3.9 Terrestrial Animal Habitat and Species

Changes Between Draft and Final EIS

- Bald eagle was delisted and is now addressed as a Forest Service sensitive species,
- Discussions pertaining to predicted habitat for federally listed terrestrial species have been replaced with more site-specific information on habitat, known locations, and descriptions of existing conservation strategies and direction.
- Added information on two Federal candidate species for listing under the endangered species act (ESA)—the yellow-billed cuckoo and the southern Idaho ground squirrel—and proposed critical habitat for lynx.
- Expanded discussion on terrestrial game species in Idaho.
- Information on the effects of selenium on terrestrial wildlife species was expanded.
- Additional information was provided on potential impacts to migratory birds.
- Added analysis for the new alternative, Modified Idaho Roadless Rule.

Introduction

In general, Idaho Roadless Areas provide large, relatively undisturbed blocks of important habitat for terrestrial animal species and communities. Most Idaho Roadless Areas provide high quality habitat for cavity- and snag-dependent species as well as summer and winter range for big game species. Other important habitat values include:

- Dispersal corridors;
- Connectivity between large blocks of habitat;
- Travel corridors;
- "Islands" of refugia;
- Habitat diversity and complexity;
- Old-growth forests;
- "Natural" levels of snag and down woody debris components within forested habitats across large areas;
- "Source" habitats and "strongholds" for sensitive species;
- Security and seclusion during incubation, hatching, or birthing and rearing of young;
- Reduced big game and furbearer vulnerability during hunting and trapping seasons as a result of limited roaded access.

The following analysis evaluates the potential changes to roadless area characteristics and their ability to provide habitat for terrestrial animal species, including but not limited to those Federally-listed, Forest Service sensitive, and management indicator species (appendix M, table M-1)

AFFECTED ENVIRONMENT

Idaho has a diverse assemblage of wildlife that occurs on an equally diverse landscape. There are approximately 1,200 native and non-native species of wildlife that occur within the five ecoregions of Idaho (IDFG 2005). Ecoregions denote geographic areas characterized by similar ecosystems and environmental resources. In Idaho the five ecoregions of Idaho are subdivided into 14 ecological sections (appendix M, table M-2).

Terrestrial Habitats Within Idaho Roadless Areas

Idaho Roadless Areas include a range of habitat types such as grasslands and shrublands, young forested stands, and old-growth forests. Forests cover about 33 percent, or approximately 21.4 million acres of Idaho. These forests vary from the very dry pinyon-juniper woodlands at lower elevations to cold alpine forest types at high elevations. Idaho Roadless Areas are dominated by three primary vegetation types: 40 percent Douglas-fir, 20 percent spruce/fir, and 8 percent lodgepole pine (see the section 3.2 Vegetation and Forest Health). All other forest cover types make up are less than 5 percent each of the total forest cover within Idaho Roadless Areas. The non-forest habitat types within the roadless areas are estimated to be 18 percent, including other vegetation types (such as grasslands, shrublands, and meadows), and barren areas (such as rock and ice). Appendix M, table M-3, displays the approximate forest type acreage in the State and within national forests of Idaho.

Threatened and Endangered Species

Idaho Roadless Areas provide habitat for one endangered terrestrial wildlife species – the woodland caribou – and three threatened terrestrial wildlife species – the Canada lynx, the grizzly bear [not including the Yellowstone distinct population segment (DPS)], and the northern Idaho ground squirrel (table 3-49).

On February 27, 2008, the U.S. Fish and Wildlife Service (FWS) designated and delisted the Northern Rocky Mountain gray wolf DPS (USDA Forest Service 2008a). On July 18, 2008, the district court of Montana issued a preliminary injunction on this FWS action, temporarily reinstating ESA protections previously provided to this species: the gray wolf north of Interstate 90 is listed as endangered and the gray wolf south of Interstate 90 is considered non-essential experimental population under 10j of ESA. Consequently, the analysis addresses the effects to the gray wolf based on its reinstated status.

In addition, there are two terrestrial species within Idaho that currently are classified as candidates for Federal listing: the yellow-billed cuckoo and the southern Idaho ground squirrel. Two species were recently delisted by the FWS: the Yellowstone DPS of the grizzly bear on March 29, 2007 and the bald eagle on July 9, 2007. These species are now classified as Forest Service sensitive and are addressed in this document under 'Forest Service Sensitive Species'.

Based on predicted distributions, there is the potential for all five listed terrestrial species and the one candidate species (Western yellow-billed cuckoo) to be found in Idaho Roadless Areas[1].

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[1] Predicted habitat as described in the draft EIS and appendix M, table M-4 was used as a course filter to determine whether or not threatened, endangered, or candidate species overlapped Idaho Roadless Areas. In the draft EIS it was assumed the southern Idaho ground squirrel would likely use the same type of habitat as the northern Idaho ground squirrel; however this is incorrect. Information on habitat within Idaho Roadless Areas is not available.

The southern Idaho ground squirrel is not known to currently occur on NFS lands (Wolmack, pers. com. 2008), including Idaho Roadless Areas. Of these species, four—the woodland caribou, grizzly bear, and northern and southern Idaho ground squirrels—are geographically restricted in range to only one or two national forests. The Canada lynx and the gray wolf are broadly distributed across the State of Idaho from north to south, although the habitat requirements for the lynx are relatively narrow. The western yellow-billed cuckoo is broadly distributed throughout southern Idaho, but narrowly restricted to riparian corridors.

Table 3-49. Terrestrial threatened, endangered, and candidate species in Idaho and their overlap with Idaho Roadless Areas, based on specific habitat or recovery information.

Species	Habitat Parameter	Total acres	Acres in Idaho	Acres in Idaho Roadless Areas	Known occurrence in Idaho Roadless Areas (national forest)
Endangered species					
Gray wolf	Predicted distribution		231,520[1]	13,400	Documented wolf activity associated with 2 packs in roadless areas north of I-90.
Woodland caribou	South Selkirk Recovery area	959,900	320,500	131,900	Salmo/Priest (Idaho Panhandle)
Threatened species					
Canada lynx	Mapped lynx habitat		7,354,800	3,503,400	39 Idaho Roadless Areas on ten national forests
Grizzly bear - Selkirk Ecosystem	Selkirk Recovery Zone	688,700		158,500	Known occurrences in four roadless areas on the Idaho Panhandle National Forest
	Selkirk Recovery Zone – Core habitat	325,500		136,900	
Grizzly bear - Cabinet Yaak Ecosystem	Cabinet-Yaak Recovery Zone	1,692,300		122,900	None
	Cabinet-Yaak Recovery Zone – Core habitat	929,600		108,900	
Northern Idaho Ground squirrel	Probable historic distribution		843,400	47,300	One new colony in the Rapid River (Payette National Forest)
Gray wolf	Predicted distribution		16,654,900[2]	5,655,700	Documented wolf activity associated with 80 packs in roadless areas south of I-90.
Candidate species					
Yellow-billed cuckoo	Predicted Distribution		488,400	128,900	One known occurrence in the Oxford Mountain Roadless Area of the Caribou NF.
Southern Idaho ground squirrel	Predicted Distribution[3]		Not available	Not available	Not known[4]

[1] *Predicted distribution north of I-90.*
[2] *Predicted distribution south of I-90.*
[3] *Predicted distribution for southern Idaho ground squirrel was not extricable from that reported for the northern Idaho ground squirrel.*
[4] *Wolmack, pers. com. 2008*

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Gray Wolf

The gray wolf has a circumpolar distribution in the northern latitudes. It occurs in Europe, Asia, and North America. In North America it is considered common in Alaska and most of Canada. Wolves are native to Idaho, and historically, were fairly common in most parts of the state with abundant big game. This species was once considered extirpated from Idaho. Now, "wolf populations occur in central and northern Idaho, and some individuals occur along the Wyoming-Idaho border. An estimated 500 individuals occurred in the state during 2004." (IDFG 2005). Further, the wolf is characterized by an increasing population trend, particularly throughout northern and central portions of the State.

Thirty-four percent (5,669,000 acres) of the gray wolf predicted distribution overlaps Idaho Roadless Areas: 13,350 acres north of I-90 and 5,655,700 acres south of I-90 (table 3-49). In addition, the home ranges of 82 documented packs and 4 suspected packs overlap Idaho Roadless Areas: two documented packs, the Calder Mountain and Solomon Mountain, north of I-90, and 80 packs south of I-90. High use of roadless areas by wolves is likely given that wolves persist most effectively in areas where human disturbance is low.

Woodland Caribou

Currently, woodland caribou in the continental United States are restricted to the panhandle of Idaho and the northeastern corner of Washington. These caribou are managed as part of the South Selkirk subpopulation, which extends north into British Columbia. The most recent surveys completed of the South Selkirk subpopulation estimated 46 individuals in 2008 (Wakkinnen et al. 2008), 3 of which were detected within the United States.

The recovery area for woodland caribou within the South Selkirk ecosystem encompasses approximately 959,900 acres across the United States and Canada: 320,500 acres in Idaho, 138,200 acres in Washington, and 501,200 acres in British Columbia (table 3-49).[2] As it is currently delineated, the recovery area includes lands above 4,000 feet in elevation within British Columbia and on the Colville National Forest, and lands above 4,500 feet on the Idaho Panhandle National Forest and the Idaho Department of Lands (USDI Fish and Wildlife Service 1993). Some lands below 4,500 feet in elevation on the Idaho Panhandle National Forests are included within the recovery area based on caribou utilization, target stand condition, and habitat connectivity.

Approximately 255,500 acres of the South Selkirk ecosystem caribou recovery area (27 percent) fall on the Idaho Panhandle National Forests, 131,800 acres (approximately 14 percent) of which are included in Idaho Roadless Areas (appendix M, table M-5). Seven roadless areas overlap the caribou recovery area: Continental Mountain, Kootenai Peak, Little Grass Mountain, Saddle Mountain, Salmo/Priest, Selkirk, and Upper Priest.

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Efforts to map the distribution and condition of caribou habitat within the South Selkirk ecosystem caribou recovery area were initiated in 1997 as a cooperative project between British Columbia Ministry of Environment, the Colville National Forest, Washington Department of Fish and Wildlife, Idaho Department of Fish and Game, and the Idaho Panhandle National Forests. Recent habitat modeling by Kinley and Apps (2007) builds upon early cooperative

[2] Based on the GIS analysis conducted for the purposes of this document. Differs only slightly from acreage reported in the Recovery Plan.

efforts and further classified the relative suitability of seasonal habitats[3]. Based on habitat suitability scores applied to seasonal habitats, high or moderate categories encompass those areas that are currently considered 'suitable'; those habitats categorized as 'low' are those capable of providing for caribou, but are not currently 'suitable' (Layser 2008).

Northern Idaho Ground Squirrel

The entire range of this geographically restricted subspecies covers an approximate 1,200 square-mile area with colonies found primarily in dry, montane meadows between 3,280 and 5,580 feet in elevation. The probable historic distribution (PHD) of the northern Idaho ground squirrel [4] developed by the NIDGS Technical Working Group delineates the species current and historical range. This PHD overlaps the Payette and Boise National Forests, but the species is known to occur only on the Payette National Forest, endemic to Adams and Valley counties near New Meadows, Lost Valley Reservoir, and nearby surrounding areas (USDI Fish and Wildlife Service 2003a).

Of the 843,400 acres of the PHD for the northern Idaho ground squirrel, 6 percent (47,300 acres) falls within Idaho Roadless Area (table 3-49). To date, there is only one documented location of this ground squirrel within an Idaho Roadless Area—a new colony was discovered in 2006 in the Rapid River Roadless Area. Of 40 known metapopulation sites (to be differentiated from colonies) for the northern Idaho ground squirrel within the probable historic distribution of the species, none occur within Idaho Roadless Areas as of 2008.

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The PHD of the northern Idaho ground squirrel overlaps four roadless areas: Indian Creek, Cuddy Mountain, Council Mountain, and a tiny sliver of Rapid River. Two additional roadless areas are situated between metapopulations—Poison Creek and Snowbank—and seven roadless areas surround the outer boundaries of the probable historic distribution—Bear Wallow, Peace Rock, Stony Meadows, Needles, French Creek, Patrick Butte, and Hells Canyon/Seven Devils Scenic Area. Based on the proximity of these 13 roadless areas to the PHD, current metapopulation sites, or existing colonies, these roadless areas could provide habitat that serves as linkage and/or connectivity between adjacent metapopulations or that might eventually support the northern Idaho ground squirrel.

The FWS (USDI Fish and Wildlife Service 2003a, 2007a) lists the chief threat to the northern Idaho ground squirrel as habitat loss, and fragmentation due to the following: conifer encroachment into meadow habitats, changes in vegetation composition and structure, agricultural conversions, and rural development. Other threats may include mortality associated with illegal recreational shooting, poisoning, and competitive exclusion by the larger Columbian ground squirrel). Conservation of and management for northern Idaho ground squirrel on national forest system (NFS) lands (i.e., the Payette National Forest) is guided by the following: The Recovery Plan for the northern Idaho ground squirrel (USDI Fish and Wildlife Service 2003a), the land and resource management plans for the Boise, Payette, and Sawtooth National Forests (USDA Forest Service 2003), and district-level 5-year Habitat Management Plans (USDI Fish and Wildlife Service 2003a).

[3] For a detailed description of these habitats and mapping methods, see Kinley and Apps (2007).

[4] The PHD must be distinguished from the 'predicted distribution' data which was provided by CDC.

Grizzly Bear

Three recovery zones overlap NFS lands in Idaho—the Cabinet-Yaak (CYRZ), Selkirk (SRZ), and Bitterroot (BRZ) Ecosystems—the former two of which overlap Idaho Roadless Areas. These three recovery zones are described in more detail below.

Cabinet-Yaak Ecosystem. The Cabinet-Yaak Ecosystem (CYRZ) encompasses a total of 1,692,300 acres in northeastern Idaho and northwestern Montana. This recovery zone overlaps three National Forests: Idaho Panhandle, Kootenai, and Lolo. In Idaho, the CYE includes portions of the Kootenai and Idaho Panhandle National Forests. Approximately 122,900 acres (approximately 8 percent) of the CYRZ overlaps Idaho Roadless Areas (table 3-49).

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Security is a critical element of grizzly bear habitat. The CYE includes 929,600 acres of grizzly bear core habitat, areas typically characterized by limited roads and low potential for human disturbance. About 108,900 acres of grizzly bear core habitat overlap Idaho Roadless Areas, which constitutes approximately 12 percent of total grizzly bear core habitat in the CYRZ (table 3-49). The low overlap of CYRZ with Idaho Roadless Areas is due to the relatively limited acreage overlapping into Idaho; the majority of this recovery zone is in Montana.

The grizzly bear population in the CYRZ is estimated conservatively at 30 to 40 bears (USDI, Fish and Wildlife Service 1993b). From the 1980s through 1999, the population slowly increased. However, mortalities during 1999 through 2002 may have put the population on a slightly declining trend, although the confidence interval makes this conclusion statistically uncertain (Wakkinen and Kasworm 2004).

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Selkirk Ecosystem. This recovery zone is about 688,700 acres in size, spanning portions of northwestern Idaho, northeastern Washington, and southwest Canada. The recovery zone overlaps two national forests, the Idaho Panhandle and the Colville. About 158,500 acres overlap (23 percent) Idaho Roadless Areas on the Idaho Panhandle National Forests (table 3-49).

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Approximately 47 percent of the SRZ (325,500 acres) is considered grizzly bear core habitat, of which about 136,900 acres (42 percent) are located in Idaho Roadless Areas (table 3-49).

The grizzly bear population in the SRZ is estimated about 45 to 55 bears, with a slowly increasing population (Wakkinen and Kasworm 1997). As of 2002, this slight trend towards an increasing population was still apparent, although like the CYRZ confidence interval makes this conclusion statistically uncertain (Wakkinen and Kasworm 2004).

Bitterroot Ecosystem. "The Bitterroot Ecosystem recovery zone is one of the largest contiguous blocks of Federal land remaining in the lower 48 United States. The core of the BRZ contains the Selway-Bitterroot Wilderness and Frank Church-River of No Return Wilderness. Together these two wilderness areas make up the largest block of wilderness habitat in the Rocky Mountains. The BRZ also contains significant areas of multiple use lands where wildlife and fisheries values coexist with resource use and recreation. The BRZ formerly contained grizzly bears, but they are now considered extirpated due to excessive human-caused mortality." (excerpted from USDI Fish and Wildlife Service 1993a).

On September 3, 2007 a black bear hunter shot a grizzly bear in the upper Kelly Creek drainage of Idaho within the Bitterroot Experimental Population Area. Prior to the confirmed recent shooting, grizzly bears have been absent from the BRZ for more than 60 years. At this time, the FWS does not consider this one male grizzly bear to constitute a population. Future surveys are planned in this area, upon which the FWS in conjunction with other agencies, will determine

whether the BRZ contains a grizzly bear population." (USDI Fish and Wildlife Service 2007c, pp 2-3) The BRZ recovery area does not include Idaho Roadless Areas although it is near and adjacent to roadless areas in Idaho. The BRZ is not discussed further because there is a lack of overlap with Idaho Roadless Areas and the ecosystem and the grizzly bear habitat is currently considered 'unoccupied'.

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Canada Lynx

The following national forests in Idaho have mapped primary and secondary vegetation as lynx habitat to assist in project-level analyses: Bitterroot, Boise, Clearwater Idaho Panhandle, Kootenai, Nez Perce Payette, Salmon-Challis, Sawtooth, Targhee, and Wallow-Whitman. Based on the lack of appropriate vegetation types, there is no mapped lynx habitat on the Caribou National Forest. In total, mapped lynx habitat on these forests covers 7,354,800 acres (appendix M, table M-6). Approximately 3,503,000 acres (approximately 48 percent) of mapped lynx habitat on Idaho's national forests overlap Idaho Roadless Areas (appendix M, table M-6).

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Based on historical and current documentation of lynx presence and reproduction, mapped lynx habitat is considered 'occupied' on the following national forests in Idaho (USDA Forest Service and USDI Fish and Wildlife Service 2006): Idaho Panhandle, Clearwater, Kootenai, and Targhee[5]. Because of the absence of recent records of lynx presence and reproduction, the Nez Perce, Wallowa-Whitman, and Salmon-Challis are considered "unoccupied." The FWS includes Canada lynx on 90-day species lists for the Payette, Boise, and Sawtooth National Forests; however, based on criteria applied to the other forests in Idaho, occupancy by lynx may be unlikely.

Canada Lynx Proposed Critical Habitat. Approximately 51 miles^2 (approximately 32,940 acres) of the Northern Rocky Mountains Unit overlap into Idaho, which represents about 17 percent of that unit. The majority (98 percent) of proposed lynx critical habitat in Idaho occurs on Federal lands in northeastern Idaho. Of the 37,000 acres of proposed lynx critical habitat in Idaho, 5,700 acres overlap Idaho Roadless Areas, all falling within the Buckhorn Ridge Roadless Area. This equates to approximately 0.08 percent of the entire Northern Rocky Mountains Unit.

Western Yellow-Billed Cuckoo

Although its presence is rare in Idaho, there are documented occurrences of yellow-billed cuckoo in southeastern Idaho, where most of its predicted breeding distribution is concentrated along riparian corridors. Of the 488,400 acres of yellow-billed cuckoo breeding distribution in Idaho, 128,900 acres (26 percent) overlaps Idaho Roadless Areas (table 3-49).

Southern Idaho Ground Squirrel

The southern Idaho ground squirrel occurs in an area of about 80 square miles in Payette, Gem, and Washington Counties. The species inhabits rolling foothills at lower elevations. Information on habitat in Idaho Roadless Aras is not available; however if it exists it is likely limited because

[5] *The Occupied Mapped Lynx Habitat Amendment to the Canada Lynx Conservation Agreement* (USDA Forest Service and FWS 2006) established criteria for defining occupied lynx habitat. According to this amendment, all mapped lynx habitat on an entire national forest is considered "occupied" by lynx when:

1. There are at least 2 verified lynx observations or records since 1999 on the national forest unless they are verified to be transient individuals; or
2. There is evidence of lynx reproduction on the national forest.

Idaho Roadless Areas are generally at higher elevations. The population has been extirpated or is exceptionally small in the northern portions of the former range. The species is locally abundant near Emmett and Payette, where colonies are associated with anthropogenic habitat, such as agricultural land and golf courses. Populations are sparse and fragmented in formerly occupied native habitat, which is found primarily on public lands (BLM). No known populations occur on NFS lands, including Idaho Roadless Areas. Existing populations are located on private, BLM, or Idaho State lands (Wolmack, pers. com 2008).

Forest Service Sensitive Species

Nine mammals, 1 reptile, and 18 birds listed as Forest Service sensitive species have predicted distribution in Idaho Roadless Areas. Of these 28 sensitive species, 24 are known to occur in Idaho Roadless Areas. Sensitive species and their habitat requirements are listed in appendix M, table M-8. Table M-8 also displays the acreage of predicted distribution in both the State and in Idaho Roadless Areas as well as the percentage of predicted distribution in roadless areas by sensitive species.

Several sensitive species have less than 10 percent of predicted distribution in Idaho Roadless Areas, including:

- Trumpeter swan—less than 1 percent;
- Spotted bat—1.9 percent;
- Common loon—2.4 percent;
- Townsend's big-eared bat—3.3 percent;
- Fringed myotis—3.4 percent;
- Ring-necked snake—6.4 percent;
- Pygmy rabbit—6.9 percent;
- Greater sage grouse—6.0 percent ;
- Columbian sharp-tailed grouse—6.1 percent.

Species occurrence information may be lacking on sensitive species because wildlife survey work may not be complete in Idaho Roadless Areas. Sensitive species with no known occurrences in Idaho Roadless Areas at this time are the spotted bat and the black swift. Species with occurrences in three or fewer Idaho Roadless Areas are the fringed myotis, northern bog lemming, black-backed woodpecker, trumpeter swan, common loon, pygmy nuthatch, and ringneck snake.

Flammulated owls and wolverines occur in Idaho roadless areas on 10 National Forests in Idaho. Wolverines have the highest percentage (42 percent) of predicted distribution and occur within the most Idaho roadless areas (48). Remoteness and inaccessibility are important habitat attributes for wolverines, and this high rate of occurrence and predicted distribution suggests the importance of Idaho Roadless Areas to wolverines.

The 45 roadless areas on the Idaho Panhandle National Forests have the most sensitive species associated with them. Eleven sensitive species—the northern bog lemming, fisher, wolverine, boreal owl, common loon, flammulated owl, great gray owl, harlequin duck, goshawk,

Townsend's big-eared bat, and three-toed woodpeckers—are known to occur in at least one roadless area on the Idaho Panhandle National Forests.

Based on occurrence data and predicted distribution, the northern bog lemming is found only on the Idaho Panhandle National Forest. Northern bog lemmings are known to occur in Blacktail Mountain and Selkirk, 2 of the 45 roadless areas on the Idaho Panhandle National Forest.

Columbian sharp-tail grouse are known to occur in 4 Idaho Roadless Areas on the Sawtooth National Forest and 1 Idaho Roadless Area on the Caribou National Forest. Shrubland habitat available on the Caribou National Forest and within Idaho Roadless Areas may be used by Columbian sharp-tailed grouse during the winter months. There are 15 roadless areas within 1 mile of Columbian sharp-tailed grouse leks on the Caribou National Forest. No studies have been done to determine Columbian sharp-tailed grouse habitat use on the Caribou National Forest (Orme 2007).[6]

Approximately 1,294,800 acres of the predicted distribution for the greater sage grouse overlap Idaho Roadless Areas. This equates to about 6 percent of the total predicted distribution (21,424,200 acres) for this species across the entire State. Seven roadless areas contain 29 records of greater sage grouse leks, all located in the southeastern portions of the State (appendix M, table M-7). Persistent population declines in Idaho since 1965 likely contributed to this species being considered 'imperiled' in the State (IDFG 2005).

Two terrestrial wildlife species previously listed under the ESA were recently delisted and are now managed as Forest Service sensitive on NFS lands. In Idaho, the Yellowstone grizzly bear overlaps the Yellowstone Highlands ecosection of Idaho and is found on the Targhee National Forest. There are 61,200 acres of predicted distribution for grizzly bears in the Yellowstone Highlands. Grizzly bears occur in the Bald Mountain, Bear Creek, Lionhead, and Two Top Roadless Areas on the Targhee National Forest.

The bald eagle is broadly distributed along river corridors throughout Idaho, with a total predicted distribution in the state covering more than 9 million acres, of which 2.7 million acres overlap Idaho Roadless Areas. Fifteen roadless areas have known occurrences and eight national forests in Idaho have roadless areas that overlap with the predicted distribution for the bald eagle.

There are 125 Idaho Roadless Areas that have known occurrences of at least one threatened, endangered, or sensitive terrestrial wildlife species. Table 3-50 displays the 13 Idaho Roadless Areas by national forest with the occurrence of five or more threatened, endangered, and sensitive species.

Table 3-50. Idaho Roadless Areas with the most threatened, endangered, and sensitive (TES) terrestrial wildlife species[1]

National forest	Idaho Roadless Area	Number of TES species
Idaho Panhandle	Salmo-Priest	7
Idaho Panhandle	Blacktail Mountain	6
Idaho Panhandle	Selkirk	6
Idaho Panhandle	Upper Priest	5

[6] Site-specific data were not available from other Idaho National Forests and thus we can not make any statements regarding presence or absence of sharp-tailed grouse leks on these forests.

National forest	Idaho Roadless Area	Number of TES species
Targhee portion of Caribou-Targhee	Mt. Jefferson	7
Targhee portion of Caribou-Targhee	Garns Mountain	5
Payette	French Creek	7
Payette	Hells Canyon/7 Devils Scenic	6
Payette	Needles	5
Payette-Nez Perce	Rapid River	5
Nez Perce	Mallard	7
Salmon-Challis	West Big Hole	5
Sawtooth	Hanson Lakes	5

[1] *Does not include the two Candidate species, Southern Idaho ground squirrel or yellow-billed cuckoo, or mountain plover.*

Management Indicator Species (MIS)

The 12 national forests in Idaho have designated 11 mammals and 20 birds as management indicator species (MIS). Appendix M, table M-9, displays the terrestrial wildlife species selected to serve as management indicators by each national forest in Idaho.

Four of the 31 MIS are threatened or endangered species and have been discussed in the previous section. Fifteen of the 31 MIS are sensitive species and have been discussed previously. There are 12 MIS whose habitat overlaps Idaho Roadless Areas and that have not been previously discussed. These include the pileated woodpecker, elk, white-tailed deer, moose, pine marten, belted kingfisher, downy woodpecker, hairy woodpecker, northern flicker, red-napped sapsucker, red squirrel, and Williamson's sapsucker (appendix M, table M-9).

Idaho Species of Concern

The Idaho Conservation Data Center recognizes 379 terrestrial wildlife species that regularly occur and breed in the State. This list includes 15 amphibians, 22 reptiles, 104 mammals, and 238 birds (Scott et al. 2002). The number of State "species of concern" ranked from S1 to S3[7] that are not included as threatened, endangered, experimental, nonessential, sensitive, or MIS previously discussed in this EIS are displayed in table 3-51.

Table 3-51. Number of Idaho species of concern not discussed elsewhere

Taxa	S1	S2	S3	Total
Birds	16	18	34	68
Mammals	10	7	12	29
Reptiles	1	2	1	5
Insects	8	2	0	10

[7] *Species of concern* – species identified by the State of Idaho in need of conservation.

S1=State Critically imperiled: at high risk because of extreme rarity, rapidly declining numbers, or other factors that make it particularly vulnerable extirpation in the State.

S2=State Imperiled: at risk because of restricted range, few populations, rapidly declining numbers or other factors that make it vulnerable to range-wide extinction or extirpation.

S3=State Vulnerable: at moderate risk because of restricted range, relatively few populations, recent and widespread declines, or other factors that make it vulnerable to range-wide extinction or extirpation.

Migratory Birds and Idaho Priority Bird Species and Habitats

Migratory birds as a group encompass a broad array of avian taxa, including but not limited to the following: waterfowl (for example, ducks, geese, and swans); waders and shorebirds; woodpeckers; raptors; owls; songbirds; and upland game birds (for example, quail, pheasant, chukkars). The Idaho Partners in Flight Idaho Bird Conservation Plan (2000) identifies priority species and habitats and establishes objectives for bird populations and habitats in the State of Idaho. The northern two-thirds of Idaho are located within the Central Rocky Mountains Physiographic Area 64. The rest of Idaho is within the Columbia Plateau Physiographic Area 89.

Idaho Priority Bird Species and Habitats. Breeding bird surveys are conducted annually during the peak of the nesting season across North America. Breeding bird survey routes are randomly located in order to sample habitats that are representative of the entire region (Sauer et al. 2005). There are 56 permanent active breeding bird survey routes in Idaho. Most of these routes have had breeding bird surveys conducted annually since the 1960s. Seven national forests have breeding bird survey routes, and 12 routes occur within all or portions of 17 Idaho Roadless Areas (appendix m, Table M-10).

Idaho Terrestrial Game Species

Game species are wild animals that people hunt or fish for food or recreation according to prescribed seasons and limits (USDA 1999, USDA 2000a). In many areas of the United States, NFS lands (including Idaho Roadless Areas) are a significant source of high-quality game species habitats, given the influences of private land conversions for urbanization, agriculture, and development. In some cases, NFS lands are strongholds for some game species. For example, black bear populations are increasing in some areas of the Eastern United States in part because of security within NFS lands (Vaughan and Pelton 1995). Because of their limited accessibility and human disturbance, Idaho roadless areas are important refuges for various games species throughout Idaho (Curley et al. 2004).

Primary game species in Idaho include: (1) big game—white-tailed deer, mule deer, elk, moose, bighorn sheep, mountain goat, pronghorn antelope, bear, and turkey; and (2) small game—upland birds (e.g., grouse, pheasant, quail, chukars); waterfowl (e.g., ducks, geese, swans); and small mammals (e.g., hare, cottontail rabbits, gray squirrel). White-tailed deer, elk, moose, grouse, and some waterfowl are considered Forest Service sensitive and/or MIS and thus are discussed above. The predicted distributions for these species overlap Idaho Roadless Areas in varying degrees. Approximately 6,375,300 acres mule deer summer habitat and 663,700 acres of winter habitat overlap Idaho Roadless Areas.

Game species are generally associated with mixed habitat patterns that include a variety of habitat types and age classes. Some games species are habitat generalists (for example deer, elk, and ruffed grouse), using a variety of habitats; these generalists therefore cannot be easily associated with specific habitat types (Southern Appalachian Man and the Biosphere 1996). Nevertheless, in forested areas, early seral patches, natural openings, and open woodlands are important components of game species habitats.

Biodiversity and Species Richness

In the ecological literature, diversity refers to both the number of species present and their relative abundance. Thus, an area with many abundant species is more "diverse" than an area with an equal number of species, few of which are abundant and most of which are rare. Marcot

et al. (1997) examined centers of endemism (restricted to a small area) and high biodiversity within the Interior Columbia basin, much of which covers the state of Idaho. Two centers overlapped with Forest Service lands in Idaho—one located on the upper Panhandle, characterized by mixed conifer forests; and another located in the southwestern edge of the State along the Salmon River and Hell's Canyon.

Based on the predicted distributions for the 42 TES and/or MIS species, every roadless area in Idaho overlaps with at least 13 of the species (table 3-52). In general, the findings corroborated that reported by Marcot et al. (1997).

Table 3-52. The number of species' predicted distributions that overlap Idaho Roadless Areas[1]

Number of species	Number of Idaho Roadless Areas
13–17	24
18–22	37
23–25	49
26–28	112
29–32	51

[1] Does not include the two Candidate species, Southern Idaho ground squirrel or yellow-billed cuckoo, or mountain plover.

In general, high species richness was noted in roadless areas in the Idaho Panhandle and along the southwestern Idaho Forests (fig. 3-27 and table 3-53), a finding similar to that reported by Marcot et al. (1997). It should be noted that Idaho Roadless Areas also provide habitat to a host of other wildlife species not discussed in detail here (appendix M, table M-11), and thus the number of species depicted here is a subset of total wildlife richness within these roadless areas.

Table 3-53. Species richness in Idaho Roadless Areas by national forest[1]

National forest	Number of species				
	13–17	18–22	23–25	26–28	29–32
Boise	0	0	8	20	14
Caribou portion of Caribou-Targhee	11	23	0	0	0
Clearwater	0	1	10	5	0
Idaho Panhandle	0	1	5	27	14
Nez Perce	0	0	0	11	7
Payette	0	0	2	10	10
Salmon-Challis	4	5	15	33	1
Sawtooth	10	0	3	6	4
Targhee portion of Caribou-Targhee	0	8	7	1	0
Wallowa-Whitman	0	0	0	0	2

[1] Does not include the two Candidate species, Southern Idaho ground squirrel or yellow-billed cuckoo, or mountain plover.

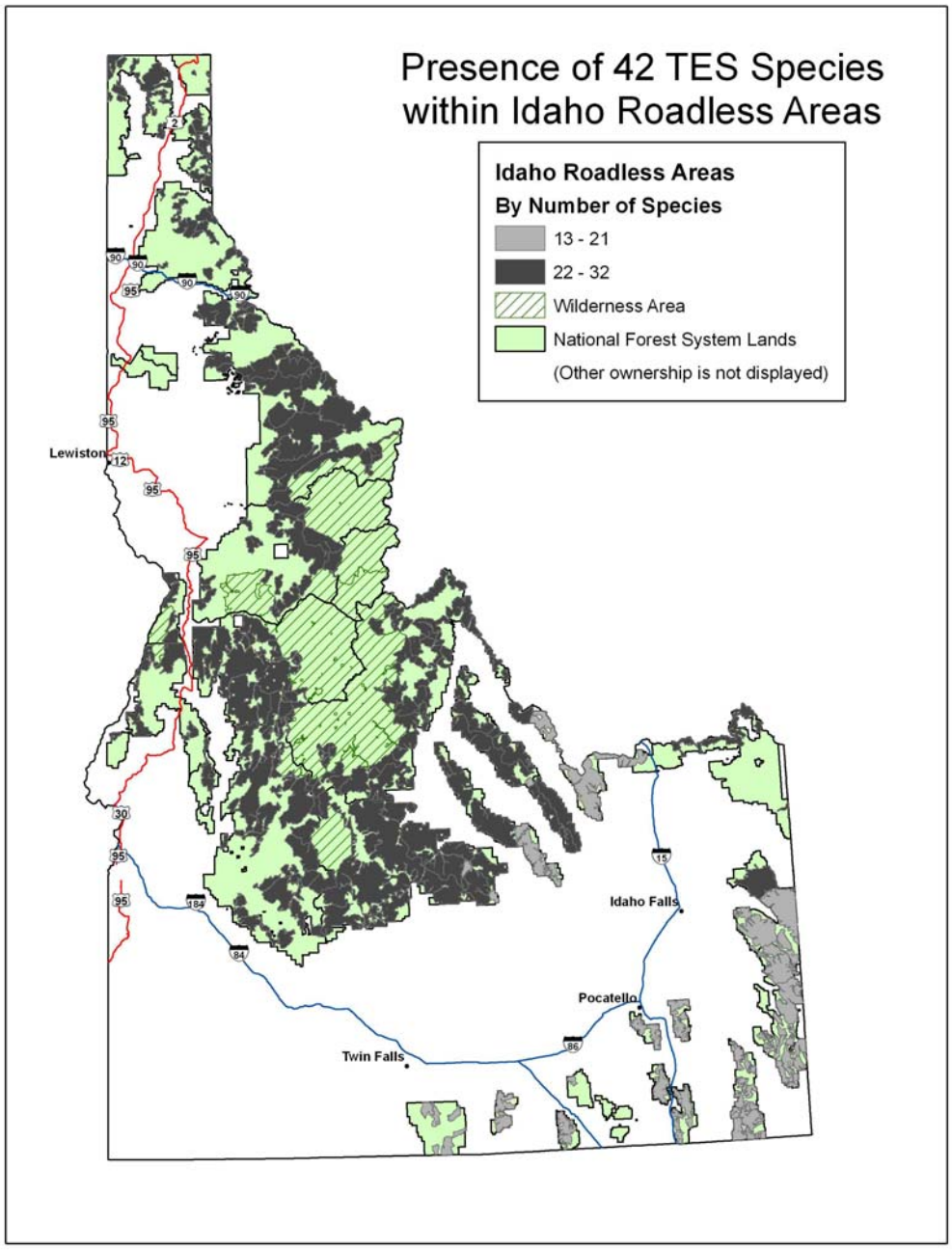

Figure 3-27. Terrestrial species richness in Idaho Roadless Areas.

ENVIRONMENTAL CONSEQUENCES

General Wildlife Responses

The following summarizes the general effects that road construction/reconstruction, timber cutting, sale, or removal, and discretionary mineral activities may have on terrestrial wildlife. The four alternatives evaluated represent different management strategies prescribing the conditions under which road construction/reconstruction, timber cutting, and discretionary mining could occur within Idaho Roadless Areas. All the alternatives may permit these activities within Idaho Roadless Areas, although they vary with respect to the circumstances, locations, and extent that these activities are permissible. To minimize the need to reiterate effects of these activities under all alternatives, a general discussion on the impacts of road construction/reconstruction, timber cutting, and discretionary mining on terrestrial wildlife species and their habitats in Idaho is provided, followed by a more specific evaluation of the implications of each alternative to these resources, including TES species, MIS, and Idaho terrestrial species of greatest conservation need. The Terrestrial and Aquatic Specialist Report (USDA Forest Service 2008e) provides additional detail.

Road Construction, Reconstruction, and Maintenance

The potential impacts of roads on terrestrial species and their habitats are well-documented in the scientific literature. Roads can affect habitat quality, availability, and effectiveness and can contribute directly or indirectly to mortality. Roads can create barriers to travel and dispersal. Almost all roads present some level of benefit and risk. These effects can vary greatly in degree (USDA Forest Service 2000r) and can shift over time. Some effects are immediately apparent but others may require external events, such as a large storm, to become visible. Still other effects may be subtle, such as increased susceptibility to invasion by nonnative species or pathogens noticed only when they become widespread in the landscape or with increased road use as recreation styles and motor vehicles change (USDA Forest Service 2000r). A road-related beneficial effect for one species, may, in fact, represent an adverse effect for another. For example, although forest edges, such as those created by road construction and timber cutting, may benefit some species, such as deer and bobwhite quail, they also provide roaded access to interior forest patches for opportunistic or predator species (Norse et al.1986).

Wildlife responses to habitat change and disturbance vary with species, individuals, activity, and context; nevertheless, road-related impacts have been documented in a number of taxonomic groups, including ungulates (Cole et al. 2004, Joly et al. 2006, Marshal et al. 2006, Preisler et al. 2006); carnivores (Fredrick 1991, Ream and Mattson 1982, Gaines et al. 2005, Waller and Servheen 2005); reptiles (Shine et al. 2004, Andrews and Gibbons 2005); amphibians (Marsh et al. 2005); and birds (Anthony and Isaacs 1989, Stolen 2003).

Timber cutting/Vegetation Management

Timber-cutting activities permitted in roadless areas under the four alternatives vary in degree from slashing in preparation for prescribed burns to commercial harvest that could remove large-diameter trees.

The effects of activities associated with timber cutting (such as tree felling, yarding, landings, site preparation by burning or scarification, fuels reduction, brush removal and whip felling, and forest regeneration) are often difficult to separate from the effects of roads and road construction. The road systems developed to cut/harvest timber are often a significant factor

affecting terrestrial habitats, as discussed above. Further, the nature of effects resulting from timber cutting (habitat loss, fragmentation, and human disturbance) is similar to those created by roads, albeit different with respect to scale, configuration, and total area directly affected.

Timber cutting can alter habitat availability, configuration, and effectiveness for terrestrial wildlife species. Timber cutting can fragment habitat by creating habitat edges that are not benign to many species (Noss and Cooperrider 1994). As with roads, fragmentation from timber harvest can create travel barriers to some species, which may make substantial amounts of suitable habitat inaccessible. These travel barriers can fragment and isolate populations into smaller subpopulations causing demography fluctuations, inbreeding, loss of genetic variability, and local population extinctions. Amphibian species, because of their temporally and spatially dynamic populations, may be especially prone to local extinction resulting from human-caused fragmentation (Gibbs 1998).

Beneficial effects on terrestrial species from timber cutting activities are often due to creating or maintaining some specific habitat condition. Timber cutting creates forest age-class diversity and mosaic habitats used by some species (Wisdom et al. 2000, USDA Forest Service 2000n, Southern Appalachian Man and the Biosphere 1996, USDA Forest Service 1995a, USDI Fish and Wildlife Service 1990, USDI Fish and Wildlife Service 1976). In fire-adapted ecosystems where fire suppression has altered composition and spatial distribution and configuration of openings, timber cutting can be a tool that can be used to improve the condition of these ecosystems.

Some species require early seral or open-forest habitats that can be created and maintained by properly planned, restorative timber cutting. Timber-cutting activities may also reduce the risk of uncharacteristic large, stand-replacing insect and disease outbreaks and severe wildland fires. These disturbance events can present both benefits and risks to some species (Wisdom et al. 2000), at least at a local level.

Mining

Roadless areas within Idaho contain saleable, leasable, and locatable mineral resources. Generally, many of the impacts discretionary mining could have on terrestrial wildlife species would result from the required infrastructure, primarily road construction and development. The impacts related to these activities include habitat loss, fragmentation, and human disturbance. Additional effects of selenium may occur where best management practices are not in place to minimize such effects.

Specific Effects of Management Activities on Terrestrial Wildlife Species in Idaho

In general, terrestrial species associated with open water systems, rocky cliffs, or mine shafts typically were categorized as a low risk for effect from selected management activities (table 3-54, appendix M, tables M-12, M-13, M-14). These included primarily birds—waterfowl, select raptors, and the black swift—and some bats. Species considered relatively ubiquitous and habitat generalists—such as the northern flicker, red squirrel, and white-tailed deer—were also considered at low risk relative to select management activities because individuals would be able to use alternate habitats unaffected by activities.

Species most likely to be vulnerable to activities were those associated with forested or grassland ecosystems where most roads, timber cutting, or discretionary mining could occur. Species such as the marten, fisher, goshawk, and great gray owl were considered at moderate risk because timber cutting activities can contribute to changes in forest structure. Cavity

nesters, such as several of the woodpecker species and the flammulated owl, ranked out as moderate risk because of the potential for timber cutting to remove or degrade important habitat components such as snags or small-diameter trees. Species sensitive to the effects of human disturbance or access or to loss of secure cover—such as the woodland caribou, elk, and greater sage grouse—also ranked out as moderate risk. The grizzly bear was the only species that ranked out as a high risk because of the severity of impact (increased direct mortality) and the likelihood of effects related to increased human-bear conflicts facilitated by roads.

For all species, including the grizzly bear, impacts resulting from select management activities would be subject to existing species-specific management direction in the form of standards, guidelines, and conservation measures intended to mitigate effects at the project level, and, in the case of federally listed species, contribute to recovery. Further, although the select management activities relevant to this proposal pose some level of risk to most species considered, vegetation treatments designed to improve and/or restore habitats could have beneficial effects on particular species (such as certain game species, northern Idaho ground squirrel, Canada lynx, and others).

Table 3-54: Estimate of the risk that roads, timber cutting, and discretionary mining could pose to threatened, endangered, Forest Sensitive, and Management Indicator species

Species	Low	Moderate	High
Federally Endangered, Threatened, and Candidate Species			
Canada lynx		X	
Grizzly bear			X
Northern Idaho ground squirrel	X		
Woodland caribou		Moderate-High	
Gray wolf	X		
Western yellow-billed cuckoo	X		
Southern Idaho ground squirrel	X		
Forest Service Sensitive Species			
American peregrine falcon	X		
Bald eagle	X		
Black swift	X		
Black-backed woodpecker		X	
Boreal Owl		X	
Columbian sharp-tailed grouse		X	
Common loon	X		
Fisher		X	
Flammulated owl		X	
Fringed myotis	X		
Great gray owl		X	
Greater sage grouse		X	
Grizzly bear			X
Harlequin duck	X		
Marten		X	
Mountain plover	X		
Mountain quail	X		
Northern bog lemming	X		
Northern goshawk		X	
Pygmy nuthatch		X	
Ring-necked snake	X		

Species	Low	Moderate	High
Pygmy rabbit	Low-moderate		
Spotted bat	X		
Three-toed woodpecker		X	
Townsend's big-eared bat	X		
Trumpeter swan	X		
White-headed woodpecker		X	
Wolverine		X	
Management Indicator Species not addressed above			
Belted kingfisher	X		
Downy woodpecker		X	
Elk		X	
Hairy woodpecker		X	
Moose		X	
Northern flicker	X		
Red squirrel	X		
Red-naped sapsucker		X	
White-tailed deer	Low-moderate		

All Alternatives

Land management activities in roadless areas often cost more to plan and implement than on other NFS lands (USDA Forest Service 2001). Typically these areas can be difficult to access or have not been the focus of past management and, therefore, have retained their roadless character. It is unlikely that Idaho Roadless Areas would be the primary focus of future land management activities that involve road construction, road reconstruction, or timber cutting because of these logistical constraints. The possible exceptions to this generalization are areas that have a high priority for fuels treatment, and areas with leasable mineral resources, such as phosphate and geothermal. Past and projected future land management activities in Idaho Roadless Areas have been and are expected to remain relatively low, which is reflected in the projected low amounts of permanent and temporary road construction and timber cutting for the alternatives.

Under all alternatives, existing species-specific management direction, best management practices, and legal requirements (for example, the ESA, Migratory Bird Treaty Act, National Forest Management Act, and others) remain applicable to all activities proposed in Idaho Roadless Areas. Therefore, management direction intended to minimize project effects to species—such as those outlined in the Northern Rockies Lynx Amendment (USDA Forest Service2007l), the Forest Plan Amendment for Grizzly Bear Habitat Conservation for the Greater Yellowstone Area National Forests (2006d), and individual Forest Plans—or Agency commitments to species conservation (that is, candidate conservation agreements) would be in place under all alternatives. Any projects anticipated to affect federally listed species or migratory birds would necessitate coordination and/or consultation with the FWS. All subsequent projects proposed in Idaho Roadless Areas would be subject to the requirements of NEPA, ESA, and NFMA.

None of the alternatives prohibit road construction or reconstruction associated with developing existing mineral leases on the Caribou-Targhee National Forest. About 7,230 acres of phosphate deposits can be found in seven roadless areas (Dry Ridge, Huckleberry Basin,

Meade Peak, Sage Creek, Schmid Peak, Stump Creek, and Mount Jefferson) and are under existing lease. About 30 acres have been mined to date. About 1,100 acres, associated with the Smoky Canyon mine expansion, are reasonably foreseeable to be developed within the next 15 years. The Smoky Canyon Mine expansion would affect the Sage Creek and Meade Peak Roadless Areas.

It is also reasonable to assume that the remaining phosphate deposits currently under lease, roughly 6,100 acres within the seven roadless areas, would likely be permitted and developed sometime in the extended future (50 or more years). Using the Smoky Canyon expansion as an example of the level of activity expected, an estimated 17 miles of haul road construction and other surface mining disturbance would ultimately take place within the seven roadless areas.

Any future phosphate development could affect terrestrial habitats in a number of ways: through physical removal of habitat and increased disturbance to adjacent habitat, increased potential for road-related mortality, and the potential to ingest forage contaminated with selenium. Any future development would undergo environmental analysis, and environmental mitigations would be required to lessen effects.

2001 Roadless Rule (No Action)

The 2001 Roadless Rule generally prohibits road construction/reconstruction. There are seven exceptions where this activity can occur. The 2001 Roadless Rule also generally prohibits timber cutting, except to restore threatened and endangered species habitat, or for other stewardship purposes. No road construction is permitted to support timber cutting activities.

Under the 2001 Roadless Rule, about 12 miles of permanent road construction and 3 miles of temporary roads are projected to occur over a 15-year period. Construction of 1 mile of road per year equates to a physical footprint approximately 0.5 acres in size or about 7.5 acres over 15 years. As discussed earlier, the indirect effects of roads extend beyond the road prism and have the potential to affect a much greater area. However, given the limited extent of road construction projected (15 miles over a 15-year period), the likelihood of negative impacts on any terrestrial wildlife species and their habitats resulting from road construction and reconstruction is exceptionally low.

Prohibitions on road construction/reconstruction in roadless areas would benefit most species, particularly species that have large home ranges, are sensitive to human disturbance, and/or experience increased mortality due to increased human access facilitated by roads. Although all species listed under ESA within Idaho stand to benefit from prohibitions on road construction, the grizzly bear and woodland caribou would likely benefit most because of reduced disturbance and wildlife-human interactions that are facilitated by roads.

Based on information provided by each national forest in 2000, the current need for road construction or reconstruction within roadless areas for recovery or protection of threatened, endangered, or sensitive species appears to be minimal. There is no reason to expect that this would change in the upcoming decades. It is unlikely that alternate means of access could not be found to accomplish recovery or conservation objectives, although costs may increase in some situations. Because all the prohibition alternatives provide an exception that an existing road may be realigned to prevent irreparable resource damage, adverse effects on TES and other species caused by existing roads may be mitigated.

Roads can facilitate treatments that are designed specifically to improve habitats for other terrestrial wildlife, particularly game species such as mule deer, elk, wild turkey, upland birds, and black bear. However such treatments in roadless areas, in the absence of revenues generated from associated timber harvest, are difficult to implement financially and thus infrequently proposed. Prohibitions on road construction/reconstruction in roadless areas would benefit big game species because areas without roads provide secure habitat for big game animals.

The 2001 Roadless Rule prohibits timber cutting, sale, or removal except as provided in four exceptions. A very low amount of timber cutting in Idaho Roadless Areas, about 9,000 acres over 15 years, is projected under the 2001 Roadless Rule. Because of the exceptions and the intent to maintain roadless characteristics, the type of timber cutting in Idaho Roadless Areas would be restricted to removal of small-diameter materials and to cutting that maintains some structure and canopy. Such treatments, compared to even-aged management regimes, are less likely to fragment habitats.

With the added prohibition against non-stewardship timber cutting and the limitations on the type and extent of change to existing vegetation, the 2001 Roadless Rule presents a very low risk to terrestrial wildlife resources from habitat loss and fragmentation resulting from timber cutting. Further, other impacts on wildlife species from timber cutting activities, such as disturbance, would be minimal.

The 2001 Roadless Rule also prohibits road construction and reconstruction associated with new leases. About 14,460 known phosphate deposits are currently not leased and would not be developed, and road access would not be provided for geothermal development. These areas would retain their roadless characteristics and continue to provide undisturbed terrestrial species habitat.

Summary of Effects. No adverse environmental effects on TES, MIS, migratory birds, Idaho species of concern, or big game terrestrial species, or their habitats would be expected from the 2001 Roadless Rule, because it does not directly authorize any ground-disturbing activities. Ground-disturbing activities permitted under this alternative include limited road construction/ reconstruction and limited timber cutting across the entire 9.3 million acres of Idaho Roadless Areas. Overall, the effects on biodiversity would be beneficial.

Generally, most terrestrial wildlife species would benefit from prohibitions on road construction/reconstruction, and timber cutting in Idaho Roadless Areas because the adverse effects of these activities would be reduced. Limiting the ability to harvest timber for stewardship purposes except when needed for protection or recovery of TES species or to restore/maintain ecosystem characteristics, may reduce the capability to enhance habitat directly and indirectly at the stand level, but it is unlikely to have much impact at larger scales. The ability to use timber harvest to manage for early successional or other structural stages in some areas would be limited; however, where such a need is identified, prescribed fire can be an effective tool under certain conditions.

Existing Plans

Under this alternative, approximately 35 percent (3.22 million acres) of the 9.3 million acres of Idaho Roadless Areas are included in forest plan prescriptions similar to Wild Land Recreation and Primitive themes under which road construction/reconstruction, timber cutting, and discretionary minerals activities are generally prohibited. Timber cutting may be done on a very

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limited basis under the Primitive theme, and in response to a threat (such as insects and disease, windstorms, salvage). In general, the limitations on road construction and reconstruction, timber cutting and harvest, and discretionary mining under these management prescriptions would benefit most terrestrial wildlife species. Consequently, these areas would continue to provide excellent habitat for terrestrial species because of the limited amount of human-induced disturbance.

Under Existing Plans, approximately 4.48 million acres are in prescriptions similar to the Backcountry theme; generally some level of road construction/reconstruction and timber cutting would be permitted. Discretionary mineral activities may or may not be permitted depending on the forest plan. Thus there is the potential for terrestrial wildlife species to be affected, particularly in forested habitats. Removal of diseased, dead, and down materials could have negative impacts on primary cavity nesters, although existing snag retention requirements already included in most forest plans would assist in mitigating some of these effects.

About 1.26 million acres are in prescriptions similar to GFRG. Most road construction/ reconstruction and timber cutting are anticipated to take place in areas managed as GFRG. All forests except the Challis National Forest and the Wallowa-Whitman National Forest have roadless areas with prescriptions similar to this theme. However, most acres categorized as GFRG fall on the Caribou-Targhee, Idaho-Panhandle, Nez Perce, and Salmon National Forests. The terrestrial wildlife species found on these forests that are vulnerable to effects of roads, timber cutting, and discretionary mining, as discussed in the General Effects section above, could be differentially impacted under this theme.

Projected road construction and reconstruction under Existing Plans is 180 miles over 15 years, equivalent to about 90 acres, about half of which would likely be in the form of temporary roads or reconstruction. This estimate includes both permanent and temporary roads for timber cutting and non-timber related activities. The projected timber harvest is estimated to occur on 40,500 acres over 15 years, which could include both uneven-aged and even-aged management regimes.

Management of leasable mineral resources in prescriptions similar to GFRG would be guided by each forest's land and resource management plan. The existing Caribou forest plan permits leasing of the estimated 6,750 acres of unleased known phosphate lease areas (KPLA) and/or other possible roadless areas that contain undiscovered phosphate resources. These known unleased phosphate deposits occur in six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek) and would likely to be developed over an extended period of time (50 or more years). In addition, there are 6,870 acres of unleased phosphate deposits on the Targhee portion of the Caribou-Targhee National Forest within the bald Mountain, Bear Creek, and Poker Creek Roadless Areas. If these areas were to be leased at some time in the future, roads, pits, and other surface mining facilities would be expected to be constructed. An environmental analysis would have to be completed prior to exploration and development of these phosphate reserves.

Federally listed species

In general, road construction/reconstruction, timber cutting, and discretionary mining activities pose a moderate to high risk to woodland caribou and grizzly bear (see appendix M, table M-12). Under Existing Plans, both species overlap prescriptions similar to GFRG (500 acres of the South Selkirk Caribou Recovery Area, and 5,900 acres of total grizzly bear core habitat) and

Backcountry theme (51,600 acres of the South Selkirk Recovery Area of 101,000 acres of grizzly bear core habitat) (appendix M, table M-15a) where select management activities are permitted in varying degrees. Although the overlap of habitats and these themes is relatively low for both species (less than 10 percent), there is the possibility that individual caribou and grizzly bears could be affected, adversely or beneficially, by activities permitted under these prescriptions. Management direction outlined in the Idaho Panhandle National Forests and Kootenai forest plans and the use of best science would help minimize or avoid adverse effects to grizzly bears and caribou resulting from most management activities.

Timber cutting activities pose a moderate risk to Canada lynx due to potential effects on snowshoe hares, a primary prey species. Under Existing Plans, 496,700 acres (7 percent) and 1.7 million acres (23 percent) of mapped lynx habitat in Idaho overlaps prescriptions similar to GFRG and Backcountry, respectively (appendix M, table M-15a). Consequently, there is the potential for individuals to encounter and/or be affected by select management activities in 30 percent of mapped lynx habitat. Existing management direction for lynx provided in the Northern Rockies Lynx Amendment (USDA Forest Service 2007l), the Southwest Idaho Ecogroup forest plan, and the Lynx Conservation Assessment and Strategy would minimize adverse effects on lynx, particularly from timber harvest activities.

Estimated risk to northern Idaho ground squirrels (NIDGS) from road construction and reconstruction, timber cutting, and discretionary mining activities in Idaho Roadless Areas is low (appendix M, table M-12) based on the following: (a) 94 percent of the probable historic distribution falls outside Idaho Roadless Areas, (b) there is only one known colony in an Idaho Roadless Area and; (c) northern Idaho ground squirrel habitat is unlikely to coincide with areas where select management activities would occur unless they are specifically intended to address management of the northern Idaho ground squirrel. Less than 1 percent of the probable historic distribution overlaps prescriptions similar to GFRG; the remaining 5 percent of the probable historic distribution in is associated with relatively restrictive prescriptions (for example, Primitive, and forest plan special areas) (appendix M, table M-15a). Timber-cutting activities designed to improve habitat conditions for the northern Idaho ground squirrel could occur in prescriptions managed as Primitive. In such cases, there is the potential for short-term impacts on individuals in order to benefit the species in the long-term. Such short-term adverse effects on northern Idaho ground squirrels are unlikely but cannot be ruled out under Existing Plans.

A total of 615,280 acres of the predicted distribution for the gray wolf (9,540 acres north of I-90 and about 605,740 acres south of I-90) overlap prescriptions similar to GFRG, which is only 3.7 percent of its distribution statewide (appendix M, table M-15a). The home ranges for 54 packs overlap to some degree with GFRG: one pack north of I-90 and 53 packs south of I-90. Consequently, there is some potential for individual gray wolves, particularly south of I-90, to encounter activities. However, road construction/reconstruction, timber cutting, and discretionary mining pose a low risk to gray wolves because the likelihood that these activities might disturb or result in mortality of individual wolves is very low, even in these areas of overlap.

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Select management activities in Idaho Roadless Areas pose a low risk to both candidate species: the southern Idaho ground squirrel and the western yellow-billed cuckoo. Activities undertaken pursuant to the Existing Plans is expected to have no effect on southern Idaho ground squirrels as they are not currently found on NFS lands. Under Existing Plans, the predicted distribution

Deleted: unlikely to adversely affect the southern Idaho ground squirrel (see discussion of northern Idaho ground squirrel, above)

for the western yellow-billed cuckoo overlaps GFRG by 7 percent (appendix M, table M-15a). Consequently, although the risk to the species is low, potential for individuals to be affected cannot be discounted, particularly from timber cutting and discretionary mining on the Caribou-Targhee, where the species is known to occur. Forest-wide standards and guidelines, particularly those designed to protect riparian corridors, would help minimize impacts on the western yellow-billed cuckoo and other riparian obligates.

Forest Sensitive Species

Of the sensitive species at moderate to high risk of impact from select management activities—black-backed woodpecker, boreal owl, sharp-tailed grouse, fisher, flammulated owl, great gray owl, marten, northern bog lemming, northern goshawk, pygmy nuthatch, three-toed woodpecker, Townsend's big-eared bat, white-headed woodpecker, and wolverine—few have predicted distributions that overlap prescriptions similar to GFRG by more than 5 percent (see appendix M, table M-15b). Therefore, although some individuals could encounter activities and their impacts, the likelihood is relatively low.

The Yellowstone population of grizzly bear is relatively sensitive to the effects of roads. However, only 10 percent of its predicted distribution in Idaho overlaps Idaho Roadless Areas, all on the Caribou-Targhee National Forest (appendix M, table M-15b). Furthermore, there is no overlap with prescriptions similar to GFRG and only 2 percent overlaps prescriptions similar to Backcountry, where limited activities could occur. Consequently, the likelihood that grizzly bears would encounter such activities in a roadless area is low. The Forest Plan Amendment for Grizzly Bear Conservation for the Greater Yellowstone Area National Forests outlines specific management direction for grizzly bear habitat on the Caribou-Targhee to minimize or avoid adverse effects on the species and to maintain a recovered population. Based on limited overlap with Idaho Roadless Areas and application of existing management direction, this alternative is not likely to result in significant negative impacts on the Yellowstone population of grizzly bear.

Greater sage-grouse are at moderate risk of impact because of their habitat associations and sensitivity to human disturbance. Although only 6 percent of the predicted distribution for greater sage-grouse falls in Idaho Roadless Areas (appendix M, table M-15b), 22 of 29 known leks occur in roadless areas that contain prescriptions similar to GFRG, mostly on the Sawtooth, Caribou, and Targhee National Forests. Consequently, there is the potential that individuals could be exposed to and potentially affected by road construction/reconstruction, timber cutting, and discretionary mining permitted in these areas. Management direction outlined in relevant forest plans should minimize impacts to ensure subsequent projects proposed do not result in a trend towards listing.

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Management Indicator Species[8]

Of MIS that could be at moderate to high risk of impact—downy woodpecker, elk, hairy woodpecker, and moose—none have predicted distributions that overlap the GFRG theme by more than 5 percent (appendix M, table M-15b) and thus opportunities for impact are limited.

[8] Only addresses MIS not discussed in previous sections.

Other Terrestrial Wildlife Species and Biodiversity

Migratory birds as a group include an extremely diverse array of avian taxa. Those species at low risk of effects from select management activities (such as waterfowl, shore-birds, cliff dwellers, etc.) are unlikely be affected by this alternative. Migratory birds associated with forested or grassland ecosystems have a greater potential for overlap with management activities, and thus could be affected, particularly on the 1.26 million acres of roadless areas in prescriptions similar to GFRG. Fourteen of 17 roadless areas containing breeding bird survey routes include some lands to be managed as GFRG. Most migratory birds afford protection from 'take' under the Migratory Bird Treaty Act (MBTA). Consequently, any activities proposed in roadless areas would need to address the legal obligation mandated by the MBTA.

Some terrestrial game species, such as elk, deer, and turkeys, could benefit from certain types of timber cutting where habitats are improved or restored. However, in general, management activities in 1.26 million acres in prescriptions similar to GFRG have a greater potential to negatively affect most game species because roads and timber cutting have the potential to increase human access and reduce security cover. Discretionary mining can result in complete loss of habitat where permitted. Under Existing Plans, 1.2 million acres and 697,400 acres of the predicted distribution for elk and white-tailed deer, respectively, and another 105,400 acres of mule deer winter habitat, fall in prescriptions similar to GFRG, where there is the potential for habitat loss, or increased human disturbance due to select management activities.

Because Idaho Roadless Areas on the Idaho Panhandle National Forests overlap a large number of species distributions, management activities that could take place in areas managed as GFRG have the potential to affect more species, and thus an area of high species richness, than on other forests. The Salmon-Challis and the Caribou-Targhee National Forests contain the most roadless area acreage under prescriptions similar to GFRG—about 405,300 acres and 398,900 acres, respectively. Thirty-four of 58 roadless areas on the Salmon-Challis overlap the predicted distributions for a relatively large number of federally listed and forest sensitive species. Consequently, activities in these roadless areas have the potential to alter species richness in these areas, particularly where species present are at a moderate to high risk from such activities. In general, roadless areas on the Caribou-Targhee ranked lower in species richness (for TES species), than other forests; thus, designation of GFRG and the consequent potential for impacts on large numbers of TES species is lower in these areas.

Table 3-55 shows the Idaho Roadless Areas with the most TES terrestrial wildlife species and the amount of acres by themes. About 764,700 acres in roadless areas overlap with areas the most TES species. About 50 percent of these roadless areas are in equivalent themes that pose little risk to terrestrial species. About 3 percent are in GFRG, and 47 percent in prescription equivalent to Backcountry.

Table 3-55. Existing Plans, acres by equivalent theme for Idaho Roadless Areas with the most threatened, endangered, and sensitive (TES) terrestrial wildlife species

Forest	Roadless area	Wild Land Recreation	Primitive	Backcountry	GFRG	FPSA
Idaho Panhandle	Salmo-Priest	13,500	0	800	0	5,700
Idaho Panhandle	Blacktail Mountain #122	0	0	1,300	2,900	800
Idaho Panhandle	Selkirk	25,400	30,100	36,400	0	6,100
Idaho Panhandle	Upper Priest	0	0	4,500	2,000	6,200
Nez Perce	Mallard	0	0	12,700	6,900	0
Payette	French Creek	0	12,000	76,000	100	700
Payette	Hells Canyon/7 Devils Scenic	0	29,200	0	0	500
Payette	Needles	90,200	7,100	31,500	0	2,500
Payette- Nez Perce	Rapid River	0 0	6,000 14,000	45,700 2,400	0 300	6,000 4,300
Salmon	West Big Hole	0	26,000	43,900	11,600	2,900
Sawtooth	Hanson Lakes	15,000	2,500	13,800	0	8,600
Targhee*	Mt. Jefferson	0	41,000	13,200	0	6,800
Targhee*	Garns Mountain	0	0	90,600	0	5,000
Total		144,100	167,900	372,800	23,800	56,100

** Targhee portion of the Caribou-Targhee National Forest. GFRG-general forest, rangeland and grassland. FPSA =forest plan special area*

Summary of Effects

Existing Plans would not directly result in adverse environmental effects on terrestrial species or their habitats because no ground-disturbing activities are directly authorized. However, the projected trend for road construction/reconstruction, timber cutting, and discretionary mineral activities would be highest under this alternative. Given the numerous negative direct and indirect effects on terrestrial wildlife species and their habitats identified in the literature associated with these activities, the Existing Plans alternative has the greatest potential for adverse effects on terrestrial wildlife species and their habitats.

Proposed Idaho Roadless Rule (Proposed Action)

Under the Proposed Idaho Roadless Rule, road construction/reconstruction, and discretionary mineral activities would be prohibited in the Wild Land Recreation, Primitive and SAHTS themes (3.1 million acres). Timber cutting, sale, or removal would be prohibited with exceptions in the Primitive and SAHTS themes. Because of the prohibitions on ground-disturbing activities within Wild Land Recreation, Primitive, and SAHTS themes, these themes should provide for good conditions for terrestrial wildlife species and their habitats.

About 5.25 million acres are in the Backcountry theme. Road construction/reconstruction would be permissible under the same exceptions as the 2001 Roadless Rule and to facilitate timber cutting for stewardship and fuel reduction purposes. Most new roads would be temporary, unless the responsible official determines that a permanent road meets the road

exceptions and it would not substantially alter any of the roadless characteristics. About 38 miles of road are projected to be constructed and 23 miles reconstructed over a 15-year period.

Timber cutting would be permitted for forest health, threatened and endangered species habitat improvement, and fuel-reduction purposes. Removal of diseased, dead, and down materials could have negative impacts on primary cavity nesters, although existing snag retention requirements already included in most forest plans would help mitigate some of these effects. About 18,000 acres of timber cutting are projected to occur over 15 years.

About 609,600 acres are in the GFRG theme. Road construction/ reconstruction, timber cutting, and discretionary mineral activities are permitted in these areas. All the national forests—except for the Challis, Clearwater, Nez Perce, and Wallowa-Whitman—have acres under the GFRG theme. The Caribou portion of the Caribou-Targhee National Forest (251,800), the Targhee portion of the Caribou-Targhee National Forest (147,000), and the Sawtooth National Forest (107,200) have the most acres of any of the forests in the GFRG theme. Many of the lands in the GFRG theme are managed as rangelands.

The Proposed Idaho Roadless Rule permits road construction/reconstruction for geothermal development in the GFRG theme. About 7 percent of Idaho Roadless Areas are in this theme, but only about 4 percent could be developed based on slope restrictions on the other 3 percent (see section 3.5, Minerals and Energy, table 3-24). It is likely some of these areas would be developed over time; however, except for two pending lease applications there is no information about where or when the activity would occur. If fully developed, roads, transmission lines, and other facilities would likely be constructed (see appendix I for a description of general development of geothermal resources). Site-specific analysis would occur prior to exploration or development of geothermal energy resources and would include consideration of terrestrial resources.

Currently, lease applications have been submitted for geothermal exploration within 7,000 acres of the Peace Rock Roadless Area on the Boise National Forest and 33 acres of the West Panther Roadless Area on the Salmon National Forest. Both these areas are in either the Primitive or Backcountry theme; therefore, they would not be developed because of the inability to construct roads to access the area (see section 3.5, Minerals and Energy). No terrestrial resources would be affected by geothermal development in these areas.

The Proposed Idaho Roadless Rule would allow road construction/reconstruction and surface occupancy for phosphate exploration and development within the Backcountry and GFRG themes. There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. About 13,190 acres[9] (91 percent) are located within the Backcountry and GFRG themes, where road construction or reconstruction would be permissible to develop these phosphate deposits. The deposits are located within nine roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the Caribou-Targhee National Forest; and Bald Mountain, Bear Creek, and Poker Creek on the Targhee portion of the forest) and could eventually be mined over an extended period of time (50 or more years). There is a potential risk to terrestrial species habitat on these 13,190 acres when and if this development should occur. Site-specific analysis would occur prior to any future leasing, and mitigations would be applied.

[9] Based on past history, phosphate mining could occur on an additional 1,850 acres around unleased KPLAs on the Caribou-Targhee National Forest (see section 3.5, Minerals and Energy).

Federally listed species

Changes in road densities pose a high risk to grizzly bears. Under the Proposed Idaho Roadless Rule, core habitat for grizzly bears overlaps GFRG—8,000 acres in the Selkirk ecosystem and 2,400 acres in the Cabinet-Yaak ecosystem. This overlap represents 2 percent and less than 1 percent of total core habitat in these recovery ecosystems, respectively. An additional 92,300 acres (10 percent) and 60,400 acres (18.5 percent) of grizzly bear core habitat fall in the Backcountry theme in the Cabinet-Yaak and Selkirk ecosystems, respectively (appendix M, table M-15a). Management direction outlined in the Idaho Panhandle and Kootenai forest plans would help minimize adverse effects on grizzly bears resulting from most management activities. Grizzly bears should benefit in the 18 percent of core habitat that falls in Wild Land Recreation and Primitive themes, where prohibitions on road construction/reconstruction and timber cutting should maintain areas free from human access and disturbance. However, because of the overlap of grizzly bear core habitat and management themes where select management activities are permitted, there is potential for individual grizzly bears to encounter and be adversely affected by activities permitted under these themes.

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Approximately 4,700 acres of the South Selkirk Caribou Recovery Area (about 1 percent) falls in GFRG, where there are few restrictions on road construction/reconstruction, timber cutting, and discretionary mining. An additional 58,400 acres overlaps the Backcountry theme (6 percent), where such activities could occur under limited circumstances (appendix M, table M-15a). Management direction outlined in the Idaho Panhandle forest plan would help minimize adverse effects on caribou resulting from most management activities. Woodland caribou should benefit across the 6 percent of the South Selkirk Caribou Recovery Area that falls in Wild Land Recreation and Primitive themes, where prohibitions on road construction/reconstruction and timber cutting should maintain areas free from human access and disturbance. However, given the overlap with themes permitted such activities, there is potential that individual caribou may encounter and be adversely affected by activities that could occur under these themes.

Timber cutting activities pose a moderate risk to Canada lynx because of potential effects on snowshoe hares, a primary prey species. Under the Proposed Idaho Roadless Rule, 125,900 acres (2 percent) and 2.1 million acres (29 percent) of mapped lynx habitat in Idaho overlaps the GFRG and Backcountry themes, respectively (appendix M, table M-15a). Consequently, there is the potential for individuals to encounter and/or be affected by management activities in 31 percent of mapped lynx habitat on national forests in Idaho. Existing management direction for lynx provided in the Northern Rockies Lynx Amendment (USDA Forest Service 2007l), the Southwest Idaho Ecogroup forest plan, and the Lynx Conservation Assessment and Strategy should minimize adverse effects on lynx, particularly from timber harvest activities.

Estimated risk to northern Idaho ground squirrels from road construction and reconstruction, timber cutting, and discretionary mining activities in roadless areas is low (see appendix M, table M-12. Approximately 2,700 acres of the probable historic distribution (less than 1 percent) overlaps GFRG, and 1.5 acres overlaps Backcountry (appendix M, table M-15a). The remaining 5.1 percent of the probable historic distribution (42,800 acres) is in the Primitive theme, a relatively restrictive prescription. Timber-cutting activities designed to improve habitat conditions for the northern Idaho ground squirrel could occur in Primitive, but existing roads must be used. Timber cutting intended to improve northern Idaho ground squirrel habitat, such as removal of encroaching conifers from montane meadow ecosystems, could have short-term

impacts on individuals. Such short-term adverse effects on northern Idaho ground squirrels are unlikely but cannot be ruled out under the Proposed Idaho Roadless Rule. Species-specific management direction outlined in the Southwest Idaho Ecogroup forest plans would minimize adverse effects on the species.

A total of 87,700 acres of the predicted distribution for the gray wolf, all south of I-90, overlaps the GFRG theme, which is less than 1 percent of its distribution statewide (appendix M, table M-15a). The home ranges for 18 packs, all but one south of I-90[10], overlap GFRG to some degree. Consequently, there is some potential for individual gray wolves, particularly south of I-90, to encounter activities. However, road construction/reconstruction, timber cutting, and discretionary mining pose a low risk to gray wolves because the likelihood that these activities might disturb or result in mortality of individual wolves is very low, even in these areas of overlap.

Permissible management activities in Idaho Roadless Areas pose a low risk to both candidate species: the southern Idaho ground squirrel and the western yellow-billed cuckoo. Under the Proposed Rule, the predicted distribution for the western yellow-billed cuckoo overlaps GFRG by 7 percent (appendix M, table M-15a). Consequently, although the risk to the species is low, there is a potential for individuals to be affected by management activities, particularly timber cutting and discretionary mining on the Caribou-Targhee, where the species is known to occur. Forest-wide management direction, particularly those designed to protect riparian corridors, would help minimize impacts to the western yellow-billed cuckoo and other riparian obligates. Activities undertaken pursuant to the Proposed Rule is expected to have no effect on southern Idaho ground squirrels as they are not currently found on NFS lands.

Sensitive Species

The black-backed woodpecker, boreal owl, sharp-tailed grouse, fisher, flammulated owl, great gray owl, northern bog lemming, northern goshawk, pygmy nuthatch, three-toed woodpecker, Townsend's big-eared bat, white-headed woodpecker, and wolverine do not have predicted distributions that overlap the GFRG theme by more than 3 percent (see appendix M, table M-15b). Although some individuals could encounter activities and their impacts, the likelihood is relatively low.

Under the Proposed Idaho Roadless Rule, the predicted distribution of the Yellowstone population of the grizzly bear does not overlap with the GFRG theme; about 1.72 percent overlaps with the Backcountry theme, where limited activities could occur. Consequently, the likelihood that grizzly bears would encounter activities is low (appendix M, table M-15b). The Forest Plan Amendment for Grizzly Bear Conservation for the Greater Yellowstone Area National Forests outlines specific management direction for grizzly bear habitat on the Caribou-Targhee to minimize or avoid adverse effects on the species and to maintain a recovered population. Based on limited overlap and application of existing management direction, the Proposed Idaho Roadless Rule is not likely to result in significant negative impacts on the Yellowstone population of grizzly bear.

Twenty-two of 29 known greater sage-grouse leks occur in roadless areas that contain GFRG on the Sawtooth, Caribou, and Targhee National Forests. Consequently, there is the potential that

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[10] Although none of the predicted distribution for the wolf above I-90 overlaps GFRG, the home range of one wolf pack located mostly north of I-90 overlaps areas south of I-90.

individuals could be exposed to and potentially affected by road construction/reconstruction, timber cutting, and discretionary mining permitted in these areas. Management direction outlined in forest plans should minimize impacts to ensure subsequent projects do not result in a trend toward listing.

Management Indicator Species[11]

Of MIS that could be at moderate to high risk of impact—downy woodpecker, elk, hairy woodpecker, and moose—none have predicted distributions that overlap the GFRG theme by more than 1.6 percent (see appendix M, table M-15b); thus opportunities for impacts are limited.

Other Terrestrial Wildlife Species and Biodiversity

With regard to migratory birds, only five of 17 roadless area containing breeding bird survey routes include some lands to be managed as GFRG under the Proposed Idaho Roadless Rule. Most migratory birds afford protection from 'take' under the Migratory Bird Treaty Act (MBTA). Consequently, any activities proposed in roadless areas pursuant to this alternative would need to address the legal obligation mandated by the MBTA.

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Some terrestrial game species, such as elk, deer, and turkeys, could benefit from certain types of timber cutting allowed in GFRG and Backcountry themes. However, in general, management activities in 609,600 acres in the GFRG theme have a greater potential to negatively affect most game species because roads and timber cutting have the potential to increase human access and reduce security cover, and discretionary mining can result in complete loss of habitat where permitted. Under the Proposed Idaho Roadless Rule, 549,500 acres and 157,700 acres of the predicted distribution for elk and white-tailed deer, respectively, and another 74,040 acres of mule deer winter habitat, fall in GFRG, where there is the potential for habitat loss, or increased human disturbance due to select management activities.

Table 3-56 shows the Idaho Roadless Areas with the most threatened, endangered, and sensitive (TES) terrestrial wildlife species and the amount of acres by themes. About 764,700 acres in roadless areas overlap with areas the most TES species. About 50 percent of these roadless areas are in equivalent themes that pose little risk to terrestrial species. About 1 percent are in GFRG, and 47 percent in prescriptions equivalent to Backcountry.

Summary

The Wild Land Recreation, Primitive, and SAHTS themes provide for natural processes, habitat integrity, and species diversity. Areas in the Backcountry theme have a higher risk of ground-disturbing activities (including road construction/reconstruction, timber cutting, and discretionary minerals activities) occurring, depending on future land uses and the risk of wildland fire. Areas in the GFRG theme have the greatest potential for increased risk of adverse effects on terrestrial animal species and habitat, although most species have less than 3 percent of their predicted distributions that overlap with this theme.

[11] Addresses only those MIS not discussed in previous sections.

Table 3-56. Proposed Idaho Roadless Rule acreage, by theme, for Idaho Roadless Areas with the most threatened, endangered, and sensitive (TES) terrestrial wildlife species

Forest	Roadless area	Wild Land Recreation	Primitive	Backcountry	GFRG	FPSA
Idaho Panhandle	Salmo-Priest	14,300	0	0	0	5,700
Idaho Panhandle	Blacktail Mountain #122	0	0	4,200	0	800
Idaho Panhandle	Selkirk	31,300	10,700	41,300	8,600	6,100
Idaho Panhandle	Upper Priest	0	0	6,300	200	6,200
Nez Perce	Mallard	0	0	19,600	0	0
Payette	French Creek	0	12,000	76,000	100	700
Payette	Hells Canyon/7 Devils Scenic	0	29,200	0	0	500
Payette	Needles	90,200	7,100	31,500	0	2,500
Payette- Nez Perce	Rapid River	0	51,700 16,700	0	0	6,000 4,300
Salmon	West Big Hole	0	20,500	61,000	0	2,900
Sawtooth	Hanson Lakes	15,100	2,500	13,700	0	8,600
Targhee*	Mt. Jefferson	0	41,000	13,200	0	6,800
Targhee*	Garns Mountain	0	0	90,800	0	4,800
Total		150,900	191,400	357,600	8,900	55,900

** Targhee portion of the Caribou-Targhee National Forest. GFRG=general forest, rangeland, and grassland. FPSA =forest plan special area*

Modified Idaho Roadless rule (Preferred Alternative)

Under the Modified Idaho Roadless Rule, road construction/reconstruction and discretionary mineral activities would be prohibited in Wild Land Recreation, Primitive, and SAHTS themes (about 3.25 million acres), and timber cutting would be prohibited with limited exceptions in the Primitive and SAHTS themes; therefore, there would be very little effect on terrestrial wildlife resources including TES and MIS species. These areas would continue to provide secure habitat.

About 5.31 million acres are in Backcountry theme. Temporary road construction would be permitted within the Backcountry theme community protection zone (CPZ) to facilitate hazardous fuel reduction projects. About 442,000 acres are within the CPZ. Outside the CPZ temporary roads could be constructed to reduce the significant risk of wildland fire effects on at-risk communities or municipal water supply systems, if it is the only feasible way to accomplish objectives. The roads would be designed to minimize effects to resources, could only be used for the specified purpose and would be decommissioned after use. In most cases, the 4.87 million outside the CPZ would be managed the same as the 2001 Roadless Rule. In the Backcountry theme, timber cutting would be permitted for TES habitat improvement, to restore ecosystem composition and structure, or for fuel-reduction purposes.

About 405,900 acres are in the GFRG theme. Road construction/ reconstruction and timber cutting are permitted in these areas. All the national forests—except for the Challis, Clearwater, Kootenai, Nez Perce, and the Wallowa-Whitman—have acreage under the GFRG theme. The Caribou portion of the Caribou-Targhee National Forest (167,400 acres) and the Salmon National Forest (101,400 acres) have the highest acreage of any of the forests in the GFRG

theme. Many of the lands in the GFRG theme on the Caribou portion of the Caribou-Targhee National Forest are managed as rangelands. Most of the lands in the GFRG theme on the Salmon National Forest are roaded[12].

About 33 miles of road are projected to be constructed and 17 miles reconstructed over a 15-year period. About 15,000 acres of timber cutting are projected to occur over 15 years for stewardship and fuel-reduction purposes. These activities would primarily occur in the GFRG theme and within the CPZ in the Backcountry theme.

There are 14,460 acres of known unleased phosphate deposits on the Caribou-Targhee National Forest. Under the Modified Rule, road construction/reconstruction to access unleased phosphate deposits is prohibited in all themes except GFRG. There are about 5,770 acres[13] of unleased phosphate deposits in the GFRG theme. These deposits are located within six roadless areas (Dry Ridge, Huckleberry Basin, Meade Peak, Sage Creek, Schmid Peak, and Stump Creek on the Caribou portion of the forest and could eventually be mined over an extended period of time (50 or more years).

Similar to the 2001 Roadless Rule, the Modified Rule prohibits road construction/reconstruction for new mineral leases, other than phosphate in all themes. In addition, the Modified Rule prohibits surface use and occupancy of new mineral leases in the Wild Land Recreation, Primitive, and SAHTS themes. Surface use and occupancy would be permitted in the Backcountry and GFRG themes if allowed in the forest plans. It is unlikely new mineral development would occur in any of the themes without road access; therefore, there would be no effect on terrestrial species or their habitat from these actions.

Federally listed species

Changes in road densities pose a high risk to grizzly bears. Under the Modified Idaho Roadless Rule, 8,000 acres in the Selkirk Ecosystem and 1,000 acres in the Cabinet-Yaak Ecosystem overlap core habitat for grizzly bears in the GFRG theme (appendix M, table M-15a). This overlap represents 2 percent and less than 1 percent of total core habitat in these recovery ecosystems, respectively. An additional 500 acres (less than 1 percent) and 11,700 acres (1 percent) of grizzly bear core habitat overlap the Backcountry CPZ in the Selkirk Ecosystems and Cabinet-Yaak, respectively (appendix M, table M-15a). Management direction outlined in the Idaho Panhandle and Kootenai forest plans, and the use of best science at the project level, would help minimize or avoid adverse effects on grizzly bears resulting from most management activities. Grizzly bears should benefit in the 16.5 percent of total core habitat across both the Cabinet Yaak and Selkirk Ecosystems that falls in Wild Land Recreation and Backcountry themes, where prohibitions on road construction/reconstruction and timber cutting should maintain areas free from human access and disturbance. However, because of the overlap of grizzly bear core habitat and management themes where select management activities are permitted, there is a potential for individual grizzly bears to encounter and be adversely affected by activities permitted under these themes.

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[12] The roadless area inventory for the Salmon portion of the Salmon-Challis National Forest has not been updated since the 1980s; therefore, road construction and timber harvest have occurred in some roadless areas since that time. If these areas were re-inventoried they would not be part of the updated inventory because they do not meet the requirements in FSH 1909.12, chapter 70.

[13] Based on past history, phosphate mining could occur on an additional 810 acres around unleased KPLAs on the Caribou-Targhee National Forest (see section 3.5, Minerals and Energy).

Approximately 4,600 acres of the South Selkirk Caribou Recovery Area (about 1 percent) fall in GFRG, where there are few restrictions on road construction/reconstruction, timber cutting, and discretionary mining. An additional 58,400 acres overlap Backcountry (6 percent), where such activities could occur but under relatively limited circumstances (appendix M, table M-15a). There is no overlap with Backcountry CPZ. Management direction outlined in the Idaho Panhandle National Forests forest plan and the use of best science at the project level would help minimize or avoid adverse effects on caribou resulting from most management activities. Woodland caribou should benefit across the 5.7 percent of the South Selkirk Caribou Recovery Area that falls in Wild Land Recreation and Primitive themes, where prohibitions on road construction/reconstruction and timber cutting should maintain areas free from human access and disturbance. However, given the overlap with themes where activities are permitted, there is possibility that individual caribou may encounter and be adversely affected by activities.

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Timber-cutting activities pose a moderate risk to Canada lynx because of potential effects on snowshoe hares, a primary prey species. Under the Modified Rule, 115,800 acres (2 percent) and 2.03 million acres (28 percent) of mapped lynx habitat in Idaho overlaps the GFRG and Backcountry themes, respectively (appendix M, table M-15a). About 152,400 acres (2 percent) are in Backcountry CPZ. Consequently, there is the potential for individuals to encounter and/or be affected by timber cutting activities in 31 percent of mapped lynx habitat. Existing management direction for lynx provided in the Northern Rockies Lynx Amendment (USDA Forest Service 2007l), the Southwest Idaho Ecogroup forest plan, and the Lynx Conservation Assessment and Strategy would minimize adverse effects on lynx, particularly from timber harvest activities.

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Approximately 2,700 acres, less than 1 percent, of the probable historic distribution for the northern Idaho ground squirrel overlap GFRG, and 1.5 acres overlap the Backcountry theme. The remaining 5.1 percent of the probable historic distribution (42,800 acres) is in the Primitive theme, a relatively restrictive prescription (appendix M, table M-15a). Timber cutting activities designed to improve habitat conditions for the northern Idaho ground squirrel could occur in the Primitive theme, but existing roads must be used. It is possible that timber cutting intended to improve northern Idaho ground squirrel habitat, such as removal of encroaching conifers from montane meadow ecosystems, could have short-term impacts on individuals. Such short-term adverse effects on northern Idaho ground squirrels are unlikely but cannot be ruled out under the Modified Rule. Species-specific standards and guidelines outlined in the forest plans for the Southwest Idaho Ecogroup should serve to minimize any adverse effects on the species that might occur pursuant to this alternative.

Under the Modified Rule, about 117,100 acres of the predicted distribution for the gray wolf overlap the GFRG theme, all south of I-90, which is less than 1 percent of its distribution statewide (appendix M, table M-15a). The home ranges for 18 packs, all but one south of I-90[14], overlap GFRG to some degree. Consequently, there is some potential for individual gray wolves, particularly south of I-90, to encounter activities. However, road construction/reconstruction, timber cutting, and discretionary mining pose a low risk to gray wolves because the likelihood that these activities might disturb or result in mortality of individual wolves is very low, even in these areas of overlap.

[14] Although none of the predicted distribution for the wolf above I-90 overlaps GFRG, the home range of one wolf pack located mostly north of I-90 overlaps areas south of I-90.

Management activities permitted under the Modified Rule pose a low risk to both candidate species: the southern Idaho ground squirrel and the western yellow-billed cuckoo. Activities undertaken pursuant to the Modified Rule is expected to have no effect on southern Idaho ground squirrels as they are not currently found on NFS lands. Under this alternative, the predicted distribution for the western yellow-billed cuckoo overlaps GFRG by 3 percent (appendix M, table M-15a). Consequently, although the risk to the species is low, there is a potential for individuals to be affected by management activities, particularly timber cutting and discretionary mining on the Caribou-Targhee, where the species is known to occur. Again, forest-wide management direction, particularly those designed to protect riparian corridors, would help minimize impacts on the western yellow-billed cuckoo and other riparian obligates.

Deleted: However, the potential remains for individuals to be affected (see discussion of the northern Idaho ground squirrel, above).

Forest Sensitive Species

Of sensitive species that could be at moderate to high risk of impact (table 50b, and appendix M, table M-13)—black-backed woodpecker, boreal owl, sharp-tailed grouse, fisher, flammulated owl, great gray owl, northern bog lemming, northern goshawk, pygmy nuthatch, three-toed woodpecker, Townsend's big-eared bat, white-headed woodpecker, and wolverine—none have predicted distributions that overlap GFRG areas by more than 2 percent (see appendix M, table M-15b). Although some individuals could encounter activities and their impacts, the likelihood is relatively low.

Under the Modified Rule, less than 1 percent of the predicted distribution of the Yellowstone population of the grizzly bear in Idaho overlaps GFRG; 1 percent overlaps Backcountry/ CPZ, where limited activities could occur (appendix M, table M-15b). In these few areas of overlap, there is a potential for grizzly bears to encounter road construction/reconstruction, timber cutting, and road construction/reconstruction to access specific unleased phosphate deposits in the GFRG theme on the Caribou portion of the Caribou-Targhee National Forest. The Forest Plan Amendment for Grizzly Bear Conservation for the Greater Yellowstone Area National Forests outlines specific management direction for grizzly bear habitat on the Caribou-Targhee to minimize or avoid adverse effects on the species and to maintain a recovered population.

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Twenty-two of 29 known greater sage-grouse leks are located the GFRG theme on the Sawtooth, Caribou, and Targhee National Forests. Consequently, there is the potential for individuals to be exposed to and potentially affected by road construction/reconstruction, timber cutting, and road construction/reconstruction to access specific unleased phosphate deposits on the Caribou portion of the Caribou-Targhee National Forest. Less than 1 percent of predicted habitat of the greater sage-grouse overlaps the GFRG theme and Backcountry CPZ combined. Management direction outlined in relevant forest plans should minimize impacts to ensure subsequent proposed projects do not result in a trend toward listing.

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Management Indicator Species[15]

Of MIS that could be at moderate to high risk of impact—marten, downy woodpecker, elk, hairy woodpecker, and moose—none have predicted distributions that overlap GFRG areas by more than 1.6 percent (appendix M, table M-15b); thus, opportunities for impacts are limited.

[15] Addresses only those MIS not discussed in previous sections.

Other Terrestrial Wildlife Species and Biodiversity

With regard to migratory birds, only 5 of 17 roadless areas containing breeding bird survey routes include some lands to be managed as GFRG under the Idaho Roadless Rule. Most migratory birds afford protection from 'take' under the MBTA. Consequently, any activities proposed pursuant to the Modified Idaho Roadless Rule would need to address the legal obligation mandated by the MBTA.

Some terrestrial game species, such as elk, deer, and turkeys, could benefit from certain types of timber cutting allotted in GFRG and Backcountry under this alternative. However, in general, management activities in the GFRG theme (405,900 acres) and in the Backcountry CPZ (442,000 acres) have a greater potential to negatively affect most game species because roads and timber cutting have the potential to increase human access and reduce security cover. Discretionary mining can result in complete loss of habitat where permitted. Under the Modified Rule, 379,400 acres, 248,000 acres, 153,900 acres of the predicted distribution for elk, moose, and white-tailed deer, respectively, and another 31,550 acres of mule deer winter habitat fall in GFRG, where there is the potential for habitat loss or increased human disturbance due to select management activities.

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Table 3-57 shows the Idaho Roadless Areas with the most TES terrestrial wildlife species and the amount of acres by themes. About 764,700 acres in roadless areas overlap with areas the most TES species. About 52 percent of these roadless areas are in equivalent themes that pose little risk to terrestrial species. About 3 percent are in GFRG, and 45 percent in prescription equivalent to Backcountry.

Table 3-57. Modified Idaho Roadless Rule acreage, by theme, for Idaho Roadless Areas with the most threatened, endangered, and sensitive (TES) terrestrial wildlife species

Forest	Roadless area	Wild Land Recreation	Primitive	Backcountry/ Backcountry CPZ	GFRG	FPSA
Idaho Panhandle	Salmo-Priest	14,300	0	0	0	5,700
Idaho Panhandle	Blacktail Mountain #122	0	0	4,200/500	0	800
Idaho Panhandle	Selkirk	42,000	0	41,300/300	8,600	6,100
Idaho Panhandle	Upper Priest	0	0	6,500/500	0	6,200
Nez Perce	Mallard	0	0	19,600/3,600	0	0
Payette	French Creek	0	12,000	76,000/3,900	100	700
Payette	Hells Canyon/7 Devils Scenic	0	29,200	0	0	500
Payette	Needles	90,200	7,100	31,500	0	2,500
Payette- Nez Perce	Rapid River	51,700 16,700	0 0	0	0	6,000 4,300
Salmon	West Big Hole	0	20,500	51,400/3,400	9,600	2,900
Sawtooth	Hanson Lakes	15,100	2,500	13,700/4,200	0	8,600
Targhee*	Mt. Jefferson	0	41,300	10,200/1,800	2,700	6,800
Targhee*	Garns Mountain	0	0	88,000/8,300	2,600	4,800
		230,000	112,600	342,400/ 26,500	23,600	55,900

** Targhee portion of the Caribou-Targhee National Forest.*

Summary

Under the Modified Idaho Roadless Rule, roadless areas in the Wild Land Recreation, Primitive, and SAHTS themes should be well-protected from ground-disturbing activities because of the prohibitions, with limited exceptions, on activities related to road construction/reconstruction, timber cutting, and discretionary minerals. These three themes should provide for natural processes, habitat integrity, and species diversity. Areas in the Backcountry theme are also afforded a good deal of protection. Lands in the Backcountry CPZ have a higher risk of ground-disturbing activities (including road construction/reconstruction and timber cutting) occurring, depending on the risk of wildland fire. Areas in the GFRG theme have the greatest potential for increased risk of adverse effects to terrestrial animal species and habitat, although most species have less than 3 percent of their predicted distributions that overlap with this theme.

Terrestrial and Aquatic Species: Cumulative Effects

The cumulative effects of the alternatives were addressed by considering land use and land conversion trends, as well as laws, regulations, and policies that affect species, habitat characteristics, and biodiversity. The cumulative effects on both terrestrial and aquatic species are addressed here to reduce redundancy.

All Alternatives

Since NFS lands, including roadless areas, provide habitats for so many terrestrial and aquatic species, the anticipated beneficial effects of roadless area conservation in combination with the other forest planning and broad-scale assessments could cumulatively benefit terrestrial and aquatic species at State, regional, and local scales. All the alternatives that contain direction for roadless area management would have the potential for important cumulative beneficial effects on conservation of native biological diversity and species viability by reducing substantial causes of habitat loss and reduction in habitat quality. Biological strongholds and other important habitats for terrestrial and aquatic species would receive substantial cumulative protection against future disturbance, considering the level of protection currently provided by existing policy, conservation strategies, forest plans, and other protected land designations.

The roadless areas when considered alone may not be as important as when considered in combination with other land conservation laws, policies, and strategies. For example, many roadless areas in combination with wilderness areas, Nature Conservancy preserves, some NFS land allocations, national parks, or conservation easements provide larger contiguous habitat blocks that provide for biodiversity conservation.

Non-Federal Habitat

There are about 53 million acres of land in Idaho, of which about 20.5 million acres are NFS lands. The Federal Government manages approximately 60 percent of all Idaho lands; the remaining 40 percent is in non-Federal ownership. Because non-Federal lands are a smaller percentage of all lands in Idaho, they are often influenced by management on Federal lands.

The role of non-Federal lands in maintaining and recovering species and their habitats is not well-defined. Idaho's current population of 1.4 million people is expected to be 2 million by 2030 and much greater by 2100 (IDFG 2005). The increased demands these individuals will place on the land will increase the value of roadless areas on Federal land for terrestrial and

aquatic species. In light of projected future population trends, Idaho Roadless Areas can provide some of the best terrestrial and aquatic species habitat in Idaho into the future.

The Idaho Comprehensive Wildlife Conservation Strategy (IDFG 2005) provides a foundation for sustaining Idaho's fish and wildlife and the habitats on which they depend. The strategy provides general directions for wildlife conservation and a stimulus to engage partners in conservation of Idaho's wildlife resources. In addition, there are several species-specific recovery plans and conservation strategies for species occurring in Idaho, such as the Idaho Bull Trout Plan (Batt 1996). Several of the tribal governments within Idaho have developed wildlife and fisheries conservation and restoration plans. Because of these efforts, terrestrial and aquatic habitats on non-Federal land would in general remain stable or slightly improve over the long term. Some lands may experience impacts on natural resources from urbanization and development, resource demands (for example, minerals), and recreation. Some conditions resulting in lower habitat quality on non-Federal land may limit the potential effectiveness of habitat conservation and restoration on Federal lands.

Non-native Invasive Species

Non-native invasive species are a problem throughout Idaho. Current State and Federal activities and authorities address some invasive species and their prevention and control, including the Idaho Invasive Plan (IDA 2005) and the National Strategy and Implementation Plan for Invasive Species Management (USDA Forest Service 2004a). Of particular concern is that the presence or spread of invasive species could potentially limit the effectiveness of habitat improvements or efforts to recover species. Roads often provide vectors for spread of invasive species. In general, areas with fewer roads have a lower risk of having invasive species populations established.

Impacts of Past Direction

Since 1995, PACFISH and INFISH have provided interim direction for management of lands administered by the BLM and Forest Service, including eight national forests within Idaho. Since 2003, for the Boise, Payette, and Sawtooth National Forests, the revised forest plans have replaced PACFISH and INFISH direction with comparable management direction for aquatic protection. Along with application of best management practices, the programmatic direction has cumulatively contributed to limitation on adverse effects of forest management on fish species and their habitats in Idaho and the interior Columbia River basin.

For much of the past decade, planning for the Forest Service's road transportation system, especially the 2001 Forest Service Roads Policy and the 2005 Travel Management Rule, has contributed to improved management of NFS roads and has reduced impacts on watersheds and aquatic resources. Over the coming year, as each Idaho national forest adopts a new travel plan that defines a system of approved roads and restricts motorized travel off roads, further improvement in watershed and aquatic conditions are likely.

More recently, expanded fuels management sparked by the Healthy Forests Initiative and the Healthy Forests Restoration Act has contributed some limited impacts on aquatic condition while reducing risk of wildland fire-associated aquatic damages in the long run. Recreation facility master planning now underway is intended to upgrade needed recreation sites while making them environmentally sound. Rehabilitating some sites while closing others would benefit nearby water and aquatic resources. Other past and upcoming plans, policies, and

directives described in appendix N are not expected to have material effects on aquatic resources in Idaho.

Impacts of Existing Management Practices

Existing management practices within and outside Idaho Roadless Areas have the potential to affect terrestrial and aquatic animal species and habitats. Land management activities such as timber harvest, road construction and maintenance, dams and diversions, livestock grazing, mining, and recreation can result in changes to vegetation composition and structure, successional processes, nutrient cycling, water quality and quantity, and habitat complexity. Other human activities related to urbanization can have dramatic effects on terrestrial and aquatic species and habitats.

Effects on terrestrial and aquatic habitats from human activities tend to be chronic disturbances rather than episodic. Native species did not evolve with chronic disturbances such as continual sediment inputs to aquatic habitats from poorly maintained roads. Species did, however, evolve and adapt to sediment inputs from events such as landslides. Human-caused impacts can be masked by natural disturbance processes such as flooding, fires, and soil mass movements. However, native species evolved with natural disturbances processes and they can often recover from these types of events, even when they appear to be catastrophic.

Idaho Roadless Areas provide areas where natural process can occur largely without human management influences. Information gained from these areas can help us to better understand cumulative effects occurring elsewhere on the landscape and their impacts on terrestrial and aquatic species and habitats.

Fire

Fire is one of the most important natural disturbances influencing the complexity and diversity of terrestrial and aquatic ecosystems (Beche et al. 2005). Fire is a part of the landscape in the western United States. Settlement, development, natural resource management, and climate variation have transformed the fire regimes, vegetation and fuel patterns, and overall functionality of western forests (Bisson et al. 2003). Despite efforts to prevent and suppress wildland fires, fire nonetheless revisits western landscapes at irregular intervals- sometimes with catastrophic effects, sometimes not (Bisson et al. 2003).

Fire poses a risk to aquatic organisms when populations are isolated or individuals are not very mobile and therefore do not have the capability to recolonize after local extirpation due to fire disturbance. Salmonids have evolved strategies to survive perturbations occurring at the frequency of wildland fire (10-100 years), but local populations of a species, especially if they are small and/or isolated, may be more ephemeral (Gresswell 1999). Perturbation associated with hydrological processes is probably the primary factor influencing postfire persistence of fishes, benthic macroinvertebrates, and diatoms in fluvial systems (Gresswell 1999). Fires can produce dramatic changes in aquatic and terrestrial ecosystems, including altered sediment and flow regimes, changes in vegetation structure and composition, fish mortality, and even local extinctions.

Fire can directly and indirectly affect aquatic and riparian communities at spatial scales ranging from microhabitats to entire watersheds (Beche et al. 2005). For many aquatic ecosystems, fire has played an important role in creating and maintaining suitable habitat at varying temporal scales (Minshall et al. 1989, Minshall 2003). Many species evolved under the influence of

recurrent fire, including stand-replacing events, and their long-term persistence relies heavily on the maintenance of important habitat components by these kinds of disturbance events.

At a landscape level, fires create and maintain habitat mosaics of different vegetation types (Mushinsky and Gibson 1991). These mosaics include a diversity of patch size, composition, and structure, as well as connectivity among patches. Smith (2000) identified the following landscape-level fire effects on terrestrial species: (1) changed availability of habitat patches and heterogeneity within them; (2) changed compositions and structures of larger areas, such as watersheds, which provide the spatial context for habitat patches; and (3) changed connections among patches. During the course of post-fire succession, all three of these landscape features are in flux.

Terrestrial and aquatic ecosystems are often referred to as separate ecosystems; however aquatic ecosystems are structured by interactions among terrestrial and aquatic processes and climate (Bisson et al. 2003). Wildfires influence hillslope erosion, stream sedimentation, and large woody debris recruitment to streams (Benda et al. 2003), Miller et al. 2003, Wondzell and King 2003). The timing and severity of erosion and sedimentation differ by geography, geology, precipitation regime, and fire regime. The dynamics of aquatic habitats are largely driven by topography, climate, and the pattern of disturbances such as fire and large storms (Bisson et al. 2003). Both aquatic and terrestrial ecosystems can benefit from disturbances such as fire. Fire is one of several disturbance processes that results in patterns of disturbance and recovery across the landscape yielding a mosaic of diverse, changing habitats and communities.

Factors Affecting Anadromous Fish

There are four anadromous fish species in Idaho: Snake River basin steelhead (threatened), Snake River spring/summer Chinook (threatened), Snake River fall-run Chinook (threatened), and Snake River sockeye salmon (endangered). Currently Idaho Roadless Areas provide some of the best habitat and strongest populations of these fish.

Human activities on Federal and non-Federal lands—including hydropower, hatcheries, harvest, and land management such as road building, grazing and recreation—have altered anadromous fish environments, leading to widespread declines (USDA Forest Service 2000r, pg. 139). Idaho Roadless Areas are key to recovery of salmon and steelhead stocks in decline, providing habitat to protect species until longer term solutions can be developed for migration, passage, hatchery, and harvest problems associated with the decline of anadromous fish (USDA Forest Service 2001). Maintaining current populations and future recovery of anadromous species in Idaho depends on reducing mortality from a variety of factors.

National Oceanic and Atmospheric Administration (NOAA) Fisheries, in partnership with Idaho's Office of Species Conservation, has begun to draft Idaho's portion of the Snake River Salmon and Steelhead Recovery Plan (USDC National Oceanic and Atmospheric Administration 2005), which is scheduled to be completed in 2008.

On April 24, 2007, the 9th circuit rejected the latest NOAA Fisheries 2004 biological opinion for Federal Columbia River operations, finding the opinion improperly determined such operations would not jeopardize the survival or recovery of eight listed salmon and steelhead species. The appellate court upheld the district court's requirement that NOAA Fisheries consult on remand with States of Idaho, Montana, Oregon, and Washington, and any Tribes involved in the litigation, in developing a new biological opinion.

Terrestrial Wildlife Conservation Strategies

There are a number of terrestrial species-specific conservation strategies and recovery plans that have been developed to direct management for the protection and conservation of threatened and endangered species. For example, the Interagency Lynx Conservation Assessment and Strategy (Ruediger et al. 2000) was developed to provide a consistent and effective approach to conservation of the Canada lynx on Federal lands in the conterminous United States. The Grizzly Bear Recovery Plan (USDI Fish and Wildlife Service 1993a) identifies actions necessary for the conservation and recovery of grizzly bears. These conservation strategies provide additional conservation benefits to TES terrestrial wildlife species.

Climate Change

Warming of the global climate is unequivocal (Independent Scientific Advisory Board [ISAB] 2007). Changes have already been observed in many species' ranges, consistent with changes in climate (ISAB 2007, Hansen et al. 2001). These changes include poleward and elevationally upward movements of many insects, birds, trees, and forbs. Future climate change many lead to fragmentation of suitable habitats that may inhibit adjustment of plants and wildlife to climate change through range shifts (ISAB 2007, Hansen et al. 2001).

Changes due to climate change and global warming could be compounded considerably in combination with other disturbances such as fire. Fire frequency and intensity have already increased in the past 50 years, and especially in the past 15 years, in the shrub steppe and forested regions of the west (ISAB 2007). Larger climate-driven fires can be expected in Idaho in the future.

Climate change is also affecting phenology (the biology of timing of organisms), involving aspects such as animal hibernation and migration. In addition, for species such as bull trout that require colder water temperatures to survive and reproduce, warmer temperatures could lead to significant decreases in available suitable habitat.

Changes in hydrology and temperature caused by changing climate have the potential to negatively affect aquatic ecosystems in Idaho, with salmonid fishes being especially sensitive. Average annual temperature increases due to increased carbon dioxide are affecting snowpack, peak runoff, and base flows of streams and rivers (Mote et al. 2005). Increases in water temperature will cause a shift in the thermal suitability of aquatic habitats for resident species (Poff et al. 2002). The intensity of effects will vary spatially. These changes will have a variety of impacts on terrestrial and aquatic habitats in Idaho.

Climate change has the potential to affect most freshwater life history stages of trout and salmon (ISAB 2007, O'Neal 2002). Increased frequency and severity of flood flows during winter can affect over-wintering juvenile fish and incubating eggs in the streambed. Eggs of fall and winter spawning fish, including Chinook, coho, chum, and sockeye salmon, and bull trout, may suffer high levels of mortality when exposed to increased flood flows (ISAB 2007). Bull trout require very cold, headwater streams for spawning (Rieman et al. 2007); therefore, warming may disproportionately affect this species.

Biodiversity

Based on current literature (Flather et al. 1999, Noss and Cooperrider 1994, Stein et al. 2000) it is possible to conclude that with or without conservation of roadless areas, biodiversity is at an increased risk of adverse cumulative effects from increased population growth and associated

land uses, land conversions, and non-native species invasions. Maintenance of roadless characteristics, however, may lessen this risk at least in the short term (20 years). By reducing the level of potential adverse impacts on roadless areas, some of the last relatively undisturbed large blocks of land outside of designated wilderness that contribute to species biodiversity would be conserved.

Conservation of roadless characteristics could have beneficial effects on biodiversity conservation at the local, regional, national forest, and national levels. There would be similar incremental beneficial effects on biodiversity conservation when any of the prohibitions is combined with past, present, and reasonably foreseeable land uses and conversions, as well as laws, regulations, policies, and non-native species invasions. The local, regional, and national cumulative beneficial effects on TES species and biodiversity could include:

- Conserving and protecting large contiguous blocks of habitat that provide habitat connectivity and biological strongholds for a variety of terrestrial and aquatic plant and animal species including TES species;
- Providing important local and regional components of conservation strategies for protection and recovery of listed TES species;
- Providing increased assurances that biological diversity would be conserved at a landscape level, including increased area of ecoregions protected, improved elevational distribution of protected areas, decreased risk of additional timber harvest and road-caused fragmentation, and maintenance and restoration of some natural disturbance processes;
- Providing increased assurance that biodiversity would be supported within Idaho Roadless Areas, including the maintenance of native plant and animal communities where non-native species are currently rare, uncommon, or absent.

The value of Idaho Roadless Areas in conserving biodiversity is likely to increase as habitat loss elsewhere increases in scope and magnitude. With these increasing trends, the importance of roadless area conservation and other laws, regulations, and policies in the management of biodiversity is also likely to increase. Whether the cumulative beneficial effects of the prohibitions and other past, present, and reasonably foreseeable actions would fully offset predicted future increases in land uses, land conversions, and non-native species invasions is difficult to assess. Yet, it is possible to conclude that without the prohibitions, there would likely be an increased risk of adverse cumulative effects to biodiversity.

Conclusions on Cumulative Effects by Alternative

As population growth and associated land uses and land conversions place pressures on both NFS and non-NFS lands, the value and importance of Idaho Roadless Areas in conserving biological diversity will probably increase. In the future, habitat loss and loss of viable animal populations may be of a magnitude such that the beneficial effects of the prohibitions and other laws, regulations, and policies relative to the conservation of native biodiversity may be lost or overwhelmed. Even under this scenario, Idaho Roadless Areas would likely still convey some beneficial effects relative to conservation of terrestrial and aquatic animal species and habitat in Idaho.

2001 Roadless Rule

Overall, the 2001 Roadless Rule—when considered with the effects of land uses; land conversions; laws, regulations, and policies; and nonnative species invasions—would be beneficial to biological diversity, including species habitats, populations, and landscape diversity. Some of the potential beneficial effects include:

- Large contiguous blocks of habitat protected by providing habitat connectivity for a variety of species that need large connected landscapes;
- Decreased risk associated with fragmentation and isolation from timber cutting, road construction/reconstruction, and discretionary minerals activities;
- Conservation and protection of biological strongholds and other important habitats for terrestrial and aquatic animals, including TES species;
- Decreased risk associated with invasive species introductions and spread;
- Maintenance of native animal communities where non-native-species are currently rare, uncommon, or absent;
- Increased assurances that biological diversity would be conserved, both within the area and the overall landscape in which it is found;
- Provision of important components of conservation strategies for protection and recovery of federally listed proposed, threatened, endangered, and NFS regional forester sensitive species; and
- Maintenance or restoration of some level of natural disturbance processes at a local level and landscape levels, which are important controls for ecosystem composition, structure, and function.

Existing Plans

Because of the permissions provided in the Existing Plans—when considered with the effects of land uses; land conversions; laws, regulations, and policies; and nonnative species invasions—Existing Plans may or may not be sufficient to provide for biological diversity, including species habitats, populations, and landscape diversity into the future. This assessment was based largely on the following cumulative effects:

- The projected increasing trends in population growth, deleterious land uses, land conversion, and non-native species invasion are likely to contribute to increased risks to biodiversity.
- It is likely that Federal, State, local, and private land laws, regulations, and policies will become more pivotal in conserving biodiversity.
- Climate changes may lead to less favorable habitat availability for some TES species, leading to more restricted ranges and some local extirpations of populations.

Proposed Idaho Roadless Rule

The Proposed Idaho Roadless Rule permissions and prohibitions—when considered with the effects of land uses; land conversions; laws, regulations and policies; and nonnative species invasions—would overall be beneficial to biological diversity, including species habitats,

populations, and landscape diversity, for the same reasons listed above under the 2001 Roadless Rule.

The Proposed Rule would provide additional protections compared to the 2001 Roadless Rule on 3.1 million acres (33 percent of Idaho Roadless Areas), because the rule prohibits road construction, reconstruction, or surface occupancy on these lands. It would provide similar protections on 5.2 million acres (56 percent of Idaho Roadless Areas), even though it would permit limited road construction/reconstruction to facilitate timber cutting to address forest health concerns and to reduce hazardous fuels that could affect communities. It would provide lesser protections on 0.6 million acres (0.6 percent of Idaho Roadless Areas); however, not every acre within the 0.6 million acres is likely to be affected.

The Proposed Rule would permit phosphate development on 20,380 acres[16] (existing and unleased lands), whereas the 2001 Roadless Rule would permit development on 7,200 acres. This difference is immeasurable, within the context of Idaho Roadless Areas as a whole. The phosphate development would potentially occur on the edges of nine roadless areas, leaving the core of the roadless areas intact. Prior to development, additional environmental study would occur and any necessary protection measures would be applied.

Modified Idaho Roadless Rule

Like the Proposed Idaho Roadless Rule, the Modified Idaho Roadless Rule would overall be beneficial to biological diversity, including species habitats, populations, and landscape diversity, for the same reasons listed above under the 2001 Roadless Rule.

Compared to the Proposed Rule, the Modified Rule would provide 101,700 more acres in the Wild Land Recreation theme, and 69,900 more acres in the Primitive theme. These changes are small percentages and would not result in discernible effects on terrestrial and aquatic resources. The Modified Rule would provide 54,200 acres more in the Backcountry theme; however, with the changes in the Modified Rule most of the Backcountry (4.87 million acres) theme would be managed in a manner similar to the 2001 Roadless Rule. In addition there would be 203,700 fewer acres in the GFRG theme, a reduction of one-third. Both the changes in the permissions and prohibitions to the Backcountry theme and the reductions in the GFRG theme could benefit terrestrial and aquatic resources locally but would not be discernible at the Statewide scale.

The Modified Rule would permit phosphate development on 5,770 acres (unleased KPLA in the GFRG theme) in addition to existing leased lands (12,570 acres total), whereas the Proposed Rule would permit development on 20,380 acres. As with the Proposed Rule, the difference is minor, within the context of Idaho Roadless Areas as a whole.

[16] 13,190 unleased plus 7,200 currently leased.