United States Department of the Interior

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NOV 0 8 2011

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19 Office Loop
Dubois, Idaho 83423

Subject: Biological Opinion on U.S. Sheep Experimental Station Grazing and Associated Projects, Agricultural Research Services
In Reply Refer to: 14420-2011-F-0326 Internal Use: 102.0100

Dear Dr. Lewis:

This letter transmits Fish and Wildlife Service's (Service) Biological Opinion (Opinion) on the Agricultural Research Services' (ARS) proposal for the U.S. Sheep Experimental Sheep Station Grazing and Associated Projects (Project) and its effects to threatened grizzly bear (*Ursus arctos horribilis*). In the enclosed Opinion, the Service finds that the adverse effects from the Project are not likely to jeopardize the grizzly bear. ARS also determined that the Project may affect, but is not likely to adversely affect Canada lynx (*Lynx canadensis*). The Service's concurrence with this determination is found below. The Service's Opinion and concurrence were prepared in accordance with section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.; hereafter referred to as the Act). ARS's request for consultation was dated August 19, 2011, and received by the Service on August 23, 2011. Included in the request was a biological assessment describing effects of the subject action on grizzly bears and Canada lynx.

Concurrence for Canada lynx

Proposed Action

The proposed action is to continue sheep grazing and associated activities in a manner consistent with information contained in the Assessment (Assessment, pp. 1-11). The proposed action consists of Sheep Station, Bureau of Land Management[1], Department of Energy, and Forest Service administered lands used in a rotational grazing system. Grazing on the proposed action area is very light with sheep using approximately 6% of available forage.

Species Present in the Project Area

In 2000, a Canada Lynx Conservation Agreement was developed between the Forest Service and the Service. This Agreement provided direction for mapping lynx habitat and delineating Lynx Analysis Units (LAUs). In 2005, the Forest Service, Bureau of Land Management and the Service developed a LAU map using a complete history of work which documented Canada lynx occurrences, their prey, and suitable habitat. Part of the project area (Meyers Creek Allotment)

1 The ability to graze BLM, DOE, and Forest Service land is contingent upon the Sheep Station receiving the appropriate grazing permits.

is located within LAU 3, with the rest outside of established LAUs (Assessment pp 18-19). The majority of the project area is unsuitable Canada lynx habitat, as it is low elevation shrubland. Higher elevation lands, including the Summer Range, Humphrey Ranch, and Meyers Creek Allotment) are potential Canada lynx habitat but are low quality due to the lack of large, connected boreal forests (Assessment p. 18). Only a limited number of Canada lynx occurrences have been documented in the Centennial Range, inclusive of the project area, since 1996. Canada lynx that use habitat in and near the project area appear to be transient in nature with no set home range (Assessment p. 18)

Potential Impacts and Effects from the Proposed Action

The Canada Lynx Conservation Agreement identified vegetation removal as a possible threat to lynx. The Project will remove some vegetation from the project area through grazing; however, due to the low amount of forage utilized by the grazing sheep the effect to Canada lynx will be insignificant. The project may temporarily displace or preclude movement of Canada lynx from the project area. Due to the abundance of suitable habitat around the project area, individuals would be able to move to other secure habitat and would therefore be insignificant.

Concurrence

Based on Service review of the Assessment, we concur with the determination that the Project outlined in the Assessment and this letter, may affect but is not likely to adversely affect Canada lynx. This concurrence is based on the condition of the habitat within the Project site, the design of the project, and the ecology of the animals that reduce the scale of the impact to an insignificant level.

This concludes informal consultation. However, the following conditions may require reinitiation of this consultation: (1) new information reveals effects of the action that may affect listed species in a manner or to an extent not considered in the assessment, (2) the action is subsequently modified in a manner that causes an effect to listed species that was not considered in the analysis, or (3) a new species is listed or critical habitat is designated that may be affected by the proposed action.

Thank you for your continued interest in the conservation of endangered, threatened, and proposed species. If you have any questions regarding this consultation, please contact Ty Matthews of this office at (208) 237-6975.

Sincerely,

Brian T. Kelly
State Supervisor

Enclosure

cc: TEAMS, Laramie (Kozlowski)

BIOLOGICAL OPINION
FOR THE
U.S. SHEEP STATION GRAZING AND ASSOCIATED PROJECTS
AGRICULTURAL RESEARCH SERVICES

14420-2011-F-0326

FISH AND WILDLIFE SERVICE
IDAHO FISH AND WILDLIFE OFFICE
BOISE, IDAHO

State Supervisor _____

Date 11/8/11

Contents

INTRODUCTION

This document represents the Fish and Wildlife Service's (Service) Biological Opinion (Opinion) on the Agricultural Research Services (ARS) United States Sheep Experimental Station (Sheep Station) proposed sheep grazing and associated activities and its effects on threatened grizzly bear (*Ursus arctos horribilis*) as designated by section 7 of the Endangered Species Act (Act) of 1973, as amended (16 USC 1531 et seq.). Your request for consultation was received on August 23, 2011.

This Opinion is primarily based on the Sheep Station's *Biological Assessment for the U.S. Sheep Experimental Station Grazing and Associated Activities Project* (Assessment), dated August 19, 2011, and the other sources of information cited herein. The Assessment is incorporated by reference in this Opinion.

Consultation History

- December 2008 – The Service concurs with the Sheep Station's determination that the Interim (short term) Grazing Activities may affect, but will not adversely affect Canada lynx.
- August-October 2009 – Through a combination of meetings and e-mails the Sheep Station and the Service discussed the consultation, including the biological assessment format, proposed actions, and effects determination for species.
- December 2009 – The Service received a draft Biological Assessment for the Sheep Stations Grazing and Associated Activities Project. The Sheep Station determined their project may affect, but will not adversely affect Canada lynx and grizzly bear. In January 2010, the Service submitted a review of the draft biological assessment. As part of the review, the Service suggested changing the affects determination for grizzly bears from not likely to adversely affect to likely to adversely affect.
- August 2011 – The Service received the Assessment which stated the proposed action may affect and is likely to adversely affect grizzly bear. A complete decision record for this consultation is on file at the Service's Eastern Idaho Field Office in Chubbuck, Idaho.

PURPOSE and ORGANIZATION of this BIOLOGICAL OPINION

In accordance with the requirements of section 7(a)(2) of the Act and its implementing regulations, the formal consultation process culminates in the Service's issuance of an Opinion that sets forth the basis for a determination as to whether the proposed Federal action is likely to jeopardize the continued existence of listed species or destroy or adversely modify critical habitat, as appropriate. The regulatory definition of jeopardy and adverse modification and a description of the formal consultation process are provided at 50 CFR[1] 402.02 and 402.14, respectively. If the Service finds that a proposed Federal action is not likely to jeopardize a listed species but anticipates that it is likely to cause incidental take of the species, then the

[1] CFR represents the Code of Federal Regulations which is a codification of the general and permanent rules published in the Federal Register by Executive departments and agencies of the Federal Government. It is published by the Office of the Federal Register National Archives and Records Administration. More information can be found at http://www.gpoaccess.gov/cfr/index.html

Service must identify that take and exempt it from the prohibitions against such take under section 9 of the Act through an Incidental Take Statement. No critical habitat has been designated for grizzly bears and therefore only jeopardy will be analyzed.

Analytical Framework for the Jeopardy Analyses

Jeopardy Determination

In accordance with policy and regulation, the jeopardy analysis in this Biological Opinion relies on four components:

- *Status of the Species*, which evaluates the grizzly bear range-wide condition, the factors responsible for that condition, and its survival and recovery needs
- *Environmental Baseline*, which evaluates the condition of the grizzly bear in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the grizzly bear
- *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the grizzly bear
- *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the grizzly bear.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the grizzly bear current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of the grizzly bear in the wild.

The jeopardy analysis in this Biological Opinion places an emphasis on consideration of the range-wide survival and recovery needs of the grizzly bear and the role of the action area in the survival and recovery of the grizzly bear as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

I. DESCRIPTION OF THE PROPOSED ACTION

A. Action Area

The term "action area" is defined in the regulations as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." In this case, the action area is described as those lands (including ARS, U.S. Forest Service [Forest], Department of Energy [DOE], and Bureau of Land Management [BLM] administered lands), that are grazed as part of the Sheep Station research activities. These lands include the Humphries Ranch, Tom's Creek Allotment, Big Mountain Allotment, O'Dell Allotment,

Henniger Ranch, Headquarters, Mud Lake Feedlot (DOE), Myers Creek Allotment (Forest), East Beaver Allotment (Forest), Snakey-Kelly Allotment (Forest), and Bernice Allotment (BLM; Assessment, p. 1).

B. Proposed Action

The term "action" is defined in the implementing regulations for section 7 as "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas."

The Sheep Station proposed action is to continue sheep grazing and associated activities in a manner consistent with information contained in the Assessment (Assessment, pp. 1-11). The grazing system consists of rotational use of Sheep Station, BLM[2], DOE, and Forest administered lands. The Summer Range (Tom's Creek Allotment, Big Mountain Allotment, and O'Dell Allotment), Meyer's Creek Allotment, and the Henniger Ranch all lie within areas known to be used by grizzly bears. All other grazed lands are outside of areas currently used by grizzly bears and will have no impact. Approximately 2,000 sheep are held at the Henniger Ranch from late June to early July. From there, the sheep are moved to the Summer Range, which is on a 3 year rest rotation grazing system. From there the sheep are moved back to the Henniger Ranch in late August (Assessment, Figure 2). In general, while on the Summer Range, sheep grazing is light with sheep only taking 3.6% of the available forage (Assessment p. 7). Other activities include fence maintenance, repair of existing roads and fire breaks, prescribed burning, and grass seeding (Assessment pp. 7-10). These components of the proposed action all occur outside of occupied grizzly bear habitat or are very small in extent and will not have an impact on grizzly bears. These activities will not be discussed further.

While on rangelands, sheep are accompanied by a minimum of two guard dogs, two herd dogs, and a full time sheep herder. Very few sheep stray from the flock due to the close contact the sheep herders have with the sheep. During the night, when grizzly bears are most likely to attack, sheep are bedded in a small area (approximately 1 acre) to minimize this likelihood (Assessment pp. 31-32). Sheep will be continuously moved while in an allotment to ensure good range health throughout the rangelands.

C. Measures to Reduce Impacts

The Sheep Station has identified specific conservation measures to reduce the degree of impact from sheep grazing on grizzly bears and its habitat. These measures are identified on pages 11 through 13 of the Assessment. For example, sheepherders and dogs are kept with sheep full-time when on rangelands and livestock carcasses and unnatural attractants are minimized by keeping a clean camp and removing livestock carcasses within three days if possible. If carcasses are in an area which makes it unfeasible to remove, the carcass is left in place and decomposition is expedited by the addition of lime. Herders are instructed to avoid any encounters with grizzly bears when feasible and will move sheep when a conflict does occur. Sheepherders will first

2 The ability to graze BLM, DOE, and Forest Service land is contingent upon the Sheep Station receiving the appropriate grazing permits.

move sheep to another part of the pasture. If conflicts continue, sheepherders will move the sheep to a different allotment.

II. STATUS OF THE GRIZZLY BEAR

This section presents information about the regulatory, biological and ecological status of the grizzly bear at a range wide scale that provides context for evaluating the significance of probable effects caused by the proposed action.

A. Species Description

The grizzly bear is one of two subspecies of the brown bear (*Ursus arctos horribilis*) which occupy North America. Coloration varies from light brown to almost black, with guard hairs often paled at the tips. Grizzly bears are generally larger than black bears (*Ursus americanus*) and can be distinguished from them by longer, curved claws, humped shoulders, and a more concave face. In the lower 48 States, male grizzlies average 400 to 600 pounds and female grizzlies average 250 to 350 pounds. Adult grizzlies stand 3.5 to 4.5 feet at the hump when on all fours, and can exceed 8 feet in height when standing on their hind legs. Grizzly bears are a wide-ranging species with individualistic behavior, although there is little evidence that they are territorial. Home range sizes vary, and the home ranges of adult bears frequently overlap. Most areas currently inhabited by the species are represented by contiguous, relatively undisturbed mountainous habitat exhibiting high topographic and vegetative diversity. A more complete discussion of the biology and ecology of this species may be found in the 1993 Grizzly Bear Recovery Plan (Recovery Plan; USFWS 1993).

B. Regulatory Status

1. Listed under the Act

On July 28, 1975, the grizzly bear was listed as threatened in the conterminous U.S. (USFWS 1975, p. 31736). On March 29, 2007, the Service designated the Greater Yellowstone Area (GYA) population of grizzly bears, which includes the Yellowstone Recovery Zone (Recovery Zone), as a distinct population segment (DPS), and removed the GYA DPS from the List of Threatened and Endangered Wildlife under the Act. The delisting became effective on April 30, 2007 (USFWS 2007, p. 14866). On September 21, 2009, the Federal District Court in Missoula issued an order enjoining and vacating the delisting of the Greater Yellowstone Area grizzly population. In compliance with this order, the grizzly bear population in the GYA is once again listed as threatened under the Act.

2. Threats

Primary threats to grizzly bears are associated with motorized and dispersed recreational use and forest management activities, including timber harvest. Recreational uses include hunting, fishing, camping, horseback riding, hiking, biking, off-road vehicle (ORV) use, and snowmobiling. Direct human-caused mortality is the most obvious threat to the grizzly bear. This kind of mortality can occur in several ways: (1) mistaken identification by big game

hunters, (2) malicious killing, (3) defense of human life or property, or (4) management removals. Bears are removed to defend human life or property, usually because bears have become dangerously bold as a result of food conditioning and habituation at campsites, lodges, resorts and private residences, or they become habituated predators of livestock.

Human-grizzly bear interactions have been increasing in the ecosystem due, in part, to increasing human use and development, increasing bear numbers, and bears and people both expanding their range of occupancy, increasing the chances of adverse encounters. The frequency of grizzly bear-human conflicts is inversely associated with the abundance of natural bear foods (Gunther et al. 2004a, p. 18). That is, most grizzly bear mortalities are directly related to grizzly bear-human conflicts. The Interagency Grizzly Bear Study Team (2009) reported known human caused mortalities from 1998-2007. Of 148 known human-caused mortalities, 48 were hunting-related, 12 were poaching, and 56 were management removals. The greatest increase in the 2008 human-caused mortality figures were hunting defense of life, hunting mistaken identity, and cattle depredation removals. According to U.S. Forest Service (2004), for the years of 1975 to 2002, 59 percent of grizzly bear deaths (136 out of 230) occurred on Forest System lands. Of these, 67 percent (91 of the 136) are not directly related to forest management actions. The remaining 33 percent (45 of the 136), can be at least indirectly attributed to Forest Management activities, for example mortalities related to domestic sheep, cattle and horse grazing and backcountry recreation use. According to the U.S. Forest Service (2004), from 1992 to 2003, 741 grizzly bear/human conflicts occurred on Forest System lands. The majority, 62 percent, were due to livestock depredation.

Grizzly bears have also experienced displacement from available habitat (loss of habitat effectiveness due to human disturbance) due to increased human uses from increased amount of roading, ORV use and recreation use. They have also experienced loss of existing available habitat due to increased development on private land related primarily to residential housing and potential for increased development on public land related primarily to oil/gas and recreation development. The grizzly bear also faces a decrease in value of available habitat due to a loss of biodiversity (especially early succession related vegetative types) and sub-optimal composition, structure, and juxtaposition of vegetation as a result of fire suppression, management strategies, and advancing succession.

Finally, the bear faces isolation and loss of genetic diversity due to fragmentation of available habitat due to major development of private land, construction of major highways the produce blockage or restrict movement, inadequate provision for linkage on minor roads and highways, and large blocks of clearcuts. Loss of genetic diversity is a concern for the GYA grizzly bears. The Centennial Mountain Range in Idaho and Montana may act as a connection between the GYA and other grizzly bear populations (Assessment p. 28). Loss of this high quality corridor would obstruct these movements.

3. Designated Critical Habitat

No critical habitat for the grizzly bear has been designated under the Act.

B. Survival and Recovery Needs

In an effort to facilitate consistency in the management of grizzly bear habitat within and across ecosystems, the Interagency Grizzly Bear Guidelines were developed by the Interagency Grizzly Bear Committee (IGBC) for use by land managers. The IGBC developed specific land management guidelines for use in each of the five ecosystems including the GYA. The GYA includes lands primarily within Yellowstone and Grand Teton National Parks, John D. Rockefeller, Jr. Memorial Parkway, significant portions of the Bridger-Teton, Shoshone, Targhee, Gallatin, Beaverhead, and Custer National Forests, adjacent private and State lands, and lands managed by the U.S. Bureau of Land Management. The other four ecosystems include the Northern Continental Divide, Selkirk, Cabinet-Yaak, and North Cascades ecosystems (Figure 1).

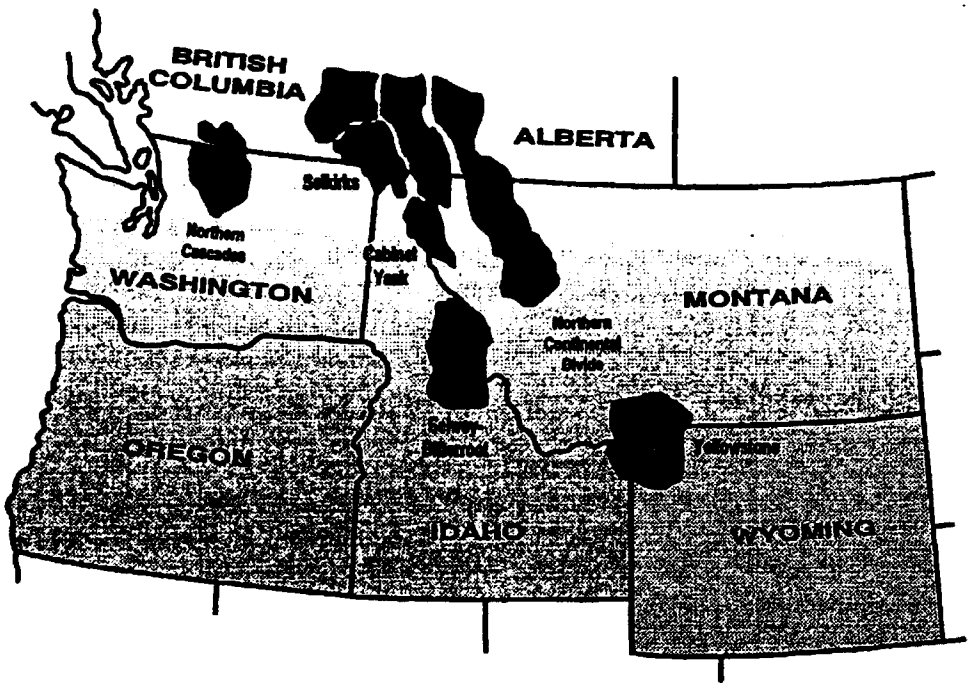

Figure 1. Present grizzly bear ecosystems in the conterminous 48 States (USFWS 1993)

The Conservation Strategy for the Grizzly Bear in the GYA (Conservation Strategy) was released in 2003 and the strategy became effective once the final delisting rule took effect in 2007. The State and Federal implementation plans within the Strategy provided a framework for managing the Primary Conservation Area (PCA, synonymous with the Recovery Plan's Recovery Zone) and adjacent areas of suitable grizzly bear habitat. The PCA is the area considered the adequate seasonal habitat needed to support the recovered Yellowstone grizzly bear population for the foreseeable future and allow bears to continue to expand outside the PCA. A recovered grizzly bear population is one having high probability of existence into the foreseeable future (greater than 100 years) and for which the five factors in Section 4(a)(1) of the Act have been successfully addressed. These five factors include (1) the present or threatened destruction, modification, or curtailment of its habitat or range, (2) overutilization for commercial, recreational, scientific, or educational purposes, (3) disease or predation, (4)

the inadequacy of existing regulatory mechanisms, and (5) other natural or manmade factors affecting its continued existence. The PCA was designed specifically with these five factors in mind. Due to grizzly bear relisting in 2009, the 1993 Recovery Plan is the current management document in use in addition to existing forest plan direction; however, the Conservation Strategy provides the best available science, so all are incorporated into project analyses.

Recovery zones have been established for the grizzly bear and include areas large enough and of sufficient habitat quality to support a recovered bear population. According to the Grizzly Bear Recovery Plan (USFWS 1993), a recovery zone is defined as that area in each grizzly bear ecosystem within which the population and habitat criteria for achievement of recovery will be measured. Areas outside of recovery zones may provide habitat that grizzly bears will use, but are not considered necessary for the survival and recovery of this species. The area outside the recovery zone but within a 10-mile diameter buffer is managed to conserve grizzlies and their habitat whenever possible; population and mortality data within this buffer zone are collected and used to assess recovery criteria. Beyond the 10-mile buffer, grizzly bear populations are not considered when determining whether recovery goals have been met, however protection is still given to the grizzly bear under the Act.

The Yellowstone Grizzly Bear Recovery Zone covers approximately 23,828 sq km (9,200 sq mi or 5,888,000 acres) of primarily National Park Service and Forest Service lands – approximately 89 percent of the known distribution of grizzly bears in the GYA. Grizzly bears also occur in and use areas outside the Recovery Zone.

The Recovery Zone is divided into smaller areas called Bear Management Units (BMUs) for the purpose of habitat evaluation and monitoring. 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 and 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 assessments.

Areas within the Recovery Zone are also stratified into Management Situation Zones 1, 2, 3, 4, or 5, each having a specific management direction.

"Management Situation 1" (MS1) lands contain population centers of grizzlies, are key to the survival of the species and are where management decisions will favor the needs of the bear even when other land use values compete.

"Management Situation 2" (MS2) lands are those areas that lack distinct population centers and the need for this habitat for survival of the grizzly bear is more uncertain.

The status of such areas is subject to review. Here, management will at least maintain those habitat conditions that resulted in the area being classified as MS2.

"Management Situation 3" (MS3) designation is intended for lands where grizzly bears may occur infrequently. There is high probability that Federal activities here may affect the species survival and recovery. Management focus is on human-bear conflict minimization rather than habitat maintenance and protection.

"Management Situation 4" (MS4) lands are areas where 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. Grizzly-human conflict minimization is not a management consideration on these lands.

"Management Situation 5" (MS5) lands are areas where 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. In this area, maintenance of grizzly habitat is an option. Grizzlies involved in grizzly-human conflict are controlled.

C. Rangewide Status and Distribution

The grizzly bear was listed as a threatened species on July 28, 1975. Historically, the grizzly bear ranged from the Great Plains to the Pacific Ocean and from the northern United States border with Canada to the southern border with Mexico. Currently in the contiguous United States, the grizzly bear population has been reduced to roughly two percent of its former range, presently occupying only parts of British Columbia and Alberta in Canada, and Montana, Idaho, Wyoming, Washington, and Alaska in the United States. These areas are referred to as grizzly bear ecosystems. Table 1 shows the current population estimates for each ecosystem.

Table 1. Estimated grizzly bear population size and population growth rate by Recovery Zone (USFWS 2011).

Greater Yellowstone Area	582	+4, 7%
Northern Continental Divide	930	+3%
Cabinet-Yaak	42	-3.8%
Selkirk	80	+1.9%
North Cascades	<20	Unknown
Bitterroot	0	n/a

1. Greater Yellowstone Ecosystem

The 9,209-square mile GYA recovery zone includes portions of Wyoming, Montana, and Idaho and portions of six National Forests (Beaverhead, Bridger-Teton, Custer, Gallatin, Shoshone, and Targhee), Yellowstone and Grand Teton National Parks, John D. Rockefeller Memorial

Parkway, portions of adjacent private and State lands, and lands managed by the Bureau of Land Management.

The best available information suggests the GYA grizzly bear population is stable and increasing. However, long term conservation of the population continues to depend largely on managing bear-human conflicts, which often results in human-caused mortality of grizzly bears. Years in which natural grizzly bear food production and availability are high can result in younger age classes of grizzly bears accustomed to fairly good food availability. A year of drought and poor food production can compel grizzly bears to search widely for food. Such wide ranging movements can bring grizzly bears into closer contact with humans, increasing bear-human conflicts and resultant control/management actions.

As the habitat area most remote from the other remaining grizzly bear habitat, the Yellowstone ecosystem has been the primary focus of grizzly recovery efforts to date. This work has been very successful; with grizzly bear population numbers and distribution exceeding target recovery levels for the last several years. For example, the population of independent female grizzly bears has grown from a low point in 1983 of less than 30 to more than 250 today (Schwartz et al. 2011). Recovery work continues to reduce grizzly bear mortalities and ensure habitat standards for maintaining a recovered population.

2. Northern Continental Divide

The Northern Continental Divide Ecosystem (NCDE) extends from the Rocky Mountains of northern Montana into contiguous areas in Alberta and British Columbia, Canada. The exact size of the grizzly bear population in the NCDE is not known. Using the methodology of Knight et al. (1988, 1993 *in* Service 1993) and observations of unduplicated females from 1999 through 2001, the minimum number of grizzly bears in the entire NCDE was estimated to be 316 bears.

In the NCDE, results from monitoring grizzly bears during 1987 through 1996 indicate Recovery Plan criteria for several population recovery parameters were met, including numbers of females with cubs; numbers of Bear Management Units (BMUs) with family groups; occupancy requirements for BMUs; and total human-caused grizzly bear mortality. However, between 1997 and 2003, annual female mortality has exceeded recovery goals. From 2001 to 2003, annual total mortality goals were also exceeded. In 2003, three of the six population parameters did not meet demographic recovery criteria: females with cubs inside Glacier National Park, annual mortality, and annual female mortality. The number of females with cubs, the number of females with cubs outside Glacier National Park, and the distribution of females with young all met recovery targets (Service, unpublished data, 2004).

The greatest threat facing grizzly bears in the NCDE is mortality from human causes. Grizzly bears attracted to human-generated food sources become habituated and food conditioned. Such bears often become a threat to human safety and property and are killed illegally or removed through agency nuisance grizzly bear control actions. These deaths are among the leading causes of grizzly bear mortality in the NCDE. Data collected since 1980 (Chris Servheen, USFWS 2004, in. litt.) demonstrate human site conflicts which include food habituation and garbage resulted in 15.5 percent of total grizzly bear mortality within the NCDE recovery zone.

This figure elevates to 22 percent with the addition of grizzly bear mortality resulting from livestock depredation. Illegal and malicious killing of grizzly bears is the second leading cause of death at 13.5 percent.

3. Cabinet-Yaak

The Cabinet/Yaak Ecosystem (CYE) in northwestern Montana and northeastern Idaho has more than 1,900 square miles of forested and mountainous habitat occupied by grizzly bears. The population in the Cabinet Mountains portion of this area is thought to be less than 15 bears. A small yet unknown number of grizzly bears exists in the Yaak portion of the ecosystem. These populations are connected to populations of grizzly bears to the north of the United States border with Canada, as interchanges of radio-collared bears across the border have been documented (Service 1993). The most recent data indicate that population status is below recovery goals in the CYE for the distribution of females with young in BMUs and exceeds the 6-year average of female mortality in the recovery zone (USFWS 2004).

4. Selkirk

The Selkirk Ecosystem (SE) of northwestern Idaho, northeastern Washington, and southeastern British Columbia includes about 1,080 square miles in the U.S. portion and about 875 square miles in the Canadian portion of the recovery zone. The Selkirk recovery zone is the only defined grizzly bear recovery zone that includes part of Canada because the habitat in the United States portion is not of sufficient size to support a minimum population. The habitat is contiguous across the border and radio-collared bears are known to move back and forth across the border. Therefore, the grizzly bears north and south of the border are considered one population (USFWS 1993).

5. North Cascades

While study of this very rugged and remote habitat indicates that this ecosystem is capable of supporting a self-sustaining population of grizzlies, only a remnant population may remain, incapable of enduring without active recovery efforts, including possible augmentation with bears from other areas. A confirmed sighting of a grizzly bear in 2011 was the only report of a grizzly bear in the North Cascades ecosystem since 1996. A recovery plan for North Cascades was approved in 1997, but few measures from the plan have been implemented.

D. Life History

1. Home range and dispersal

Grizzly bears require large areas to fulfill their basic biological needs, including food and shelter. Their home ranges average 130 to 1,300 square kilometers (50 to 500 square miles) and exhibit a high degree of range fidelity (Schwartz et al. 2003). Within these home ranges, the grizzly bear uses a diverse mixture of forests, moist meadows, grasslands, and riparian habitats to complete its life cycle. Grizzly bears generally prefer large, remote areas of habitat for feeding, denning, and reproduction that are isolated from human development (USFWS 1993). They require dense

forest cover for hiding and security. In the Yellowstone ecosystem, lodgepole pine (*Pinus contorta*) forests are a large and dynamic part of grizzly bear habitat. Long distance movements of some grizzly bears increases the risk of contact with highway crossings, hunters, recreationists, and a variety of developments associated with human use.

2. Diet

The grizzly bear is an opportunistic omnivore that uses a wide variety of plant and animal food sources. Grizzly bears in the GYA have the highest percentage of meat consumption in their diet of any inland grizzly bear population (Hilderbrand *et al.* 1999). About 30 to 70 percent of the grizzly bear diet in the GYA is from some form of animal matter. Meat in the grizzly bear's diet varies by season and available forage. Ungulates are an especially important food source for bears in the spring and fall (Knight *et al.* 1984) and use of carcasses in Yellowstone National Park is well documented (Podruzny and Gunther 2001).

Grizzly bears also eat small mammals such as pika and marmots, however, these mammals form a relatively minor portion of the bear's diet. Spawning cutthroat trout in streams surrounding Yellowstone Lake have been documented as an important food source for grizzly bears (Mattson and Reinhart 1995). Army cutworm moths are also an important food source for bears in the GYA (Mattson *et al.* 1991). Army cutworm moths congregate in remote, high altitude alpine talus areas and feed on alpine flowers. These moths provide important dietary fat in the fall, when grizzly bears are preparing for hibernation, and are also positively correlated with bear reproductive success (Bjornlie and Haroldson 2001). During times of great moth abundance, White *et al.* (1999, as cited in Robison *et al.* 2006) estimated a grizzly bear may eat up to 40,000 moths per day and more than one million per month, representing 47 percent of its annual caloric budget. The remaining moths then migrate back to lower elevations to deposit their eggs, leaving the alpine areas between August and October. Army cutworm moth congregation sites are in remote areas and therefore, potentially reduce human-bear conflicts by isolating the bears. Grizzly bears will also eat ants (Mattson 2001) and earthworms (Mattson *et al.* 2002). Grizzly bears make use of domestic ungulates to varying degrees in some portions of the GYA, either in the form of carrion or as prey.

The grizzly bear also makes use of a variety of vegetative food sources. Whitebark pine seeds are an important fall source of food for grizzly bears in the GYA when they are available (Mattson and Reinhard 1997). Bears consume whitebark pine seeds contained in red squirrel cone caches (Mattson and Reinhard 1997). Studies show that in years when the whitebark pine seed crop is low, there is an increase in human-bear conflicts (Haroldson *et al.* 2003). This is likely due to bears seeking alternative food sources, such as exotic clover species (Reinhart *et al.* 2001) and yampa, that occur at lower elevations and closer to humans. In addition to supplying a food source high in fat, whitebark pine seed crops also serve grizzly bears by keeping them occupied at high elevations far from intense human use. Other grizzly bear seasonal foliage use includes roots (Mattson 1997), graminoids, horsetail, forbs, and fruits (whortleberry and huckleberry) (Knight *et al.* 1984, Mattson *et al.* 1991). Bears also eat limited amounts of mushrooms.

3. Den site selection

Grizzly bears generally construct dens in areas far from human disturbance at elevations of approximately 2,000 to 3,050 meters (6,500 to 10,000 feet). Grizzly bears den from the end of September to the last week in April or early May, with entrance and emergence dates affected by the gender and reproductive status of the bears. Denning bears can be disturbed by winter sport activities, such as snowmobiling; current studies are focused on minimizing disturbance by controlling access to important denning areas (Haroldson *et al.* 2002, Podruzny *et al.* 2002). If pregnant female bears are disturbed in their dens and this disturbance causes them to relocate to a new den prior to parturition, negative consequences can occur in the form of reduced cub fitness and survival (Linnell *et al.* 2000, Swenson *et al.* 1997).

III. ENVIRONMENTAL BASELINE OF THE ACTION AREA

This section assesses the effects of past and ongoing human and natural factors that have led to the current status of the species, its habitat and ecosystem in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area that have already undergone section 7 consultations, and the impacts of state and private actions which are contemporaneous with the consultations in progress.

A. Status of Grizzly Bear within the Action Area

The Sheep Station indicates that grizzly bears occur in the O'Dell Creek, Big Mountain, and Toms Creek pastures, which are managed by the Sheep Station. These pastures are located in high-elevation portions of the Centennial Mountains in both Idaho and Montana. Similarly, the Henninger Ranch at the base of the Centennial Mountains has occasionally had grizzly bear occurences in the vicinity, (Assessment p. 23). The Sheep Station also will graze sheep on the Meyers Creek Allotment which is administered by the Forest. The Meyers Creek Allotment is the only federally administered allotment inside the Recovery Zone that allows sheep grazing (Schwartz et al. 2011, p. 70). All other lands used by the Sheep Station are outside of occupied grizzly bear habitat.

Telemetry locations collected by the Interagency Grizzly Bear Study Team have documented 5 different collared grizzly bears within the action area since 2001 (Assessment pp. 33-34). Grizzly bear use of the action area varied from 1 day to 61 days. Although it is unknown how many grizzly bears occupy portions of the action area during a given year, an estimate may be made for the purpose of our analysis. The Centennial Range contains approximately 3% of the occupied grizzly bear habitat in the GYA. Assuming the upper range of total grizzly bear population in the GYA of 600 and uniform distribution of bears throughout their range, an estimate of 18 bears in the Centennial Range is obtained. Due to the bears large home range it could be assumed that every bear in the Centennial Range would have the opportunity to pass through the project area. This estimate is based on many assumptions and is not intended to be a precise number. However, the utility of this estimate is in the estimation of scale rather than an exact number.

B. Factors Affecting the Grizzly Bear within the Action Area

Factors affecting grizzly bears in the action area are primarily associated with sheep grazing but also include recreational activities (hunting, camping, hiking, biking, etc.). Although no known grizzly bear mortalities have occurred in or near the action area in the recent past, recreational activities have the potential to result in increased mortalities in grizzly bears through an increase in human/grizzly bear interactions. Grizzly bears may be harmed or killed in defense of human life by recreationalists. Big game hunters may mistakenly identify grizzly bears as black bears and kill them. In other cases, individuals may maliciously kill grizzly bears.

An expanding grizzly bear population may result in an increase in the rate of human/bear encounters and conflicts. However, education, food storage, proper disposal of bear attractants, infrastructure management, and compliance and enforcement of permit requirements will help prevent these incidents and is part of the overall management strategy for grizzly bears.

IV. EFFECTS OF THE PROPOSED ACTION

A. Direct and Indirect Effects of the Proposed Action

The implementing regulations for section 7 define "effects of the action" as "the direct and indirect effects of an action on the species together with the effects of other activities that are interrelated or interdependent with that action, which will be added to the environmental baseline" (USFWS 1986, p. 19958). "Indirect effects" are those effects that are caused by or will result from the proposed action and are later in time, but are still reasonably certain to occur. Indirect effects may occur outside of the immediate footprint of the project area, but would occur within the action area as defined (USFWS 1986, p. 19958). The effects of the action are added to the environmental baseline to determine the future baseline and to form the basis for the determination in this opinion. Should 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). Effects to grizzly bears are typically evaluated by assessing potential impacts to known use areas, to important grizzly bear prey or their habitat, and the potential for an increase in mortality risk to grizzly bears. The effects discussed below are the result of direct and indirect impacts of proposed sheep grazing activities that may result in adverse effects to grizzlies.

The potential effects to grizzly bears from the proposed action are (1) change in the quality or quantity of habitat and availability of food, (2) displacement from habitat as a result of human activities associated with grazing, and (3) habituation to humans and sheep. Although the above affects are listed and will be analyzed separately, some include an interrelated relationship. For example, by introducing sheep into the landscape, the availability of food has changed. This may lead to a bear feeding on sheep, increasing the likelihood of a human/bear interaction.

1. Change in the quality and quantity of habitat and availability of food

As stated in the Life History section above, grizzly bears are an opportunistic omnivore that uses a wide variety of plant and animal food sources. As sheep graze across the landscape, there will be less forage available for use. This can result in decreased forage available for bears and bear prey items. However, forage use in the action area as a result of sheep grazing is well below total available forage. Approximately 3.6% of available forage will be consumed in the project area by sheep grazing (Assessment p. 7). Due to the continuous movement of the band of sheep throughout an allotment, no one site should have any significant reduction in forage. Therefore, the minimal reduction in forage would likely have an insignificant affect to grizzly bears vegetative food availability, as well as the food availability of prey items such as deer and elk. The addition of a food source (sheep) to the project area will be considered below.

2. Displacement from habitat as a result of human activities associated with grazing

Grizzly bears will generally try to avoid human contact. Sheep grazing and the associated actions will increase human disturbance in otherwise secure habitat as defined by Conservation Strategy. This disturbance may displace some bears from the project area or cause other bears to avoid the project area as they move through the landscape. As discussed in the "Threats" section above, the Centennial Mountains may act as an important travel corridor for grizzly bears, possibly aiding in genetic transfer between isolated populations. However, the increase in human use will be very small in extent when compared to the surrounding habitat. The Sheep Station uses approximately 10% of the Centennial Range and less than one percent if considering the area occupied by sheep at a given time (Assessment p. 28). Also, locations of collared grizzly bears indicate movement through and around the project area. The project should not preclude individual bears that may be displaced by the action to find suitable habitat nearby or preclude the Centennial Range as a travel corridor. For this reason, the effects to grizzly bears from displacement will likely be insignificant

3. Habituation to sheep and humans

Grizzly bear depredation of domestic sheep is well documented. Most, if not all, situations where grizzly bears are exposed to domestic sheep result in conflict or depredation (Knight and Judd 1980, p. 188). Initial predation on sheep will likely result in bears switching from natural foods to domestic sheep disrupting natural movements and increasing the probability of human-bear conflict. Similarly, once a bear successfully obtains a food reward at a particular location, the site is usually periodically re-checked for more food (Stokes 1970, Meagher and Phillips 1983). The resulting change in feeding behavior constitutes an adverse affect to grizzly bears by disrupting normal behavior patterns. Although the adverse affect to grizzly bears from feeding on unnatural food has not clearly been established, negative effects have been established for other species. This adverse affect to grizzly bears does not, by itself, cause injury to an individual. Research does suggest this change in behavior can lead a small percentage of bears to increased human/bear interaction which may lead to hazing or management removal (McClellan 1989).

Carcasses of domestic livestock in grizzly habitat may also disrupt normal behavior patterns, social systems, and activity patterns by attracting bears away from their normal feeding and sheltering areas. Wherever such carcasses are available within occupied habitat, bears are drawn to the area. This change in use and behavior has the potential to make the grizzly bear more susceptible to other impacts, in particular, conflicts with humans or motorized vehicles – a potential human health and safety concern. Carcass removal, generally within 3 days, will be implemented in the proposed action (Assessment p. 32). However, Anderson et al. (2002) noted, "(T)hus, while carcass removal may reduce the concentration of bears in an area, it may not prevent bears from developing depredatory tendencies or repel depredating bears from grazing areas."

Habituation to humans and human activities can also lead to conflicts with grizzly bears which may ultimately lead to their relocation, harm, or death (McLellan 1989). Habituation is the loss of a bear's natural wariness of humans, resulting from continued exposure to human presence, activity, noise, etc. A bear habituates to other bears, humans, or situations when such interactions give it a return in resources, such as food, that outweighs the cost of the stress that precedes habituation. Because of their large home ranges, bears that have become habituated to humans as a result of the proposed action may travel outside of the project area and will continue to exhibit this behavior.

In addition to bears receiving an unnatural food source, bear/sheep conflicts may lead to authorized or unauthorized removal (including killing and transporting from the area) of grizzly bears from the population. Removal of problematic grizzly bears from the lands grazed by the Sheep Station will not be included in the analysis because bear removal will not be allowed unless consultation is reinitiated (Assessment p. 39). However, grizzly bear removals may result from a sheepherder protecting life and property. Also, bears that have become conditioned to seek out domestic sheep as a result of the proposed action may move into another sheep grazing allotment not managed by the sheep station. A grizzly bear that had become habituated to feed on domesticated sheep may attack livestock in this area, and as a result be removed from the population.

As a result of the proposed Sheep Station activities, individual grizzly bears may come in contact with sheep or humans. Over the past 10 years, there have been few conflicts with grizzly bears in the action area. The highest number of conflicts observed during this time is 3 grizzly bear/sheep encounters in 2007 (Assessment p. 36). As stated above, bears that come in contact with sheep and receive a reward (i.e. predate sheep), will likely return to the same area again, and may become conditioned to seek out domestic sheep. Based on a simplistic extrapolation and a maximum of three conflicts per year, a total of 30 grizzly bears/sheep conflicts may occur during the term of this consultation. Due to the nature of habituation caused by the unnatural food and bear's site fidelity, it is likely that multiple conflicts are perpetrated by a single bear over the ten year period. If we assume that two thirds of the conflicts are perpetrated by a grizzly bear that has had previously came in contact with sheep, and was therefore at least partially food conditioned, 10 grizzly bears may be adversely affected by the proposed action in 10 years. However, as explained above, this adverse affect does not, by itself, cause injury or death to an individual. This number likely represents an overestimate of the number of affected grizzly bears. Some years didn't experience any grizzly bear depredations. 2007 experienced an

unusual high number of bear/sheep conflicts and it is reasonable to expect the actual number of bears affected to be less (Assessment p. 36).

An approximation of individual grizzly bears likely to be removed from the population as a result of the proposed action is difficult to estimate. As explained above, removal of a grizzly bear conditioned to feed on domestic sheep outside of the Sheep Station grazed lands may be caused by the proposed action. However, it would be impossible to assign a bear management removal to where it was food conditioned. In an effort to estimate the number of bears removed from the population due to the proposed action, the Service will use a simplistic relationship between the numbers of bear/sheep conflicts and bear removals. In a review of bear conflicts in the GYA from 1992-2000, Gunther et al. (2004a) found that one grizzly bear was killed for every 39 sheep incidents. Using this estimate and the estimate of 30 grizzly bear/sheep conflicts in 10 years, one adult grizzly bear removal is expected over a 10 year period. If the adult grizzly bear that is removed from the population was a female with cubs, the cubs would also need to be removed. On average, females in the GYA will have a litter of two cubs. Therefore a total of three grizzly bears may be removed in a 10 year period.

B. Effects of Interrelated or Interdependent Actions

The implementing regulations for section 7 define interrelated actions as those that are a part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration. No interrelated or interdependent actions have been identified in this consultation.

V. CUMULATIVE EFFECTS

The implementing regulations for section 7 define cumulative effects to include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this Biological Opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation.

Recreational use in the project area, including hunting, camping and ORV use, will continue. As stated above, recreational use is a primary threat to grizzly bear. According to the Interagency Grizzly Bear Study Team (2009), 32% of all grizzly bear mortalities were a result of hunting, either mistaken identity or defense of life. With the continued expansion of grizzly bears in biologically suitable habitat, one would not expect this number to decrease. Similarly, private land livestock grazing occurs near the project area. These actions are expected to continue.

VI. CONCLUSION

A. Grizzly Bear

After reviewing the current status of the grizzly bear, the environmental baseline for the action area, effects of the Project and the Sheep Stations conservation measures, and the cumulative effects, it is the Service's biological opinion that the direct and indirect effects of grazing sheep on the lands associated with the Sheep Station proposed action, is not likely to jeopardize the

continued existence of the U.S. coterminous population of grizzly bears. Although we anticipate take of grizzly bears from habituation to humans and mortality due to human/bear conflicts, it is our opinion that the proposed action will not appreciably reduce the likelihood of both the survival and recovery of grizzly bears.

The Service has reached this conclusion by considering the following:

(1) The grizzly bear has experienced significant recovery and met its recovery zone goals in the Greater Yellowstone Ecosystem. Current information indicates that this population of grizzly bears has grown an average of 3 to 4 percent or more annually, although the rate slowed from 2008 to 2009. In addition, the range of grizzly bears in the Greater Yellowstone Ecosystem has increased, as evidenced by the 48 percent increase in occupied habitat since the 1970s (Pyare *et al.* 2004, Schwartz *et al.* 2002).

(2) The Sheep Station is committed to implementing conservation measures that minimize potential impacts to grizzly bears. These actions include managing livestock carcasses, requiring food storage guidelines at all camps associated with livestock operations, full time monitoring by sheepherders, and movement of sheep after a conflict.

(3) Although grizzly bear/livestock conflicts will likely continue and individual grizzly bears may be adversely impacted as a result of the proposed action, the overall core population of grizzly bears of the Greater Yellowstone Ecosystem is expected to remain relatively unaffected by grazing activities in the Project area. Adverse effects from the proposed livestock grazing on grizzly bears will occur in an area that constitutes only a small portion of the grizzly bear's range in the GYA. Therefore, while adverse effects to individual grizzly bears are expected, considering the large amount of grizzly bear habitat in the GYA, resource management within such habitat, and the status of the grizzly bear, we do not expect the level of adverse effects to appreciably diminish the numbers, distribution, or reproduction of grizzly bears.

(4) The Sheep Station activities use approximately 10% of the Centennial Range. This small area of use, along with the documented use of grizzly bears throughout the Centennial Range, indicates that movement through the area is not significantly obstructed and genetic flow to other populations should not be compromised as a result of the project.

(5) Finally, the estimated loss of no more than three bears within a 10 year period will have a relatively minor impact on the overall population of this species. Mortality is expected to remain within the constraints of recovery criteria mortality limits established by the Recovery Plan (USFWS 1993).

In summary, we have determined that the proposed action will not appreciably diminish the reproduction, numbers, or distribution of grizzly bears in the GYA. If adverse effects of the proposed action are not substantial at the recovery area scale, then the effects are unlikely to be discernable at the rangewide scale. We conclude that the proposed action will not affect the survival of grizzly bears nor will it impede recovery.

VII. INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to wildlife 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.

Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of an Incidental Take Statement. The measures described below are non-discretionary, and must be undertaken by the Forest so that they become binding conditions of any grant or permit issued to an applicant, as appropriate, for the exemption in section 7(o)(2) to apply.

A. Amount or Extent of Take Anticipated

Based on the results presented in the "Effects of the Action" section above, implementation of the proposed action is likely to cause adverse effects to grizzly bears. As stated above, a maximum of three grizzly bears over a 10 year period may be taken as a result of the action caused by either a sheepherder killing or wounding a bear in defense his life or a lethal or non-lethal management removal on an adjacent livestock grazing allotment.

B. Effect of the Take

In the accompanying Biological Opinion, the Service determined that this level of anticipated take is not likely to jeopardize the grizzly bears.

C. Reasonable and Prudent Measures

The Service believes that the following Reasonable and Prudent Measures are necessary and appropriate to minimize impacts of incidental take of grizzly bear.

Reasonable and Prudent Measure 1 - The Sheep Station shall report on the number of confirmed or suspected grizzly bear/sheep conflicts in the project area.

D. Terms and Conditions

Term and Condition 1 for Reasonable and Prudent Measure 1.

The Sheep Station shall conduct monitoring and reporting of incidental take as follows. By December 31 of each year for the term of the proposed action, the Sheep Station shall submit a report summarizing grazing results for the previous grazing year and any confirmed or suspected grizzly bear sightings or conflicts for that year to the Field Supervisor of the Service's Eastern Idaho Field Office in Chubbuck, Idaho. Pastures involved in this requirement include Tom's Creek Allotment, Big Mountain Allotment, O'Dell Allotment, Henniger Ranch, and Meyer's Creek Allotment. This reporting is in addition to that given to the Interagency Grizzly Bear Study Team as identified on page 13 of the Assessment. The report shall include the following:

(1) Date of when sheep are moved to and from each of the above pastures

(2) Number of confirmed and suspect grizzly bear sightings and conflicts for each of the above pastures

(3) Result of each conflict or sighting (ie. # of sheep killed, hazing, no conflict)

(4) Actions taken by sheepherder to avoid more conflicts (ie. moved sheep to other area in same pasture, moved sheep to another pasture)

(5) Date, reason, and site of any weapon discharge as a result of grizzly bear conflict.

Changes to the above protocol can be made, as appropriate, in coordination with and the approval of the Service.

VIII. CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery programs, or to develop new information on listed species.

The Service recommends the Sheep Station seek replacement lands outside of known grizzly bear use areas for the Sheep Station's Summer Range and the Forest's Meyer's Creek Allotment. This would reduce the likelihood of adverse affects to grizzly bears, at their current distribution, to a discountable level.

IX. REINITIATION-CLOSING STATEMENT

This concludes formal consultation on the Sheep Station's proposal to continue sheep grazing within the current Sheep Station system. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the

action has been maintained (or is authorized by law) and 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 critical 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 critical habitat that was 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 cease pending re-initiation.

If, during implementation of the proposed action, changes in circumstances, situation, or information regarding this proposed action changes, the Forest will assess the changes and any potential impacts to listed species, review the re-initiation triggers above, coordinate with the Service's Eastern Idaho Field Office at (208) 237-6975 for advice (if needed) and make a determination as to whether re-initiation is necessary.

X. LITERATURE CITED

Anderson, C. R., M. A. Ternent, D. S. Moody. 2002. Grizzly bear-cattle interactions on two grazing allotments in northwest Wyoming. Ursus 13:247-256.

Bjornlie, D. and M. Haroldson. 2001. Grizzly bear use of insect aggregation sites documented from aerial telemetry and observations. Pages 44-51 *in* C. C. Schwartz and M. A. Haroldson, Eds. Yellowstone grizzly bear investigations: Annual report of the Interagency Grizzly Bear Study Team, 2000. U.S. Geological Survey, Bozeman, Montana.

Gunther, K.A., M.A. Haroldson, K. Frey, S.L. Cain, J.Copeland, and C.C. Schwartz. 2004a. Grizzly bear-Human Conflicts in the Greater Yellowstone Ecosystem, 1992-2000. Ursus 15(1):10-22.

Gunther, K.A, M.T. Bruscino, S.L. Cain, K. Frey, L. Hanauska-Brown, M. Haroldson and C.C. Schwartz. 2004b. Grizzly Bear-Human Conflicts in the Greater Yellowstone Ecosystem. Pages 53-56 *in* C. C. Schwartz and M. A. Haroldson, Eds. Yellowstone grizzly bear investigations: Annual report of the Interagency Grizzly Bear Study Team, 2003. U.S. Geological Survey, Bozeman, Montana.

Haroldson, M., Ternant, K. A. Gunther, and C. C. Schwartz. 2002. Grizzly bear denning chronology and movements in the Greater Yellowstone Ecosystem. Ursus 13:29-37.

Haroldson, M., S. Podruzny, and R. Renkin. 2003. Whitebark pine cone production. Pages 41-43 *in* C. C. Schwartz and M. A. Haroldson, eds. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2002. U.S. Geological Survey, Bozeman, MT.

Hilderbrand, G.V., S.G. Jenkins, C.C. Schwartz, T.A. Hanley, and C.T. Robbins. 1999. Effect of seasonal differences in dietary meat intake on changes in body mass and composition in wild and captive bears. Can. J. Zool. 77:1623-1630.

Knight, R. R., and S. L. Judd. 1980. Grizzly bears that kill livestock. International Association of Bear Reseach and Management. 5:186-190.

Knight, R. R., D. J. Mattson, and B. M. Blanchard. 1984. Movements and habitat use of the Yellowstone grizzly bear. Interagency Grizzly Bear Study Team, Montana State University, Bozeman, Montana

Linnell, J. D. C., J. E. Swenson, R. Anderson, and B. Barnes. 2000. How vulnerable are denning bears to disturbance? Wildlife Society Bulletin 28(2):400-413.

Mattson, D. J. 1997. Selection of microsites by grizzly bears to excavate biscuitroots. Journal of Mammalogy 78:228-238.

Mattson, D. J. 2001. Myrmecophagy by Yellowstone grizzly bears. Canadian Journal of Zoology 79:779-793.

Mattson, D. J., and D. P. Reinhart. 1995. Influences of cutthroat trout (*Onchorhynchus clarki*) on behavior and reproduction of Yellowstone grizzly bears (*Ursus arctos*), 1975-1989. Canadian Journal of Zoology 73:2072-2079.

Mattson, D. J., and D. P. Reinhart. 1997. Excavation of red squirrel middens by grizzly bears in the whitebark pine zone. Journal of Applied Ecology 34:926-940.

Mattson, D. J., B. M Blanchard, and R. R. Knight. 1991. Food habits of Yellowstone grizzly bears, 1977-1987. Canadian Journal Zoology 69:1619-1629.

Mattson, D. J., M. G. French, and S. P. French. 2002. Consumption of earthworms by Yellowstone grizzly bears. Ursus 13:105-110.

Mazur, R. L. 2010. Does aversive conditioning reduce human-black bear conflicts? Journal of Wildlife Management 74(1):48-54.

McClellan, B. N. 1989. Relationships between human industrial activity and grizzly bears. International Conference on Bear Research and Management 8:57-64.

Meagher, M., and J. R. Phillips. 1983. Restoration of natural populations of grizzly and black bears in Yellowstone National Park. International Conference on Bear Research and Management 5:152-158.

Podruzny, S. and K. Gunther. 2001. Spring Ungulate Availability and Use by Grizzly Bears in Yellowstone National Park. Pages 33-36 *in* C.C. Schwartz and M.A. Haroldson, editors. Yellowstone Grizzly Bear Investigations: Annual report of the Interagency Grizzly Bear Study Team, 2000. U.S. Geological Survey. Bozeman, Montana.

Podruzny, S.R., S. Cherry, C. Schwartz, and L. Landenburger. 2002. Grizzly Bear Denning and Potential Conflict Areas in the Greater Yellowstone Ecosystem. In press.

Pyare, S., S. Cain, D. Moody, C. Schwartz, and J. Berger. 2004. Carnivore re-colonisation: reality, possibility, and a non-equilibrium century for grizzly bears in the southern Yellowstone Ecosystem. Animal Conservation 7:1-7. As cited in: USFWS. 2005. Endangered and Threatened Wildlife and Plants; Designating the Greater Yellowstone Ecosystem Population of Grizzly Bears as a Distinct Population Segment; Removing the Yellowstone Distinct Population Segment of Grizzly Bears From the Federal List of Endangered and Threatened Wildlife; Proposed Rule. Federal Register 70 (221):69854-69884.

Reinhart, D. P., M. A. Haroldson, D. J. Mattson, and K. A. Gunther. 2001. Effects of exotic species on Yellowstone grizzly bears. Western North American Naturalist 1(3):227-288.

Robison, H.L., C.C. Schwartz, J.D. Petty, and P.F. Brussard. 2006. Assessment of pesticide residues in army cutworm moths (*Euxoa auxiliaris*) from the Greater Yellowstone Ecosystem and their potential consequences to foraging grizzly bears (*Ursus arctos horribilis*). Chemosphere 64: 1704-1712.

Schwartz, C. C., M. A. Haroldson, K. A. Gunther, and D. Moody. 2002. Distribution of Grizzly Bears in the Greater Yellowstone Ecosystem, 1990-2000. Ursus 13:203-212.

Schwartz, C. C., M. A. Haroldson, and K. West, editors. 2011. Yellowstone grizzly bear investigations: annual report of the Interagency Grizzly Bear Study Team, 2010. U. S. Geological Survey, Bozeman, MT, USA.

Schwartz, C. C, S. D. Miller, and M. A. Haroldson. 2003. Grizzly Bear. Pages 556-586 in G. A. Feldhamer, B. C. Thompson, and J. A. Chapman, editors. Wild Mammals of North America: Biology, Management, and Conservation. Second edition. John Hopkins University Press. Baltimore MD.

Stokes, A. W. 1970. An ethologists views on managing grizzly bears. BioScience 20:1154-1157.

Swenson, J. E., F. Sandegren, S. Brunberg, and P. Wabakken. 1997. Winter den abandonment by brown bears *Ursus arctos*: causes and consequences. Wildlife Biology (1):35-38.

U.S. Forest Service. 2004. Draft Environmental Impact Statement for Forest Plan Amendments for Grizzly Bear Conservation for the Greater Yellowstone Area National Forests. USDA, Forest Service, Region 2, Salt Lake City, Utah. 293 pp.

USFWS U.S. Fish and Wildlife Service. 1975. Endangered and threatened wildlife and plants; determination of threatened status for the grizzly bear; final rule. Federal Register 40: 31736.

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

USFWS U.S. Fish and Wildlife Service. 1986. Interagency Cooperation – Endangered Species Act of 1973, as amended; Final Rule. Federal Register, June 3rd 1986. Vol. 51, No. 106 [also see 50 Code of Federal Regulations Part 402]

USFWS U.S. Fish and Wildlife Service. 1999. Endangered and threatened wildlife and plants; 12-month finding on petitions to change the status of grizzly bear populations in the Selkirk area in Idaho and Washington and the Cabinet-Yaak area of Montana and Idaho from threatened to endangered. U.S. Fish and Wildlife Service. Federal Register 64: 26725-26733.

USFWS U.S. Fish and Wildlife Service. 2004. Unpublished. 2003 unduplicated females with cubs in the CYE. Internal memo, U.S. Fish and Wildlife Service. 2pp.

USFWS U.S. Fish and Wildlife Service. 2007. Endangered and threatened wildlife and plants; final rule designating the Greater Yellowstone Area population of grizzly bears as a distinct population segment; removing the Yellowstone distinct population segment of grizzly bears from the Federal List of Threatened and Endangered Wildlife; 90 day finding on a petition to list as endangered the Yellowstone distinct population of grizzly bears. Federal Register 72: 14866-14938.

USFWS U.S. Fish and Wildlife Service. 2011. Grizzly bear (*Ursis arctos horribilis*) 5-year review: summary and evaluation. Missoula, MT. 205 pp.