous forest products consistent with demand and other resource management goals. Emphasize treatment in stands with high risk of developing epidemic levels of insect and disease. [No change]</li> </ul>
<p><b>Forest Plan objective B (Forest Plan page II-8):</b></p> <p>See text and table on page II-8 and 9. Not reproduced here due to length.</p>	<p>Decade 1 projected outputs and activities that will be used for programming, budgeting, and attainment reporting are displayed in Table II-1. Other decades are projected for information only.</p> <p>For the planning period 1995 - 1999, Total Volume Offered (ASQ) will be 54 MMBF (average annual volume).</p> <p>Delete Appendix M.</p>

The proposed changes to the monitoring plan are as follows:

Alternative 1	Alternative 3
<p><b>Forest Plan monitoring</b> [refer to pages II-30 through II-33, not reproduced here]</p>	<p><b>Item 1a, Actions/Effects or Resources to be Measured:</b> Sample trails to determine amount of use and whether motorized use occurs.</p> <p><b>Item 1b, Actions/Effects or Resources to be Measured:</b> Grizzly Bear Recovery Plan monitoring items for number of females with cubs, occupancy of BMUs by family groups, and known, human-caused mortality.</p> <p><b>Item 17, Delete habitat transects</b> as a data source for evaluating habitat suitability for grizzly bears. Monitor seasonal habitat values and habitat effectiveness index values by BMU Subunit, on a 5-year interval.</p> <p><b>Item 17b, To report compliance with the Endangered Species Act</b>, add a monitoring item to track the number of projects for which biological evaluations are conducted, the determinations of effects by species, and concurrences or Biological Opinions received from the U.S. Fish and Wildlife Service.</p> <p><b>Item 54, #2. Monitor progress towards the 5 and 10 year objectives for core area, total motorized access, and open motorized access.</b> Provide an annual report documenting progress by BMU Subunit to the Forest Supervisor and to the U.S. Fish and Wildlife Service.</p> <p><b>Item 54, add #3. Monitor the effectiveness of restrictions on motorized use of roads.</b></p>

Appendix D. Flathead National Forest BMU Subunits  
(from U.S. Forest Service 1994a)

Forest Plan Amendment #19

Biological Assessment

Table 2. List of BMU Subunits on the Flathead National Forest

BMU	Map #	Subunit Name	BMU	Map #	Subunit Name
Upper North Fork	1	Frozen Lake	Bunker	20	So Fork Lost Soup
	2	Ketchikan		21	Goat Creek
	3	Upper Trail Creek		22	Lion Creek
	4	Lower Whale Creek		52	Spotted Bear Mtn
	5	Upper Whale Shorty		53	Big Bill Sheil
	6	Red Meadow Moose		54	Jungle Addition
	7	Hay Creek		55	Bunker Creek
	8	Coal & South Coal		56	Gorge Creek
	9	State Coal Cyclone		57	Harrison Mid
Lower North Fork	10	Werner Creek	Continental Divide	70	Silvertip Wall
	11	Lower Big Creek		71	Pentagon
	12	Canyon McGinnis		72	Trilobite Peak
	13	Cedar Teakettle		73	Strawberry Creek
Lower Middle Fork	42	Moccasin Crystal	Upper South Fork	66	Gordon Creek
	43	Stanton Paola		67	Youngs Creek
	44	Dickey Java		68	Basin Trident
				69	Jumbo Foolhen
Upper Middle Fork	45	Long Dirtyface	Big Salmon	23	Meadow Smith
	46	Tranquil Gaffer		24	Buck Holland
	47	Skyland Challenge		58	Hungry Creek
	48	Plume Mountain Lodgepole		59	Little Salmon Creek
	49	Fistula Capitol		60	Big Salmon Holbrook
Hungry Horse	17	Peters Ridge	Big Salmon (cont)	61	Albino Pendant
	32	Doris Lost Johnny		62	Burnt Bartlett
	33	Wounded Buck Clayton		63	Black Bear Mud
	34	Coram Lake Five		64	Brushy Park
	35	Emery Firefighter		65	White River
	36	Riverside Paint			
Sullivan	18	Noley Red Owl	Mission Range	25	Crane Mountain
	19	Swan Lake		26	Porcupine Woodward
	37	Jewel Basin Graves		27	Piper Creek
	38	Wheeler Quintonkon		28	Cold Jim
	39	Logan Dry Park		29	Hemlock Elk
	40	Lower Twin		30	Glacier Loon
	41	Twin Creek		31	Beaver Creek
	50	Ball Branch			
	51	Kah Soldier			

Appendix E. BMU Subunit Total and Open Motorized Access  
(from U.S. Forest Service 1994b)

FS COOP MGT.								
11/17/94	% Small	% MS-3	Total Mot			Open Mot		
BMU Subunit	Private		0 mi/mi <sup>2</sup>	0.1 - 2.0	>2 mi/mi <sup>2</sup>	0 mi/mi <sup>2</sup>	0.1-1.0	>1 mi/mi <sup>2</sup>
UPPER NORTH FORK								
Frozen Lake			47.3	45.9	8.8	72.8	16.0	11.2
Ketchikan	17.8		61.4	32.8	5.9	62.8	17.2	20.0
Upper Trail			62.6	32.7	4.7	71.3	10.9	17.8
Lower Whale	11.2		7.6	50.4	41.5	17.3	27.1	55.6
Upper Whale Shorty			70.1	17.5	12.4	73.3	10.0	16.7
Red Meadow Moose	7.7		34.7	42.6	22.7	45.2	20.4	34.5
Hay Creek	8.2		47.6	41.1	11.2	52.0	19.5	28.5
Coal & South Coal			69.3	23.0	7.7	74.5	10.7	14.8
State Coal Cyclone	8.9		47.6	37.5	15.0	54.6	21.9	23.4
LOWER NORTH FORK								
Werner Creek	4.5		18.5	32.3	49.2	39.6	19.2	41.2
Lower Big Creek	1.4		20.1	41.6	38.3	52.3	19.6	28.1
Canyon/McGinnis	6.1		16.2	43.0	40.8	41.9	24.6	33.5
Cedar Teakettle	30.9	9.9	13.6	56.8	29.5	30.8	38.3	30.8
LOWER MIDDLE FORK								
Moccasin Crystal	4.8		66.7	31.6	1.6	72.5	18.3	9.2
Stanton Paola	3.4		66.2	31.0	2.8	69.3	21.4	9.3
Dickey Java	3.3		73.8	26.2	0.0	77.5	18.0	4.5
UPPER MIDDLE FORK								
Long Dirtyface	0.05		99.4	0.6	0.0	99.4	0.6	0.0
Tranquil Geifer	2.1		79.8	18.7	1.5	91.3	6.8	1.9
Skyland Challenge	0.08		41.3	40.7	18.0	70.8	15.1	14.2
Plume Lodgepole			100.0	0.0	0.0	100.0	0.0	0.0
Flotilla Capitol			100.0	0.0	0.0	100.0	0.0	0.0
HUNGRY HORSE								
Peters Ridge	15.8		49.3	31.1	19.6	55.0	17.9	27.1
Doris Lost Johnny	0.8	0.4	32.6	45.6	21.8	50.5	29.5	20.1
Wounded Buck Clayton		0.4	24.0	29.4	46.6	47.9	24.1	28.0
Coram Lake Five	28.2	13.6	8.4	46.6	45.0	43.7	29.9	26.5
Emery Firefighter			29.7	30.0	40.3	44.3	26.2	29.5
Riverside Paint		47.0	44.3	18.7	37.0	63.3	15.3	21.4
SULLIVAN								
Noisy Red Owl	28.4		52.5	34.9	12.6	69.4	16.4	14.1
Swan Lake	12.3	0.2	47.0	31.9	21.0	59.4	14.6	26.0
Jewel Basin Graves		0.2	48.5	28.2	23.3	52.2	14.9	32.9
Wheeler Quintonkon			26.5	43.5	29.9	57.9	24.8	17.3
Ball Branch			41.5	46.2	12.3	91.4	6.0	2.5
Kah Soldier			25.5	35.3	39.2	52.7	19.0	28.4
Logan Dry Park	0.03		38.7	22.4	38.9	50.3	17.5	32.2
Lower Twin			85.5	12.9	1.6	87.2	5.0	7.8
Truck Creek			99.6	0.4	0.0	100.0	0.0	0.0

11/17/94	% Small	% MS-3	Total Mot		Open Mot			
BMU Subunit	Private		0 mi/mi2	0.1 - 2.0	> 2 mi/m	0 mi/mi2	0.1-1.0	> 1 mi/mi
BUNKER								
So Fk Lost Soup	1.5		22.6	46.0	31.3	35.6	28.4	36.0
Goat Creek			35.5	17.6	46.9	60.4	16.7	22.8
Lion Creek	3.0		52.6	8.6	38.7	64.8	11.8	23.4
Jungle Addition			28.8	42.0	29.2	46.5	22.8	30.7
Bunker Creek			47.5	36.0	16.5	88.8	5.9	5.3
Gorge Creek			99.0	1.0	0.0	99.1	0.9	0.0
Harrison Mid			97.2	2.8	0.0	97.2	2.0	0.8
Spotted Bear Mtn			32.3	39.0	28.7	65.4	15.4	19.3
Big Bill Shelf			71.2	23.3	5.5	77.3	14.2	8.5
BIG SALMON								
Meadow Smith	13.9		32.8	15.1	52.1	54.2	22.3	23.4
Buck Holland	15.7		32.8	24.2	43.0	53.4	22.4	24.2
MISSION RANGE								
Crane Mtn	6.9	9.9	3.4	18.8	77.9	28.5	19.2	52.4
Porcupine Woodward	3.3		8.0	33.1	59.0	31.5	20.9	47.6
Piper Creek	2.4		46.5	23.8	29.7	63.3	15.3	21.4
Cold Jim	5.8		35.0	9.0	55.9	61.1	16.5	22.4
Hemlock Elk	5.8		58.8	11.7	29.4	72.8	13.8	13.4
Glacier Loon	14.0		37.9	23.0	39.0	55.4	22.6	22.0
Beaver Creek	4.6		60.8	15.6	23.7	82.3	11.5	6.2
MEAN					24.17			20.16
STANDARD DEV.					18.99			13.52
MEDIAN					22.99			21.40

Appendix F. CEM Habitat Effectiveness Values  
(from U.S. Forest Service 1994a)

Habitat Effectiveness

BMU Subunit	Early Spring SHA	INDEX	% HE	Spring SHA	INDEX	% HE	Summer SHA	INDEX	% HE	Autumn SHA	INDEX	% HE
Upper North Fork Flathead*	0.4106	0.3248	79%	0.3910	0.2639	67%	0.3609	0.2533	70%	0.3752	0.2173	58%
Frozen Lake	0.4120	0.3597	87%	0.3718	0.2978	80%	0.3622	0.3049	84%	0.3770	0.2438	65%
Ketchikan	0.4187	0.2590	62%	0.3471	0.1732	50%	0.2860	0.1576	55%	0.3184	0.1474	48%
Upper Trail	0.4435	0.3906	88%	0.4421	0.3602	81%	0.4501	0.3749	83%	0.4360	0.2752	63%
Lower Whale	0.4039	0.2320	57%	0.3764	0.1548	41%	0.3169	0.1216	38%	0.3351	0.0984	29%
Upper Whale Shanty	0.4282	0.3809	89%	0.4297	0.3588	84%	0.4171	0.3543	85%	0.4373	0.2973	68%
Red Meadow Moose	0.3741	0.2845	76%	0.3734	0.2088	56%	0.3507	0.2025	58%	0.3583	0.1928	54%
Hay Creek	0.4405	0.2952	76%	0.3748	0.2351	63%	0.3513	0.2278	65%	0.3592	0.2021	56%
Coal & South Coal	0.4405	0.3909	89%	0.4397	0.3655	83%	0.4280	0.3521	82%	0.4338	0.3248	75%
State Coal Cyclone	0.4019	0.3207	80%	0.3557	0.2089	59%	0.2775	0.1738	63%	0.3133	0.1517	48%
SUBUNIT MEAN VALUE	0.4122			0.3901			0.3600			0.3742		
STANDARD DEVIATION	0.0233			0.0367			0.0816			0.0502		
Lower North Fork Flathead*	0.4638	0.2170	47%	0.4354	0.1989	45%	0.4056	0.1680	41%	0.4113	0.1687	41%
Werner Creek	0.4600	0.2885	58%	0.4544	0.2574	57%	0.4570	0.2387	52%	0.4444	0.2310	52%
Lower Big Creek	0.4411	0.2481	56%	0.3908	0.1883	48%	0.3250	0.1604	49%	0.3541	0.1698	48%
Canyon/McGinnis	0.4887	0.2037	42%	0.5038	0.2297	46%	0.4817	0.1816	38%	0.4687	0.1704	36%
Cedar Teakettle	0.4629	0.1648	33%	0.3982	0.1160	29%	0.3565	0.0972	27%	0.3760	0.1099	29%
SUBUNIT MEAN VALUE	0.4632			0.4368			0.4051			0.4108		
STANDARD DEVIATION	0.0196			0.0529			0.0760			0.0545		
Stillwater River												
Upper Stillwater River												
Upper Whitefish Lake												
Lazy Swift												
SUBUNIT MEAN VALUE												
STANDARD DEVIATION												
Lower Middle Fork Flathead*	0.4101	0.3031	74%	0.4625	0.3572	77%	0.3554	0.2798	79%	0.4433	0.2984	67%
Moccasin Crystal	0.3997	0.2676	67%	0.4478	0.3320	72%	0.4031	0.3087	77%	0.4327	0.2795	65%
Stanton Paola	0.4091	0.3163	77%	0.4688	0.3668	78%	0.3357	0.2634	78%	0.4485	0.3199	71%
Dickey Java	0.4197	0.3216	77%	0.4694	0.3702	79%	0.3321	0.2695	81%	0.4478	0.2955	66%
SUBUNIT MEAN VALUE	0.4095			0.4620			0.3570			0.4430		
STANDARD DEVIATION	0.0100			0.0123			0.0400			0.0089		

## Habitat Effectiveness

Upper Middle Fork Flathead*	0.3988	0.3347	84%	0.4240	0.3645	86%	0.3448	0.3039	88%	0.4151	0.2788	67%
Long Dirtyface	0.4581	0.4234	92%	0.5380	0.5004	93%	0.4902	0.4627	94%	0.5284	0.3957	75%
Tranquil Geifer	0.4373	0.3492	80%	0.4832	0.3900	81%	0.3632	0.3018	83%	0.4818	0.2714	56%
Skyland Challenge	0.3172	0.1977	62%	0.3006	0.2266	75%	0.1949	0.1352	69%	0.2879	0.1615	56%
Plume Lodgepole	0.3299	0.2942	89%	0.3129	0.2726	87%	0.1860	0.1711	92%	0.2694	0.1775	66%
Flotilla Capitol	0.4209	0.3735	89%	0.4373	0.3886	89%	0.4347	0.3954	91%	0.4537	0.3505	77%
SUBUNIT MEAN VALUE	0.3927			0.4144			0.3338			0.4042		
STANDARD DEVIATION	0.0646			0.1046			0.1384			0.1179		
Hungry Horse	0.4200	0.2586	62%	0.3987	0.2144	54%	0.3531	0.1950	55%	0.3810	0.1669	44%
Peters Ridge	0.4824	0.2906	60%	0.4424	0.2368	53%	0.3866	0.2157	56%	0.4048	0.1657	41%
Doris Lost Johnny	0.4372	0.2581	59%	0.4246	0.1977	47%	0.4005	0.2249	56%	0.4288	0.1632	38%
Wounded Buck Clayton	0.3984	0.2704	68%	0.4452	0.2236	50%	0.4390	0.2354	54%	0.4377	0.1735	40%
Coram Lake Five	0.3838	0.1069	28%	0.3097	0.0897	29%	0.2701	0.0727	27%	0.2919	0.0712	24%
Emery Firefighter	0.4349	0.3013	69%	0.3915	0.2466	63%	0.3378	0.2141	63%	0.3585	0.2032	57%
Riverside Paint	0.4013	0.3270	81%	0.3976	0.2920	73%	0.3003	0.2144	71%	0.3872	0.2172	56%
SUBUNIT MEAN VALUE	0.4230			0.4018			0.3557			0.3848		
STANDARD DEVIATION	0.0360			0.0503			0.0642			0.0538		
Sullivan	0.4848	0.3588	74%	0.4795	0.3275	68%	0.4744	0.3224	68%	0.4702	0.2465	52%
Noisy Red Owl	0.5282	0.2481	47%	0.4291	0.2068	48%	0.4147	0.1982	48%	0.4270	0.0884	21%
Swan Lake	0.5043	0.3178	63%	0.4522	0.2779	61%	0.4326	0.2666	62%	0.4415	0.1498	34%
Jewel Basin Graves	0.4668	0.3505	75%	0.5017	0.2974	59%	0.5093	0.2893	57%	0.5106	0.2434	48%
Wheeler Quintonkon	0.4741	0.3710	78%	0.4989	0.3486	70%	0.5066	0.3360	66%	0.5037	0.3143	62%
Ball Branch	0.5009	0.4333	87%	0.5604	0.4812	86%	0.5690	0.5001	88%	0.5612	0.4047	72%
Kah Soldier	0.4533	0.3443	76%	0.4069	0.2450	60%	0.3854	0.2317	60%	0.3826	0.2098	55%
Logan Dry Park	0.4370	0.3323	76%	0.4298	0.2480	58%	0.4167	0.2409	58%	0.4068	0.1513	37%
Lower Twin	0.4852	0.4311	89%	0.5184	0.4383	85%	0.5039	0.4317	86%	0.4749	0.3477	73%
Twin Creek	0.4916	0.4543	92%	0.5538	0.5126	93%	0.5712	0.5248	92%	0.5417	0.4221	78%
SUBUNIT MEAN VALUE	0.4824			0.4835			0.4788			0.4722		
STANDARD DEVIATION	0.0279			0.0563			0.0688			0.0618		
Bunker	0.4427	0.3497	79%	0.4056	0.3064	76%	0.3823	0.2951	77%	0.4051	0.2557	63%
South Fork Lost Soup	0.4845	0.3051	63%	0.4348	0.2712	62%	0.4191	0.2703	64%	0.4335	0.2043	47%
Goat Creek	0.4652	0.3274	70%	0.4175	0.2947	71%	0.4017	0.2862	71%	0.4218	0.2449	58%
Lion Creek	0.4594	0.3182	69%	0.3702	0.2651	72%	0.3453	0.2551	74%	0.3796	0.2267	60%

## Habitat Effectiveness

Jungle Addition	0.4269	0.3347	78%	0.4035	0.2477	61%	0.3995	0.2637	66%	0.4088	0.2090	51%
Bunker Creek	0.4455	0.3743	84%	0.4729	0.3957	84%	0.4865	0.4205	86%	0.4884	0.3541	73%
Gorge Creek	0.3963	0.3626	91%	0.4154	0.3790	91%	0.4201	0.3836	91%	0.4384	0.3461	79%
Harrison Mid	0.4463	0.4017	90%	0.3952	0.3520	89%	0.3431	0.3095	90%	0.3803	0.2897	76%
Spotted Bear Mtn	0.4466	0.3560	80%	0.3560	0.2194	62%	0.2802	0.1743	62%	0.3190	0.1493	47%
Big Bill Shelf	0.4227	0.3611	85%	0.3654	0.2840	78%	0.3076	0.2306	75%	0.3430	0.2206	64%
SUBUNIT MEAN VALUE	0.3887			0.4034			0.3781			0.4014		
STANDARD DEVIATION	0.1388			0.0371			0.0643			0.0519		
Big Salmon *	0.4432	0.2175	49%	0.3738	0.1846	49%	0.3337	0.1807	54%	0.3613	0.1017	28%
Meadow Smith	0.4391	0.2299	52%	0.3663	0.1909	52%	0.3352	0.1818	54%	0.3613	0.1234	34%
Buck Holland	0.4474	0.2044	46%	0.3818	0.1778	47%	0.3321	0.1795	54%	0.3613	0.0787	22%
Hungry Creek	0.3644			0.3519			0.3287			0.3661		
Little Salmon Creek	0.3679			0.3673			0.3669			0.4072		
Big Salmon Holbrook	0.3290			0.3345			0.3007			0.3474		
Albino Pendant	0.3642			0.3781			0.4030			0.4291		
Burnt Bartlett	0.3164			0.3187			0.2819			0.3408		
Black Bear Mud	0.4149			0.3860			0.3425			0.3685		
Brushy Park	0.2765			0.3221			0.3771			0.3666		
White River	0.3426			0.3336			0.2953			0.3264		
SUBUNIT MEAN VALUE	0.3662						0.3363			0.3675		
STANDARD DEVIATION	0.0545						0.0381			0.0303		
Mission Range *	0.4120	0.2703	66%	0.3801	0.2277	60%	0.3636	0.2090	57%	0.3853	0.2071	54%
Crane Mtn	0.4442	0.2259	51%	0.3917	0.1469	38%	0.3577	0.1302	36%	0.3766	0.1062	28%
Porcupine Woodward	0.4097	0.2834	69%	0.3810	0.2145	56%	0.3608	0.1873	52%	0.3782	0.1890	50%
Piper Creek	0.4040	0.2933	73%	0.3602	0.2510	70%	0.3529	0.2225	63%	0.3761	0.2144	57%
Cold Jim	0.4218	0.2539	60%	0.4384	0.2762	63%	0.4532	0.2685	59%	0.4578	0.3012	66%
Hemlock Elk	0.4325	0.3220	74%	0.3984	0.2874	72%	0.3882	0.2722	70%	0.4120	0.2651	64%
Glacier Loon	0.3997	0.2389	60%	0.3578	0.1933	54%	0.3301	0.1735	53%	0.3621	0.1810	50%
Beaver Creek	0.3683	0.2760	75%	0.3316	0.2335	70%	0.3044	0.2173	71%	0.3358	0.2029	60%
SUBUNIT MEAN VALUE	0.4115			0.3799			0.3639			0.3855		
STANDARD DEVIATION	0.0248			0.0344			0.0473			0.0391		
* Part of, not entire, BMU												

## Habitat Effectiveness

Upper Middle Fork Flathead*	0.3175	0.2904	91%
Long Dirtyface	0.4001	0.3911	98%
Tranquil Geifer	0.3555	0.3256	92%
Skyland Challenge	0.2111	0.1500	71%
Plume Lodgepole	0.2257	0.2148	95%
Flotilla Capitol	0.3796	0.3568	94%
SUBUNIT MEAN VALUE	0.3144		
STANDARD DEVIATION	0.0892		
Hungry Horse	0.3128	0.2746	88%
Peters Ridge	0.3068	0.2732	89%
Doris Lost Johnny	0.2963	0.2245	76%
Wounded Buck Clayton	0.2686	0.2164	81%
Coram Lake Five	0.2546	0.2013	79%
Emery Firefighter	0.3451	0.3236	94%
Riverside Paint	0.3534	0.3506	99%
SUBUNIT MEAN VALUE	0.3041		
STANDARD DEVIATION	0.0397		
Sullivan	0.3545	0.3184	90%
Noisy Red Owl	0.3393	0.2716	80%
Swan Lake	0.3433	0.3107	91%
Jewel Basin Graves	0.3568	0.2844	80%
Wheeler Quintonkon	0.3454	0.3103	90%
Ball Branch	0.3703	0.3512	95%
Kah Soldier	0.2642	0.2361	89%
Logan Dry Park	0.3863	0.3602	93%
Lower Twin	0.3660	0.3543	97%
Twin Creek	0.3938	0.3686	94%
SUBUNIT MEAN VALUE	0.3517		
STANDARD DEVIATION	0.0379		
Bunker	0.3695	0.3471	94%
South Fork Lost Soup	0.3540	0.3133	89%
Goat Creek	0.3775	0.3604	95%
Lion Creek	0.3624	0.3542	98%

## Habitat Effectiveness

BMU Subunit	Den > 5000 ft SHA	INDEX	% HE
Upper North Fork Flathead*	0.3089	0.2845	92%
Frozen Lake	0.2647	0.2429	92%
Ketchikan	0.2658	0.2467	93%
Upper Trail	0.3255	0.2893	89%
Lower Whale	0.2575	0.2165	84%
Upper Whale Shorty	0.3416	0.3247	95%
Red Meadow Moose	0.3351	0.2984	89%
Hay Creek	0.3225	0.2941	91%
Coal & South Coal	0.3269	0.3114	95%
State Coal Cyclone	0.2046	0.1940	95%
SUBUNIT MEAN VALUE	0.2938		
STANDARD DEVIATION	0.0472		
Lower North Fork Flathead*	0.2467	0.1547	63%
Werner Creek	0.2479	0.1592	64%
Lower Big Creek	0.2267	0.1924	85%
Canyon/McGinnis	0.2639	0.1151	44%
Cedar Teakettle	0.2228	0.1614	72%
SUBUNIT MEAN VALUE	0.2403		
STANDARD DEVIATION	0.0192		
Stillwater River			
Upper Stillwater River			
Upper Whitefish Lake			
Lazy Swift			
SUBUNIT MEAN VALUE			
STANDARD DEVIATION			
Lower Middle Fork Flathead*	0.3775	0.3454	91%
Moccasin Crystal	0.4225	0.3898	92%
Stanton Paola	0.3704	0.3405	92%
Dickey Java	0.3539	0.3205	91%
SUBUNIT MEAN VALUE	0.3823		
STANDARD DEVIATION	0.0358		

## Habitat Effectiveness

Jungle Addition	0.3517	0.3270	93%
Bunker Creek	0.4420	0.4143	94%
Gorge Creek	0.4189	0.4003	96%
Harrison Mid	0.3478	0.3299	95%
Spotted Bear Mtn	0.2749	0.2519	92%
Big Bill Shelf	0.2706	0.2427	90%
SUBUNIT MEAN VALUE	0.3555		
STANDARD DEVIATION	0.0568		
Big Salmon *	0.3531	0.3249	92%
Meadow Smith	0.3276	0.2975	91%
Buck Holland	0.3856	0.3598	93%
Hungry Creek			
Little Salmon Creek			
Big Salmon Holbrook			
Albino Pendant			
Burnt Bartlett			
Black Bear Mud			
Brushy Park			
White River			
SUBUNIT MEAN VALUE	0.3566		
STANDARD DEVIATION	0.0410		
Mission Range*	0.3115	0.2504	80%
Crane Mtn	0.1666	0.1235	74%
Porcupine Woodward	0.2171	0.1853	85%
Piper Creek	0.3504	0.2872	82%
Cold Jim	0.3749	0.2868	77%
Hemlock Elk	0.3781	0.3311	88%
Glacier Loon	0.3308	0.2439	74%
Beaver Creek	0.2882	0.2310	80%
SUBUNIT MEAN VALUE	0.3009		
STANDARD DEVIATION	0.0816		
* Part of, not entire, BMU			

