FALLEN BEAR PROJECT – REVISED WILDLIFE REPORT

Dennis Riley, Wildlife Biologist

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This report was revised to incorporate an updated species list from the U.S. Fish and Wildlife Service issued on 2/11/09; and to add the sensitive species summary of conclusion of effects table.

Introduction

This section discusses and displays the potential direct, indirect and cumulative impacts to wildlife that could result from implementation of the proposed action or alternatives. Changes, primarily in forest vegetation and human disturbance/access, could affect existing habitat for Threatened, Endangered and Sensitive (TE&S) species and Management Indicator species (MIS); and could affect future habitat suitability and management options for some wildlife species.

Regulatory Framework

The regulatory framework providing direction for the protection and management of wildlife habitat comes from the following main sources:

- The Endangered Species Act of 1973 as amended (ESA),
- The National Forest Management Act of 1976 (NFMA), and
- The Forest Plan for the Idaho Panhandle National Forests (FP).

Section 7 of the ESA directs federal agencies to ensure that actions authorized, funded, or carried out by them are not likely to jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their critical habitat.

NFMA provides for balanced consideration of all resources. It requires the Forest Service to plan for diversity of plant and animal communities based on the suitability and capability of the specific land area, and within multiple use objectives of a Land Management Plan.

The Forest Plan, in compliance with NFMA, establishes Forest-wide and Management Area direction, goals, objectives, standards and guidelines for the management and protection of wildlife habitat and species. Forest standards that to one degree or another apply to this project level wildlife analysis include but are not limited to:

- Elk - Use the "Guidelines for Evaluating and Managing Summer Elk Habitat in Northern Idaho" to evaluate effects on elk habitat.
- Threatened and Endangered Species – Management of habitat and security needs for T&E species will be given priority in identified habitat.
- Management Indicator Species - Maintain viable populations distributed throughout the Forest.
- Cavity Habitat - Maintain habitat by implementing the IPNF Snag and Woody Debris Management Guidelines.

- Sensitive Species - Manage habitat to prevent further declines in populations that could lead to federal listing.
- Old Growth Habitat – (to provide for viable populations of old-growth dependent and management indicator species) maintain at least 10 percent of the forested portion of the IPNF as old growth and maintain at least 5% of the forested portion of Old Growth Management Units that have 5% or more existing old growth.

Direction concerning implementation of the ESA and NFMA are found in the Forest Service Manual (FSM) and direction from the Forest Service's Washington Office, Regional Office, and the Idaho Panhandle National Forests (IPNF) Supervisor's Office.

Geographic Scope

In 2004 the St. Joe Ranger District completed an Ecosystem Assessment at the Watershed Scale (EAWS) and a roads analysis process (RAPS) for the Quartz Gold Analysis Area which encompassed the current Fallen Bear Project Area. These assessments identified management opportunities that would bring the Quartz Gold Area closer to the Forest Plan desired condition. The Quartz Gold Project was not carried forward, and in 2007 an interdisciplinary team narrowed the scope of analysis and conducted an EAWS for the Fallen Bear Area. The team also reviewed the RAPS and concluded that the findings were still valid.

The Fallen Bear project area was delineated based on watershed boundaries encompassing the proposed activities. The geographic scope of potential effects on wildlife for this project level analysis was determined based on the spatial distribution of proposed federal actions and the home range of species that may be impacted. The entire Fallen Bear project area is used as the wildlife analysis area as it is entirely Forest Service ownership, and large enough (10,523 acres) to encompass the home ranges of most species.

For some species with very large home ranges (i.e. lynx, wolf, wolverine), habitat adjacent to the wildlife analysis area has been considered in the analysis. Also, for some species, due to the nature of species occurrence, distribution of capable and/or suitable habitat, the scope of the alternatives and lack of impacts throughout the wildlife analysis area, the geographic scope of the analysis has been restricted to the area of potential impact. A more specific description of the geographic scope of the analysis is found under each habitat or species/guild section of this document.

Analysis Methods

The appropriate methodology and level of analysis needed to determine potential effects is influenced by a number of variables including:

- the potential for impacts
- the scope of the action
- the risk to resources and species (Leonard, 1992)
- available information
- the ability to differentiate between alternatives
- and the information necessary for an informed decision

This analysis starts at a course/medium level and proceeds to a finer level of analysis as needed to determine potential effects.
This analysis refers to the following documents which provide the primary direction used to develop the analysis for potential effects on wildlife.

- Integrated Scientific Assessment for Ecosystem Management in the Interior Columbia Basin (ICB Assessment)
- Integration of Forest Planning into Ecosystem Management: Toward a Forest Ecosystem Approach: An Assessment for the St. Joe Area (St. Joe Geographic Assessment, 1997)
- Available Conservation Assessments and Strategies for wildlife species
- Additional scientific literature as appropriate

The analysis is done at different levels of intensity (i.e. course filter – medium filter – fine filter) as appropriate to address the issues and concerns.

This analysis is organized by habitat and/or species. The main sections are:

- Terrestrial Habitat
- Threatened and Endangered Wildlife Species (T&E)
- Sensitive Wildlife Species (S)
- Management Indicator Species (MIS)

Quantitative modeling (based on forest vegetation) approaches to assessing potential effects are not always plausible because many species have habitat requirements that are not strongly tied to forest vegetation (i.e. Black swift, Coeur d'Alene salamander). In such cases impacts on species specific habitat elements (i.e. waterfalls, fractured rock seeps) are used to determine effects. Available models were used when appropriate, based on available information and applicability. (Project File Documents - WL5, WL6)

The analysis evaluates habitat in terms of human disturbance and the capability and suitability of vegetation (e.g. structure and composition) for wildlife species or groups of species with similar habitat needs. For the purposes of this analysis, *capable habitat* is wildlife habitat that has the fixed attributes that enable it to produce the habitat requirements for a given species currently or in the future. These fixed attributes include soils (or parent material, or landtype), slope, aspect, elevation, and habitat type. *Suitable habitat* is wildlife habitat that currently has both the fixed and variable stand attributes that enable it to produce the habitat requirements for a given species. Variable attributes change over time and may include seral stage, cover type, stand density, tree size, stand age, or stand condition.

Existing forest habitat information was determined using stand data from FSVEG (which summarizes information obtained from stand exams done in the field) and stand activity and component data from the FACTS and TSMRS databases (WL19, WL20, WL21). This information reflects conditions that are a result of previous management activities and natural conditions. See table below. Acre figures displayed in the wildlife section come from the TSMRS database. Some information pertinent to this analysis from the database has been revised based on recent field and air photo review. All values should be considered approximate due to such factors as rounding of acres and combining/grouping of stands.

Past, Present, and Reasonably Foreseeable Future Actions Considered for Cumulative Effects

Action	Past	Present	Future	May Have Measurable Cumulative Effects*	Explanation
Timber Harvest	**X**			Yes	Effects on habitat (e.g. forest structure and composition) are measured in existing condition.
Tree Planting	**X**			Yes	Effects on habitat (e.g. forest structure and composition) are measured in existing condition.
Precommercial Timber Stand Improvement	**X**			Yes	Effects on habitat (e.g. stand density and composition) are measured in existing condition.
Prescribed Burning for Site Preparation and fuels treatment	**X**			Yes	Effects on habitat (e.g. forest structure and snag numbers) are measured in existing condition.
Wildfires	**X**		**unknown**	Yes	Effects on habitat (e.g. forest structure, composition and snag numbers) are measured in existing condition.
Fire Suppression	**X**	**X**	**unknown**	Yes	Effects on habitat (e.g. forest structure, composition and snag numbers) are measured in existing condition.
Clearing Brush and Trees to Maintain Helispots	**X**	**X**	**X**	No	Potential effects are inconsequential at the project level scale.
Wildlife Burns	**X**			Yes	Effects on habitat (e.g. forest structure, composition and snag numbers) are measured in existing condition.
Road Construction	**X**			Yes	Effects on open road densities and secure habitat are measured in existing condition.
Road Decommissioning	**X**			Yes	Effects on open road densities and secure habitat are measured in existing condition.
Road Maintenance	**X**	**X**	**X**	No	Unable to distinguish from public activities - Potential effects are measured by open road densities.
Conrad Campground	**X**	**X**	**X**	No	Potential effects are localized and captured by open road densities.
Public Activities: firewood cutting, driving roads, camping, snowmobiling, hunting, hiking, berry picking, fishing, Christmas tree cutting	**X**	**X**	**X**	Yes	The potential effects are included in the existing condition for snag numbers and availability, secure habitat, open road density and hunting vulnerability.

Action	Past	Present	Future	May Have Measurable Cumulative Effects*	Explanation
Trail Maintenance	**X**	**X**	**X**	No	Potential effects are minimal and vary – some are not measurable and some are measured by motorized trail miles as part of the existing condition.
In-stream Fisheries Habitat Improvement Projects	**X**			No	Inconsequential effects on riparian wildlife habitat.
Spraying Herbicides to Control and Prevent Noxious Weeds Under the St. Joe Noxious Weed EIS	**X**	**X**	**X**	No	Potential effects are localized and inconsequential at the project level scale.
Outfitting: • Simmons/Quartz Designated Outfitter Area: year-round operations; snowmobile use for hunting operations only on routes open to public; horseback tours; Whitetail Peak Spike Camp • Fishing in St. Joe River from Red Ives to Avery • Rafting in St. Joe River from Spruce Tree CG to Avery	**X**	**X**	**X**	Yes	Potential effects are measured by open road miles and secure habitat as part of the existing condition.
Baffling a culvert under FH 50 at Bruin Creek	**X**			No	Inconsequential effects on riparian wildlife habitat.
Large woody debris removal from Bruin Creek	**X**			No	Inconsequential effects on riparian wildlife habitat.

**The effects of some actions are not measurable, are inconsequential at the scale of this analysis, and/or are captured by the existing condition as measured for other actions.*

The interaction of disturbance (both human induced and naturally occurring) and forest succession determine the quality and quantity of habitat on a spatial and temporal scale. The existing condition and availability of habitat in the landscape would change regardless of management actions. This change could be sudden and readily apparent (e.g. a stand replacing wildfire or blowdown event) or slow and subtle (e.g. stand aging). As they pertain to this analysis, natural changes are random and unpredictable. Forest succession normally takes place at a rate that is essentially too slow to measure within the temporal scale of this project level analysis.

The fire history and human activities in the Fallen Bear wildlife analysis area and surrounding landscape have influenced the availability and distribution of wildlife habitat present today, particularly the level of late successional habitat (See Past, Present, and Reasonably Foreseeable Actions Table in the EA, and the Management Activity Report). The amount of late successional habitat is above historic average levels for the project area and the St. Joe River Drainage (USDA 1997 p. 71). See Table WL1 below. The emphasis of the proposed action and alternatives in

developing more resilient conditions in timbered stands (i.e. reduce stand densities, retain fire tolerant species) and avoiding allocated old growth and potential old growth, influences the level and intensity of analysis.

Table WL1 – Late Successional Habitat in Wildlife Analysis Area

Fallen Bear Analysis Area		
Size class	Acres	%
MSAW	**6912**	**65.7**
IMSA	519	4.9
POLE	26	0.3
SAPL	2341	22.2
SEED	481	4.6
HGHB	0	0.0
LOWB	231	2.2
NONS	13	0.1
TOTAL	10523	100

Late successional habitat equates to MSAW, which is comprised of the mature low risk sawtimber and mature high risk sawtimber size classes from the TSMRS database.

MSAW = mature saw timber
IMSA = immature saw timber
POLE = pole-sized trees
SAPL = saplings
SEED = seedlings
HGHB = high brush
LOWB = low brush
NONS = nonstocked

The dominant influences (e.g. road densities, amount and distribution of forest structures) on the abundance and distribution of many threatened, endangered, sensitive, and socially important and/or desirable species are the result of past and current management activities (See Past, Present, and Reasonably Foreseeable Actions table above). Road densities include roads used by motorized vehicles. These conditions then influence the species present in the wildlife analysis area and the methodology and/or need to analyze potential effects. More specific discussions of analysis methods can be found under the section for each species or group of species.

Species Relevancy Screen

The National Environmental Policy Act directs the agency to focus on a full and fair discussion of significant issues, and identify and eliminate from detailed study the issues that are not significant. Some elements of wildlife habitat require a detailed analysis and discussion to determine potential effects. Other elements may not be affected; may be affected at a level that does not influence use, occurrence, or the decision to be made; or can be adequately addressed through design of the project. These elements then do not necessarily require detailed analysis.

TE&S species, MIS, and other wildlife species of interest or concern known to occur on the IPNF were reviewed for their relevancy to the proposed actions and the wildlife analysis area. Relevancy was determined if there is evidence of species occurrence, capable and/or suitable habitat present, or potential for the proposed action to affect a species or its habitat. Some species or habitats do not occur in the wildlife analysis area and no further analysis is necessary. Other wildlife species or

habitats may occur in the wildlife analysis area, but are not measurably affected because: they would not be affected by the proposed actions, the impacts would not influence species use or occurrence, or design of the project adequately addresses the concerns.

The assessments of the potential for effects made in this screen consider the scope and nature of the activities associated with the proposed action and alternatives, the potential risks for adverse impacts, and the ability to determine potential effects based on available information at the time of this phase of the analysis. If the potential for effects cannot be determined with a reasonable degree of confidence in this process, then additional analysis would be conducted.

Table WL2 displays the results of the relevancy screening process and provides an explanation of the rationale. Further information on species not requiring further analysis and the rationale is discussed following the table or in the project file.

Table WL2 - Screening Process and Results

Species/Habitat	Habitat / Species Present in St. Joe Drainage?*	Potential for Measurable Effects in Analysis Area?	Need for Detailed Further Analysis?	Rationale for no further analysis**
Endangered				
Woodland caribou	N	N	N	1
Threatened				
Gray Wolf***	Y	Y	Y	
Grizzly bear	N/I	N	N	2
Canada Lynx	Y/I	Y	Y	
Sensitive				
Bald Eagle	Y	N	N	2
Black Swift	Y/U	N	N	2
Black-backed Woodpecker	Y	Y	N	2
Coeur d'Alene Salamander	Y	N	N	2
Common Loon	N/I	N	N	2
Fisher	Y	Y	Y	
Flammulated Owl	Y	Y	Y	
Fringed Myotis	U	N	N	2
Harlequin Duck	Y	N	N	2
Northern Bog Lemming	N	N	N	1
Peregrine Falcon	Y/I	N	N	2
Pygmy Nuthatch	U	N	N	2
Townsend's Big-eared Bat	U	N	N	2
Western Toad	Y	Y	Y	
Wolverine	Y	Y	Y	
Management Indicator				
Elk	Y	Y	Y	
Marten	Y	Y	Y	
Moose	Y	Y	N	3
Northern Goshawk	Y	Y	Y	
Pileated Woodpecker	Y	Y	Y	
Other				
Forest land birds	Y	N	N	3
Snag/Cavity habitat	Y	Y	N	2

**Yes, No, Unknown or Incidental (if at all).*
***1 Rationale and documentation is provided in the project file (WL1) for the determination that the species or habitat is not present within the St. Joe River drainage and/or wildlife analysis area.*
2 Species or habitat may be present, but due to the scope of the proposed actions - including design criteria - there would not be any consequential effect on habitat or the species (e.g. harvest of trees would not impact habitat for species associated with lakes). Rationale is provided in the project file and/or later in this document.
3 Species does not apply, or is adequately addressed by other species, or is not appropriate for the Project. Rationale is provided in the project file and/or later in this document.
**** South of Interstate 90, gray wolves are classified as nonessential experimental populations; this classification treats wolves as proposed for listing under the ESA.*

Rationale for no Further Analysis

Grizzly bear: Quality grizzly bear habitat provides minimum potential for grizzly - human conflicts, sufficient space, isolation from human developments, and diversity of habitats that provide food during different seasons. In northern Idaho, grizzly bears occupy cedar/hemlock, spruce-fir, lodgepole/larch, and shrubfields in the Selkirk Mountains Ecosystem and the Cabinet/Yaak Ecosystem.

The St. Joe Ranger District is not in a Grizzly Bear Recovery Area (USDI 2000, p.11), nor was it included in the Bitterroot grizzly bear evaluation area in the *Grizzly Bear Recovery Plan Supplement: Bitterroot Ecosystem Recovery Plan Chapter* (USDI 1996, p.2). The Fallen Bear project area is therefore not expected to provide habitat for grizzly bears that would contribute to population recovery. Some alternatives in the Grizzly Bear Recovery in the Bitterroot Ecosystem FEIS did include the St. Joe Ranger District in an Experimental Population Area (USDI 2000, p.35); however, no anticipated impacts to land use activities on public land were identified (USDI 2000, p.16).

Species/habitat presence: The southeastern portion of the St. Joe Ranger District is in the Bitterroot Grizzly Bear Primary Analysis Area of the Bitterroot Ecosystem. There have been reported "possible" grizzly bear sightings on the St. Joe district. In September of 2007 a male grizzly bear was shot and killed in the North Fork Clearwater River drainage south of the St. Joe Ranger District. It was determined that the bear originated from the Selkirk area which is north of the St. Joe Ranger District. Although the route this bear took is unknown, one possible route for the bear to have used may have been across the upper St. Joe drainage, more specifically the area along the Idaho/Montana border. (At it's nearest the border is two miles from the project area). There are no verified records or reports of grizzly bears in the Fallen Bear area (Holt personal communication).

Rationale for No Further Analysis: In light of the recent grizzly bear shooting the Fish and Wildlife Service has initiated surveying in the North Fork of the Clearwater drainage and the upper St. Joe drainage to assess if there are any grizzly bears in the area. Although based on current knowledge the potential for grizzly bear occurrence on the St. Joe Ranger District and in the project area cannot be totally dismissed, there is nothing to suggest any occurrence other than the possibility of transient individuals; with even the potential for that considered to be unlikely. There is no known grizzly

bear population occupying the St. Joe Ranger District; and the U.S. Fish and Wildlife Service has determined that a resident population of grizzly bears does not exist in the Bitterroot Ecosystem at this time (USDI, 2000, p.10). There is no evidence or reason to suspect that grizzly bears are present in the Fallen Bear project area or the larger Quartz Gold wildlife analysis area.

The land management objectives for the area, including timber production and motorized road/trail access; and the resulting conditions (e.g. low amounts of secure habitat, higher road densities) mean the area is unlikely to be used by grizzly bears. The project area is not within any Bear Management Unit (BMU), linkage zone, or area of known grizzly bear use. Based on the above reasons, this project will have no effect on the grizzly bear. No further analysis or discussion is warranted.

Bald Eagles select isolated shoreline areas with larger trees to pursue such activities as nesting, feeding, loafing, etc. Components of nesting habitat include proximity to sufficient food supply, the presence of dominant trees, and line-of-sight to a large body of water (often within 0.25 mile of water) (MBEWG 1991, p.7).

Species/habitat presence: The St. Joe River above Avery receives occasional incidental and opportunistic migrating bald eagle use. The portion of the St. Joe River in the Fallen Bear project area is considered to be too far upriver for consistent use as over-wintering habitat. At this location the St. Joe is a small river with low prey densities. The annual mid-winter bald eagle count does not include this area in its survey due to the low potential for use. There have been no reported observations of bald eagles in the project area. There are no known bald eagle nests in the St. Joe River drainage above Avery. Based on the above information, bald eagle occurrence in the project area is considered incidental.

Rationale for No Further Analysis: There are no large bodies of water in the project area and no bald eagle nesting habitat. Based on the lack of capable habitat and the design features of the proposed action and alternatives (e.g. Riparian Habitat Conservation Areas buffers), the potential for effects on bald eagle habitat in areas adjacent to water is negligible. Project activity would have no impact on the bald eagle or capable habitat under any alternative. No further analysis or discussion is warranted.

Black-backed Woodpecker:

Black-backed woodpeckers (BBWP) are specialists in forests that have insect outbreaks from either wildfire or other reasons. They nest in snags or in live trees with heart rot, which are at least 5 inches in diameter. Black-backed woodpeckers feed primarily on wood-boring beetles and specialize on large areas of recently killed, beetle-infested timber. Black-backed woodpeckers prefer mature and old growth forests and fire or insect damaged stands. Lodgepole pine forests are also considered source habitat for black-backed woodpeckers (Wisdom and others 2000, p.209-210). Breeding densities of black-backed woodpeckers vary considerably in response to prey availability. They are specialists in exploiting recent forest fires, especially for the first 3 to 5 years after burning, and rapidly utilize new burns (Hutto, 1995, p.1041). Historically on the IPNF, mixed severity and stand-replacing fires produced new habitat annually in greater amounts than is presently produced under a fire suppression strategy (Zack and Morgan, 1994, p.27).

"Black-backed woodpeckers are known to use three types of forested habitat: 1) post fire areas that have burned within 1 to 6 years, 2) areas with extensive bark beetle outbreaks causing widespread tree mortality, and 3) a natural range of smaller disturbances scattered throughout the forest such as wind throw, ice damage or other occurrences that produce small patches of dead trees. These habitat conditions all provide habitat for the black-backed woodpecker's primary food source, woodborer beetles and larvae." (Bonn and others 2007, p.5)

Species/habitat presence: There have been no recent observations of black-backed woodpecker in the Fallen Bear project area but their feeding sign has been found (Project file WL23). Based on literature descriptions and field verification of habitat, there is capable and suitable habitat available within the Fallen Bear Project Area. Distribution of black-backed woodpeckers is presumed to coincide with existing stands of mature old forest structure, as more dead trees from insects and disease would have accumulated as stands age. While larger, older trees may be preferred for suitable habitat, black-backed woodpeckers commonly use trees ranging from 11-15" for nesting, roosting, and foraging (WDW, 1991, p.1). They are suspected of occurring at or above levels comparable with other areas on the Forest and District.

Rationale for No Further Analysis: The Fallen Bear project area has not had any large fires in the past six years, or any recent extensive insect outbreaks. As there would be no treatment to post-fire or bark-beetle outbreak areas, the project would have little to no effect on BBWP; therefore a habitat assessment and detailed analysis is not needed (Bonn and others 2007, p.24). There is enough mature timber in the project area to supply habitat that provides the tree mortality needed to sustain BBWP at low, endemic population levels (Project file WL24). With this level of habitat present the proposed action is unlikely to have an adverse effect on BBWP use of the project area. While there would be a loss of some dead and dying trees through the proposed logging, this should be partially offset by the expected incidental tree mortality caused through the underburning that is planned for fuels treatment. The retention of snags to meet the snag guidelines, and the protection of existing snags within the uncut Riparian Habitat Conservation Areas (RHCAs) also will reduce the impact of the project on BBWP habitat. The creation of snags through the larch mistletoe treatment, as well as the expected continual low level of root rot and beetle kill in the project area will also help retain habitat features for BBWP over time.

For the above reasons this project <u>may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species.</u> No further analysis or discussion is warranted.

<u>Black Swift:</u> In the western U.S. black swifts nest on small ledges of cliffs, caves, or other vertical surfaces near or behind dripping water sources, waterfalls, or turbulent spray zones (Wiggins 2004, p. 18). There are six features strongly associated with black swift nest sites: 1) falling or dripping water, 2) high relief, 3) inaccessibility to ground predators, 4) unobstructed flyways in the immediate nest vicinity, 5) shade during a major portion of the day, and 6) the presence of suitable nest niches (Knorr 1993, in Wiggins 2004, p.17). Black swifts feed on insects and forage over forests and in open areas. Risks to the species include: 1) decreases in waterflow, 2) recreational use of nest sites (e.g. rock climbers and hikers), and 3) use of pesticides near nesting areas.

Species/habitat presence & Rationale for No Further Analysis: There are two small (<15') waterfalls in the project area that could provide potential nesting habitat for black swifts. These sites were visited in 2008 and have very low to low potential for use by black swifts (WL10). Both of these waterfalls are on streams protected from activity by 600' wide RHCA buffers. No measurable changes in stream flow are anticipated as a result of this project. Therefore project activity would have no impact on the black swifts or potential nesting habitat under any alternative. No further analysis or discussion is warranted.

Coeur d'Alene Salamander:

Coeur d'Alene salamanders are restricted to cool damp aquatic habitats that have thermal and hydric stability. The species has been found in three major types of habitats in northern Idaho: spring seeps, waterfall spray zones and along stream edges between 1,800 to 3,500 feet elevation. Known populations occur in association with sharply fractured rock formations in conjunction with both persistent and intermittent surface water (Cassirer and others 1994, p.8). These conditions are critical for Coeur d'Alene salamanders since they respire through the skin and lose water to the environment through evaporation (Cassirer and others 1994, p.6).

Species/habitat presence: There are two known salamander sites in the Fallen Bear project area. These sites are associated with fractured rock seeps adjacent to FH 50 along the southern boundary of the analysis area. These two sites were surveyed in 2003, and potential sites along the Bruin Cr. Rd. were surveyed in 2006. They are currently providing suitable habitat, however no CDA salamanders were found (WL2, WL3). Other potential habitat within the analysis area along FH50 and Bruin Creek has been surveyed; no other salamander sites were found (Wilson 1991, p.42).

Rationale for No Further Analysis: Roadside noxious weed spraying is an activity with the potential to affect CDA salamanders, as they breathe through their skin and would be susceptible to impacts from contact with herbicides. Restrictions listed in the St. Joe Noxious Weed EIS on spraying in wet areas would protect their habitat due to the nature of the wet, rocky seeps where CDA salamanders have been located.

The requirement for riparian habitat conservation area (RHCA) buffer zones means that suitable habitat associated with stream edges and waterfall spray zones would not be affected by timber harvest in any alternative. These riparian buffers would also protect any potential fractured rock seep habitat along the lengths of roads adjacent to the creeks.

This project does not have any activity that would directly or indirectly affect Coeur d'Alene salamander habitat. There would be no change to conditions for Coeur d'Alene salamanders with any alternative. This alternative will have no impact on Coeur d'Alene salamanders, and no further analysis or discussion is warranted.

Common loon: The legs of loons are positioned far towards the rear of their bodies. This adaptation makes it difficult to walk on land, and loons are therefore totally dependant on water. For nesting they need lakes, with emergent shoreline vegetation and secluded areas for nesting and brood rearing, of at least 10 acres, to allow for the distance needed to take off. They appear to avoid lakes

over 5,000 feet in elevation, as these lakes are generally ice covered until late in the breeding season. (USDA 1989, p.30)

Species/habitat presence & Rationale for No Further Analysis: There are no lakes in the wildlife analysis area that may serve as potential habitat. The species is not known or suspected in the project area. Based on the lack of suitable habitat and occurrence there would be no impact on habitat or the species. No further analysis and discussion is warranted.

Fringed myotis: This bat is found in montane habitats and prefers dry coniferous forests. They consume mostly beetles and frequently forage over thickets along streams (Wisdom and others 2000, p.300). They have been captured in ponderosa pine and Douglas fir forest while foraging over willow/cottonwood areas (Montana Animal Field Guide, 2004). They use caves, buildings, mines, rock crevices and large diameter snags with exfoliating bark for roosting. Risks to the species include: 1) loss of existing and potential roost sites from mine closures, snag removal, and destruction/fumigation of buildings, 2) roost abandonment from excessive disturbance of roosting bats – e.g. recreational caving and road access as an indirect facilitator of such activities, and 3) degradation and loss of native riparian vegetation (Wisdom et. al., 2000, pp. 300, 304).

Species/habitat presence & Rationale for No Further Analysis: The fringed myotis is not known or suspected to occur in the project area. There is limited suitable habitat in the Fallen Bear project area (597 ac. 5.7%). There is no treatment of mature ponderosa pine, and only 13 acres, 2.2% of mature, dry Douglas fir cover type proposed for logging under one alternative. There is one abandoned mine in the wildlife analysis area that may serve as potential habitat. Bats use this mine. The mine was netted in 2002 and bats were caught, but they were not fringed myotis. (Landreth 2002, p.15) There is no proposed timber sale or stand improvement activity near the mine. The mine is protected from most habitat altering activities by its location within 300 feet of the St. Joe River. The species is not known or suspected to occur in the area. Existing habitat capability and suitability, and the lack of species occurrence preclude the potential for effects on habitat or the species. This project will have no impact on this species. No further analysis or discussion is warranted.

Harlequin Duck: Harlequin ducks are sea ducks that winter in coastal areas and migrate inland to breed along swiftly flowing mountain streams. Some of the habitat conditions found on streams used by harlequin ducks are: clear water, riffle habitat, woody debris, loafing rocks, shrub/tree vegetated streambanks, and a relative lack of human disturbance or inaccessibility (Cassirer and others 1996, p.11).

Species/habitat presence & Rationale for No Further Analysis: Within the project area the St. Joe River is the only stream listed in the Harlequin Duck Conservation Assessment and Strategy (Cassirer and others 1996, p.27, 29, 31) as having the potential to support harlequin ducks. Harlequin ducks are rarely seen in this stretch of the river (WL4). With the proximity of FH 50, and the amount of traffic and activity (i.e. fishing, rafting, camping, etc.) along the river, it is unlikely that ducks would successfully nest within the project area. Project activities would have no effect on riparian habitat that could potentially be used by ducks. Based on the lack of activities and effects within the St. Joe River corridor there will be no impact on habitat or the species. No further analysis or discussion is warranted.

Peregrine Falcons are seasonal migrants to northern Idaho, nesting in the northern temperate regions while wintering in the U.S. and southward. They nest on cliffs that are typically higher than 100 feet, with overhanging ledges or potholes and a vertical surface that provide protection from predation. Foraging areas associated with nest sites can include wooded areas, marshes, grasslands and open water.

Species/habitat presence & Rationale for No Further Analysis: There are no known historic eyries in the wildlife analysis area. It is possible there may be a limited amount of potential habitat along the breaks above the St. Joe River. While this habitat is steep and rocky, for the most part it does not possess the usual cliff-like appearance and characteristics associated with typical peregrine nesting habitat. The species is not known or suspected to occur in the area. Existing habitat capability and suitability, and the nature and scope of the project preclude the potential for effects on habitat or the species. This project will have no impact on this species. No further analysis and discussion is warranted.

Pygmy nuthatch: This bird is highly tied to the distribution of ponderosa pine forests, especially mature, undisturbed stands. Breeding density and populations are limited by the availability of snags. They prefer to forage in the dense foliage of pines and subsist on arthropods and pine seeds (Ghalambor, 2003, p.38). Risk factors for the species include: 1) a reduction in snag availability, most often affected by timber harvest, 2) decreases in foraging habitat, in terms of reduced canopy density and increased canopy patchiness, and 3) loss of continuous habitat, as pygmy nuthatch populations are very sedentary (Ghalambor, 2003, p.32-33).

Species/habitat presence & Rationale for No Further Analysis: There are no suitable mature, well-canopied ponderosa pine forest cover stands in the Fallen Bear project area. The species is not known or suspected to occur in the area. There are no occurrence records from the latilong (latilongs are the rectangular areas between adjacent meridians of longitude and parallels of latitude) encompassing the project area (Stephens and Sturts, 1991, p.50). Existing habitat capability and suitability preclude potential effects on habitat or the species. This project would have no impact on this species. No further analysis or discussion is warranted.

Townsend's Big-eared Bat: Caves and cave-like structures are a critical habitat for this species, both as hibernacula in the winter and as roosts for summer nursery colonies. They occasionally use bridges and open buildings for roosting and in some places have been known to use building attics as maternity sites (Pierson and others 1999 p. 6, 11). In northern Idaho, Townsend's big-eared bats primarily roost in abandoned mines. Loss and disturbance of hibernacula and roosting habitat is the limiting factor for Townsend's big-eared bats.

Species/habitat presence & Rationale for No Further Analysis: Townsend's big-eared bats are only known to occur on the Kaniksu portion of the IPNF. There is one abandoned mine in the wildlife analysis area that may serve as potential habitat. Bats use this mine. The mine was netted in 2002 and bats were caught, but they were not Townsend’s big-eared bats. (Landreth 2002, p.13) The species is not known or suspected in the project area. There is no proposed timber sale or stand improvement activity near the mine. The mine is protected from most habitat-altering activities by its location within 300 feet of the St. Joe River and a 500’ no harvest buffer (EA, Design Features for Commercial Timber Harvest, Wildlife). Based on the lack of species occurrence, and of any

activity within ½ mile of the mine, there would be no impact on habitat or the species; and no further analysis or discussion is warranted.

Moose were identified in the Forest Plan as a management indicator species (MIS) associated with mature timber stands. Moose eat a variety of plants with shrubs and trees being the most important winter forage. Components of moose habitat include riparian areas and old harvest units or brushfields. The level of human disturbance is considered to be the most limiting component affecting moose in the analysis area.

Species/habitat presence & Rationale for No Further Analysis: Moose are known to occur and are relatively common in the wildlife analysis area. The parameters used to evaluate effects on elk (e.g. road density, security), and mature and old growth associated species, are applicable and sufficient for addressing potential effects on moose. Riparian areas important for moose would be protected from treatment by the implementation of no-entry RHCA buffers. Therefore, no analysis specifically for moose is warranted.

Forest Land Birds include all the avian species sometimes collectively termed as 'neotropical migrant birds' and 'resident songbirds'. This group of birds is an extremely diverse group of species, with divergent habitat associations and consequently a wide range of potential effects resulting from project activities (Saab and Rich, 1997, p. 3, 4). Migratory birds are protected under the Migratory Bird Treaty Act (MBTA) of 1918, and amended in 1936, 1974 and 1989.

Species/habitat presence & Rationale for No Further Analysis: Various land birds are known to be present in the wildlife analysis area. Any treatment, including no action, affects some species in this group at the expense of others. Species likely to be affected by activities are represented by other species and habitat elements that are addressed in this screen and/or analyzed further. These include: general forest species (elk), dry site species (flammulated owl), wetlands/riparian habitat species (western toad), old growth species (flammulated owl, fisher, pileated woodpecker and northern goshawk), and snag dependent species (pileated and black-backed woodpeckers). Therefore, no analysis is warranted specifically for land birds.

Snag/Cavity Habitat: The amount of snags and down woody material present has been identified as a measure of forestland integrity (Quigley et. al. 1996 p. 97). Snags of varying size, condition, and tree species provide habitat for a variety of wildlife species. The species totally or largely dependent on cavity habitat include some sensitive (e.g. black-backed woodpecker, flammulated owl) and management indicator species (e.g. pileated woodpecker).

Species/habitat presence & Rationale for No Further Analysis: Existing cavity habitat is a function of past and present disturbances (e.g. fire, insects, disease, and timber harvest), stand initiation, and succession. Providing numbers of snags that have been shown to support viable populations is a prudent approach to managing for viable/sustainable populations of woodpeckers and other species that use snags. Recent studies indicate that viable woodpecker populations occurred in areas with about four snags per acre (Bull and others 1997 pp. 28, 31). Bull and others (1997 p. 31) recommends providing snags in every 5 to 25 acre stand to satisfy distribution needs. Snags and defective and/or diseased trees are most abundant in mature timbered stands. 66% of the Fallen Bear project area is in a mature timber size class, indicating that adequate snag levels exist.

In all action alternatives some snags (i.e. cavity habitat) would be lost. However, the potential impacts on snags and down wood are alleviated by a number of factors.

Areas outside of proposed treatment units would continue to provide snags at existing levels in the short term and the number of snags and down woody material in these areas would increase as stands succeed. Areas would be reserved from treatment within Inland Native Fish Strategy buffers. Snags would be retained in precommercial thinning units. Snags would be created with the girdling of mistletoe infected larch. Snags would also persist in unloggable areas of the timber sale units, i.e. terrain breaks or out of reach spots. Cavity habitat formation would be enhanced through the fungal inoculation portion of the project. Green tree retention needs would be met as the commercial thin prescriptions call for thinning from below, leaving adequate numbers of larger leave trees on site.

Design features of the project were devised to ensure the retention and selection of snags at a level and distribution which has been shown to support viable populations of species that use snags and down logs (EA, Design Features for Commercial Timber Harvest, Wildlife). Snags and snag replacements would be retained at levels recommended by scientific literature based on recent studies (USDA 2000 p. 6). Snag retention objectives exceed Forest Plan standards.

The analysis for snag and cavity habitat dependent species such as flammulated owl and pileated woodpecker will provide analysis of snag and cavity habitat specific to those species.

The project would meet Forest Plan goals and objectives for snag and cavity habitat, and Forest Plan standards would be met or exceeded in all alternatives. No further analysis is needed.

Pocket Gopher Control:

Pocket gopher control baiting may be done to control pocket gophers on approximately 112 acres in areas proposed for regeneration harvests if needed to protect regeneration. The need for pocket gopher control would be evaluated with regeneration surveys for the first, third and fifth year after planting. Only planted areas that have high mortality due to pocket gophers would be treated. Plantations would be treated by hand application of grain treated with (2.0%) zinc phosphide or (0.5%) strychnine. This grain would be deposited into the gophers' underground burrows at a rate of ¼ to ½ pound per acre. The project would comply with all registered label instructions for zinc phosphide and strychnine bait including application in accordance with Idaho State law. Follow-up treatments may be necessary in some areas to ensure adequate seedling stocking levels.

There would be no direct impact on forest vegetation. Indirect effects on vegetation would include higher stocking densities of conifer trees in the treated units. A potential concern is the possibility of non-target mortality from strychnine/zinc phosphide baiting. The main species that could be affected are mice and other small rodents that may consume treated bait in gopher burrows (Anthony and others 1984 in Black 1994). Strychnine and/or zinc phosphide killed gophers appear to present little hazard to mammalian (e.g. wolves) or avian predators (WL30 & 31). Carcasses of poisoned gophers contain low levels of strychnine (less than 0.3 mg. per carcass) and are usually found below ground (Evans 1987 in Black 1994). Zinc phosphide presents very little potential for secondary poisoning of predator or scavenger species that may consume dead rodents (Marsh, 1985 in Bonar, 1995). Research (Barnes and others, 1985) concluded that carcasses of gophers in baited areas did

not pose a hazard and that secondary hazards to predators appear to be greatly lessened by the tendency of gophers to die underground.

Based on reasons stated above there should be no adverse effects from the potential gopher baiting activity on non-target wildlife species.

A more detailed analysis of potential effects from gopher control can be found in the project file (WL30 & 31).

Issue Indicators

Changes in forest vegetation and human disturbance/access could impact existing habitat for wildlife species, and project activities could cause or increase risk of mortality. Based on habitat relationships, indicators of potential impacts on relevant species will be measured. Indicators and units of measurement for habitat and species are displayed in the following table. Queries of the timber stand data base (TSMRS) and information from field reviews/surveys were used to identify types of habitat and capable and suitable habitat for wildlife species (Project File, WL5, WL6). The changes in habitat conditions and habitat for species will be disclosed and a discussion of the effects will be displayed. The analysis of effects on species will be tiered to the analysis of effects on the types/components of habitat displayed in the table.

Table WL3 – Measurement Issues for Wildlife

Habitat/Species	Indicator of Effects	Measurement
Terrestrial Habitat		
Disturbance/Access	Changes in human access	Changes in road status and open road densities
Connectivity	Changes in vegetation in travel routes and barriers to movement	Maintenance of vegetation along ridges and riparian areas
Threatened and Endangered Species		
Canada lynx	Changes in suitable habitat	Compliance with NRLMD and % habitat made unsuitable in last decade
Gray wolf	Changes in disturbance and prey availability	Road density/security and potential elk use
Sensitive Species		
Fisher (and Marten)	Changes in suitable habitat and trapping-vulnerability risk	Acres of suitable habitat and open road density
Wolverine	Disturbance of denning habitat and security	Activity near denning habitat and open road density
Flammulated Owl	Changes in suitable habitat and potential nesting territories	Acres of suitable habitat and number of potential nesting territories
Western Toad	Impacts on breeding habitat and direct mortality	Impacts to riparian habitat & risk of mortality
Management Indicator Species		
Northern Goshawk	Changes in suitable nesting habitat and nest disturbance	Acres of suitable nesting habitat and activity in nest stands
Pileated Woodpecker	Changes in suitable habitat	Acres of suitable habitat
Elk	Changes in potential elk use and vulnerability	Potential elk use and acres of security

Disturbance/Access

Many wildlife species are sensitive to human disturbance and/or adversely affected by human access. The effects caused by the disturbance from timber sales and related activities are generally common to wildlife species, and so are being considered together. There are differences in the degree of response to disturbance between species, and even between individuals of the same species. However, in general, the responses would be similar. Potential temporary disturbance of wildlife is inherent in most human activity (e.g. project implementation) and may include alteration of normal use patterns and potential relocation to avoid disturbance (e.g. using alternate forage or cover areas). The disturbance resulting from the types of activities proposed with this project is not based on loss or long-term alteration of habitat and would not appreciably affect populations.

Displacement and avoidance are the major responses to disturbance. It is expected that most animals will avoid an area being disturbed by road construction, precommercial thinning, logging, slash disposal, and timber hauling activities. This could displace animals from the area of activity to other areas within and outside of the analysis area. This effect is somewhat mitigated by the fact that there is a good level of suitable habitat (86% of the project area would be untreated), in the Fallen Bear project area available for displacement. Species that are more tolerant of disturbance would probably just avoid the immediate vicinity of the activity. Displacement is expected to last for the duration of the stand improvement activity or the length of the timber sale, but it is likely some species would use portions of the project area during periods of sale inactivity. Due to the closing of any existing gates daily after hauling, and the presence of small unroaded areas within and adjacent to the project area for animals to displace to, the disturbance for the proposed activities would not likely cause any permanent relocation of wildlife. The obliteration, storage, and closing of roads after the timber sale would also help reduce the amount of time displacement effects persist. The anticipated timeframe for these intermittent periods of activity would be primarily during May through November between 2009 and 2018.

Most potential adverse impacts from human disturbance are associated primarily with access levels and roads. Effects on wildlife are caused by roads themselves and by the increased contact with humans that they facilitate. High levels of open roads (i.e. roads and trails used by motorized vehicles) can affect wildlife species by increasing their vulnerability to mortality and displacing them from preferred habitats for one or more seasons. The Interior Columbia Basin Ecosystem Management Project assessment (ICBEMP) identified that those species vulnerable to human disturbance have relatively low amounts of secure habitat at the landscape scale. The St. Joe Geographic Assessment also identified security as a concern.

The degree of effects on wildlife from roads is related to the amount and type of use on them. For the purpose of assessing impacts on wildlife from roads, only roads that impact wildlife (through some level of motorized use), are included in this wildlife analysis. For example, a road that is re-vegetated to the same composition and size class as the surrounding forest would have no measurable impact on wildlife (but may constitute an impact on other resources). The ICBEMP science assessment categorized road density levels (expressed as mi/mi^2) of 0.02 - 0.1 as very low, of 0.1 - 0.7 as low, of 0.7 - 1.7 as moderate, 1.7 - 4.7 as high and more than 4.7 as extremely high (Quigley et. al., 1996, p.67). Road density goals for wildlife vary depending on the species, the area under consideration and the objectives and designation assigned to the drainage. For example, in

areas with a marten trapping season, there is a high risk to trapping-vulnerability for fisher and marten when open road densities are more than 1 mi/mi^2 (Heinemeyer and Jones, 1994, p.36). The Lynx Conservation Assessment and Strategy guidelines suggest prioritizing roads for restrictions or reclamation where total road densities in lynx habitat are high, at greater than 2 miles per square mile (Ruediger and others 2000, p.7-10). Data displayed in this section represent conditions specific to the wildlife analysis area and therefore may not match the figures displayed in other resource sections of the document.

Affected Environment

Many of the current and foreseeable actions in the analysis area do and would influence disturbance and access (see Chapter 2). However, regardless of the cause for any disturbance or impact on access, for wildlife road miles and densities best measure the effect. In the wildlife analysis area (Fallen Bear project area), there are approximately 84 miles of road that based on field review and an assessment of potential use, may affect wildlife. For the wildlife analysis this results in a total road density in the Fallen Bear wildlife analysis area of 5.1 mi/mi^2. There are approximately 52 miles of open roads and trails that results in an open road density of 3.2 mi/mi^2.

Environmental Consequences

Table WL4 displays the total road miles, total road densities, open road miles, and open road densities in the Fallen Bear area for each alternative. Road densities are displayed as mi/mi^2. The data displayed includes only roads that may impact wildlife.

Table WL4

Alternatives	A*	B	C
Total road/trail miles	83.8	40.3	33.8
Total road/trail densities	5.1	2.5	2.1
Open road/trail miles	52.1	39.7	33.2
Open road/trail densities	3.2	2.4	2.0

* - Alternative A, No Action, depicts the existing condition.

The following discussions by alternative describe the activities that would lead to the conditions displayed in Table WL4.

<u>Direct, Indirect, and Cumulative Effects of No Action</u>

There would be no new road construction or reconstruction with this alternative. No existing gated roads would be opened to access proposed timber sale units. No roads would be treated to address watershed, fisheries or wildlife concerns. The open road density would remain high, at 3.2 miles per square mile. Conditions for wildlife related to access (i.e. fragmentation, security, vulnerability), would not change under the No Action alternative.

Direct, Indirect and Cumulative Effects of Alternative B

This alternative would build a total of 2.8 miles of new system road and reconstruct 17.9 miles of road in the project area to access proposed treatment units. This alternative would open the gates on Roads 3723 and 1223 to access proposed logging units. This would be a temporary increase in open road density for the duration of the timber sale activity. This is a short-term increase that would mainly be limited to the 3 to 5 year duration of the timber sale. To reduce this effect during timber hauling gates would be closed and locked at the end of each day. For other operations gates would be closed and locked after passage of each vehicle. All of the new construction would either be stored or decommissioned following post-sale activities.

Road decommissioning and changes in road management (which reduce the miles of road that may impact wildlife) would combine to decrease the total road density, and reduce the open road density to a level of 2.4 miles per square mile. Gated roads opened to treat timber sale units would be restored to their previous gated condition, although gates may be moved to more effective closure locations. Conditions for wildlife related to access (i.e. fragmentation, security, vulnerability), would improve from the existing condition.

Direct, Indirect and Cumulative Effects of Alternative C

There is a reduced amount of new road construction with this alternative. This alternative would build a total of 0.8 miles of new system road and reconstruct 7.3 miles of road in the project area to access proposed treatment units. This alternative would open the gates on roads 3723 and 1223 to access proposed logging units. This would be a temporary increase in open road density for the duration of the timber sale activity. This is a short-term increase that would mainly be limited to the 3 to 5 year duration of the timber sale. To reduce this effect during timber hauling gates would be closed and locked at the end of each day. For other operations gates would be closed and locked after passage of each vehicle. The new construction would either be stored or decommissioned following post-sale activities.

Road decommissioning and changes in road management (which reduce the miles of road that may impact wildlife) would combine to decrease the total road density, and reduce the open road density to 2 miles per square mile. Gated roads opened to treat timber sale units would be restored to their previous gated condition, although gates may be moved to more effective closure locations. Conditions for wildlife related to access (i.e. fragmentation, security, vulnerability), would improve from the existing condition.

Connectivity

The spatial arrangement of existing forest structure, land uses (e.g. campgrounds and log landings), and roads (especially Forest Highway 50) affects movement of wildlife and has most likely created impediments to movement for some species. Maintenance of connectivity was one consideration in the development and design of the proposed action and alternatives. The majority of the proposed units for this project is commercial thinning, a harvest type that retains the majority of the timber cover within individual stands. The design criteria to retain 30% canopy cover in any unit within

designated travel corridors (see EA, Design Features), is the major method for maintaining connectivity within the project area.

Affected Environment

The effects of past and present actions continue to affect and alter wildlife movement in and through the analysis area. Areas typically used by wildlife for travel include ridges, riparian areas, and saddles. Prominent ridges that provide potential corridors and connectivity have been mapped (WL9). Areas that create an impediment to travel within these corridors, (for this analysis areas having less than 30% canopy cover and exceeding 100m wide) (Heinemeyer and Jones, 1994, p.38), for some species have also been identified. Past harvest, existing roads, and other human activities have reduced the amount of ridgetop and riparian cover in the landscape of the Fallen Bear project area. This is affecting connectivity/travel corridors for some species.

Environmental Consequences

Direct, Indirect and Cumulative Effects of No Action

This alternative does not build any roads or propose any commercial timber harvest. Existing forest habitat conditions are a result of previous management activities and natural conditions. Existing travel cover would be maintained in the project area; but could be affected by natural processes such as insect and diseases in trees and vegetation succession. There would be no impact on the travel corridors that were identified and mapped for analysis purposes. Conditions in the project area for wildlife movement and travel would not be changed from the existing situation. The No-Action Alternative would not have any adverse effects on connectivity.

Direct and Indirect Effects of Alternative B

In this alternative there are fifteen proposed units that are partially within identified travel ways. In five of these units (3 regeneration, 2 commercial thin), leave tree retention would need to be adjusted within the travel corridor to meet canopy cover needs. Although the design criteria would retain at least 30% canopy cover in the travel corridor portion of all these units, the potential reduction in cover likely would affect wildlife movement.

There are five proposed units (3 commercial thin, 2 regeneration) on the west side, and six proposed units (4 commercial thin, 2 regeneration) on the east side of Tumbledown Creek, that form blocks of mature, closed canopy timber. These blocks connect timbered habitat in the river corridor to upland timbered habitat. Treatment of these stands would reduce the quality of this timbered connection for wildlife, both in terms of travel and habitat effectiveness.

Four of the new roads to be constructed bisect travel corridors in six locations. Road design criteria of the project would minimize impacts and would provide for continued use, as all of these road-associated openings would be well under 100 meters wide. Alternative areas for movement by wildlife exist and opportunities for travel would be maintained.

Direct and Indirect Effects of Alternative C

In this alternative there are six proposed units that would partially overlap identified travel ways. In one of these units (a seedtree cut), leave tree retention would need to be adjusted within the travel corridor to meet canopy cover needs. Although the design criteria would retain at least 30% canopy cover in the travel corridor portion of the units, the potential reduction in cover likely would affect wildlife movement.

There are two proposed units (1 commercial thin, 1 regeneration) on the west side, and five proposed units (3 commercial thin, 2 regeneration) on the east side of Tumbledown Creek, that contribute to, or form blocks of mature, closed canopy timber. These blocks connect timbered habitat in the river corridor to upland timbered habitat. Treatment of these stands would reduce the quality of this timbered connection for wildlife, both in terms of travel and habitat effectiveness. Dropping treatment of three units on the west side of Tumbledown Cr. maintains the majority of this timbered connection, and reduces impacts on wildlife; as compared to Alternative B.

One of the two new roads to be constructed bisects travel corridors in two locations. Design criteria of the project would minimize impacts and would provide for continued use. Alternative routes of travel exist and opportunities for travel by wildlife would be maintained.

Direct and Indirect Effects Common to All Action Alternatives

Proposed harvest activity would not create permanent barriers to movement. The proposed action and alternatives were designed with an objective of minimizing impacts on traditional areas of wildlife movement. Where feasible proposed new road construction was placed lower on the hillside to avoid impacts to ridges and saddles. Proposed harvest units were also designed to minimize impacts to ridges and saddles. In addition, design criteria of the project would further minimize impacts on wildlife travel and movement and would provide for continued use of typical travel ways. Both alternatives would maintain areas for travel and movement for potential use by wildlife.

Cumulative Effects Common to All Action Alternatives

It is unlikely that there would be any further changes in permanent impediments to movement. Existing forest habitat conditions reflect results of previous management activities and natural conditions. The effects of past, present, and reasonably foreseeable actions would continue to affect and alter wildlife movement in and through the analysis area. Based on the implementation of travel cover guidelines, as well as existing and foreseeable conditions, the area will still maintain corridors suitable for wildlife movement.

Given the relatively limited amount of regeneration harvest and road-building proposed with these alternatives, design features of the alternatives, and the conscious desire to minimize impacts through alternative design, it is unlikely that these alternatives would have unacceptable, irreversible and irrevocable adverse impacts on connectivity. Alternative areas for movement by wildlife exist and opportunities for movement and travel would be maintained.

Threatened and Endangered Wildlife Species

The U. S. Fish and Wildlife Service (USFWS) identified four listed or proposed wildlife species that may occur on the Idaho Panhandle National Forests (Species list # 1-9-09-SP-0035, February 11, 2009): Grizzly Bear, Woodland Caribou, Gray wolf and Canada Lynx). At the time this list was issued, no critical habitat for wildlife species was designated on the IPNF. However, on March 27, 2009, the U.S. Fish and Wildlife Service designated critical habitat for Canada lynx, which included a small portion on the IPNF (USDI 2009a, p.8643). Based on direction provided by the USFWS, the Species List, review of the area, a search of district records, scientific literature, and professional knowledge of the area, species requiring analysis were identified.

Table WL5 provides a short synopsis of the listed species, their habitat, and the existing condition within the wildlife analysis area.

Table –WL5 - Listed Wildlife Species

Common Name	Habitat	Existing Condition in the Wildlife Analysis Area
Canada Lynx (Threatened)	Mesic conifer forests that provide a prey base of snowshoe hare (generally above 4,000'). Late and early successional stages.	Species presence unknown. Based on elevation, forest type, and potential vegetation (habitat type), the Lynx Analysis Units encompassing the project area contain sufficient suitable habitat to support the species. The north half of the project area is in the Stateline-Quartz and Gold Creek LAUs.
Gray Wolf (Nonessential Experimental)	Large areas with high prey densities and isolation from human activities. Availability of den and rendezvous sites.	There is no evidence of den or rendezvous sites in the wildlife analysis area. Based on the location of known packs, and the wide-ranging abilities of the species, there is potential for use of the area by wolves.
Grizzly Bear (Threatened)	Dictated by food availability combined with a secure environment. Typically low elevation riparian habitats and other snow free areas in the spring, and higher elevation meadows, shrubfields, and open ridges during the summer and fall.	The project is not in the Bitterroot Recovery Area. No documentation of verified species presence in the wildlife analysis area or surrounding landscape.
Woodland Caribou (Endangered)	Mature to old growth forests with dense canopies over a large elevation gradient. High elevation timbered ridges with abundant lichens.	The project area is outside of the woodland caribou recovery area. The species does not occur on the St. Joe Ranger District.

Threatened and Endangered species were screened for their relevancy to the wildlife analysis area and the proposed action. See the Species Relevancy Screen and Rationale for no Further Analysis sections of this chapter for additional discussions regarding analysis needs of T&E species. Further information can also be found in the project file. Based on species occurrence, habitat capability and suitability, and the likelihood or risk of potential impacts on habitat and the species, there would be no effect on species identified in the Species Relevancy process as needing no further analysis.

Canada Lynx

Lynx occur in mesic coniferous forests that have cold, snowy winters and provide a prey base of snowshoe hare. In northern Idaho lynx habitat generally occurs above 4,000 feet in subalpine fir

forests or cedar/hemlock types when in association with subalpine fir and spruce habitat types (WL5). Habitats that support their primary prey include early successional stages resulting from natural disturbance and timber harvest. Characteristics of foraging habitat include a dense, multi-layered understory that provides cover and browse at ground level and at varying snow depths throughout the winter. Older forests with a substantial understory of conifers and or small patches of shrubs and young trees also provide lynx foraging habitat (Ruediger and others 2000, p.1-2, 3, 4). The common component of natal den sites appears to be large woody debris. Den sites may be located within older regenerating stands or in mature conifer stands. For denning habitat to be functional it must be in or adjacent to foraging habitat (Ruediger and others 2000, p.1-4, 5).

Lynx are generally tolerant of humans and are not displaced by human presence. Most studies of lynx have not shown human presence to influence how lynx use the landscape (Ruediger and others 2000, p.1-13). An exception to this tolerance may be activities around denning sites that may cause abandonment of the site and may affect kitten survival. However discussions with lynx research biologists indicate that lynx appear to endure some degree of human activity at the den site (Holt pers. comm.)

Methodology

The habitat analysis for lynx is based on the Northern Rockies Lynx Management Direction (NRLMD), (USDA, 2007). Objectives, standards and guidelines for the maintenance of lynx habitat and populations would apply only to lynx habitat on federal lands within Lynx Analysis Units (LAUs). Recommended objectives, standards and guidelines include providing for: adequate levels, spatial configuration, and connectivity of foraging and denning habitats by limiting disturbance, or by designing vegetation management strategies that are consistent with historical succession and disturbance regimes. Another guideline would allow no expansion outside baseline areas of designated over-the-snow routes and snowmobile play areas on federal lands by LAU.

Standards for project planning from the NRLMD include: not reducing snowshoe hare habitat in mature multi-storied forests, not regenerating more than 15% of lynx habitat on National Forest System (NFS) lands within an LAU in a ten-year period, and no additional habitat may be regenerated if more than 30% of the lynx habitat in an LAU is currently not providing winter snowshoe hare habitat. A guideline that applies to the project area is to provide for effective road closures and decommission new project roads if not needed for other management objectives. There are numerous other standards and guidelines that apply to this project. Please refer to the NRLMD compliance table (WL11) to see how these standards and guidelines are met.

Lynx habitat is habitat that has the physical characteristics (i.e. habitat type) that would allow it to provide the timber cover and structure needed for lynx. See project file document WL5 for parameters used to determine lynx habitat for this analysis. In addition to changes in forest structure, activities leading to snow compaction may make it possible for competing predators to occupy lynx habitat through the winter, increasing competition for prey.

Lynx Analysis Units (LAUs) have been delineated on the IPNF in 2008 consistent with the NRLMD (WL28). LAU boundaries and mapped lynx habitat were based on recent research and recommendations by the Lynx Biology team (WL16); and the process followed can be found in the

project file (WL15). Changes in LAU boundaries have been reviewed by the Regional Office (WL14) to meet one of the NRLMD standards. The scale of LAUs should approximate the size of area used by an individual lynx, and are intended to provide the smallest scale to evaluate the effects of management actions on lynx habitat (Ruediger and others 2000, p.7-2). The project area is in part of two LAUs, Stateline-Quartz and Gold Creek. The northwestern quarter (roughly), of the project area is in the Stateline-Quartz LAU and has 2,200 acres of lynx habitat in the Tumbledown Creek drainage. Two-thirds (roughly) of the eastern half of the project area is in the Gold Creek LAU and has 2,683 acres of lynx habitat in the Bruin Creek drainage. The portion of the LAUs in the project area is comprised entirely of National Forest System (NFS) lands. 16,730 acres and 16,015 acres of the Stateline-Quartz and Gold Creek LAUs respectively, are lynx habitat. At 26.1 and 25.0 square miles, these areas are each large enough to encompass a lynx home range, and therefore adequate for analysis of cumulative effects.

Affected Environment

Tables WL6 and WL7 show the existing conditions (Alternative A) and post-activity conditions by alternative for the Lynx Analysis Units in the project area.

Table WL6 – Lynx Habitat Condition

STATELINE-QUARTZ Lynx Analysis Unit 16,730 acres lynx habitat						
Alternative	**A – Ex. Con.**		**B**		**C**	
Acres, % of lynx habitat	acres	%	acres	%	acres	%
Stand initiation habitat	2547	15.22	2551	15.25	2547	15.22*
Regeneration cuts last decade	558	3.34	562	3.36	558	3.34*
Stand initiation hare habitat	1124	6.7	1124	6.7	1124	6.7
Multi-storied hare habitat	292	1.7	292	1.7	292	1.7
Other	12767	76.3	12763	76.3	12767	76.3

Multi-storied hare habitat – ex. – dense seedling/sapling cover under a mature timber canopy
** Extra decimal place used to show changes.*

Table WL7 – Lynx Habitat Condition

GOLD CREEK Lynx Analysis Unit 16,015 acres lynx habitat						
Alternative	**A – Existing Condition**		**B**		**C**	
Acres, % of lynx habitat	acres	%	acres	%	acres	%
Stand initiation habitat	1316	8.2	1408	8.8	1355	8.5
Regeneration cuts last decade	462	2.9	554	3.5	501	3.1
Stand initiation hare habitat	2217	13.8	2217	13.8	2217	13.8
Multi-storied hare habitat	621	3.9	621	3.9	621	3.9
Other	11861	74.1	11769	73.5	11822	73.8

Multi-storied hare habitat – ex. – dense seedling/sapling cover under a mature timber canopy

From the tables above, both LAUs have less than 30% of the lynx habitat in the stand initiation structural stage. There has been regeneration of 3.34% of the lynx habitat in the last decade (1998-2008) in the Stateline-Quartz LAU, and a 2.9% change for the Gold Creek LAU. This is within the 15% per decade standard set by the NRLMD.

Winter snowshoe hare habitat and lynx denning habitat appear to be well distributed and intermingled throughout both LAUs. This arrangement of habitat is important to meet another guideline from the NRLMD. There is a guideline to provide habitat for alternate prey species, primarily tree squirrels; which rely on cone crops abundant in mature timber stands. The majority of den sites have been found in mature forest stands (Squires, and others 2008, p.1504). About 10,030 acres (63%) of the lynx habitat in the Gold Creek LAU are mature timber habitat. In the Stateline-Quartz LAU mature timber habitat makes up 6,320 acres (38%) of the lynx habitat (WL12, WL13).

Lynx may be more vulnerable to trapping and other human-caused mortality near open roads (Koehler and Aubry, p.88, 89, in Ruggiero et. al. 1994.). The existing open road density in the Fallen Bear project area is 3.2 miles per square mile. This is classed as a high open road density (Quigley and others 1996, p.67), and as a result there is currently little secure habitat present in the project area (Table WL8).

Table WL8

Alternatives	**A***	**B**	**C**
Secure habitat acres	195	724	1708
Secure habitat %	1.9	6.9	16.2
Open road/trail miles	52.1	39.7	33.2
Open road/trail densities	3.2	2.4	2.0

** - Alternative A, No Action, depicts the existing condition.*

Snowmobile use is considered low in the project area. The only designated trail is about 8 miles on FH50 along the southern boundary of the project area; which is not in any LAU. Only the 2.1 mile section to the Bluff Cr. road in the extreme SW corner of the project area is groomed and receives fairly regular use. There is occasional use on some of the side roads in the project area, and beyond Bluff Cr. up towards Gold Pass, however this is not groomed and snow conditions are usually not favorable for snowmobiles. The arrangement of cover along travel corridors is sufficient to allow movement throughout the LAUs. Overall, existing habitat conditions should not preclude lynx use of the project area.

Environmental Consequences

Direct and Indirect Effects of No Action

The No Action alternative would not change the existing conditions in either of the lynx analysis units. The amount and distribution of denning habitat would be unchanged, and stand initiation habitat would remain below 30%, meeting NRLMD standards. There would be no new road construction with this alternative, and no road restoration would occur. Current road management would continue, so the amount of secure habitat within the project area would remain low, and the open road density would remain high. There would be no change to the designated snowmobile trail system.

Cumulative Effects of No Action

The existing lynx habitat conditions are a result of previous management activities and natural conditions. There are no present or reasonably foreseeable federal actions that would measurably affect lynx habitat in the project area. The amount of winter hare habitat would increase over time as currently unsuitable stand initiation seedling stands grow into the sapling size class. Some of the forage stands would grow out of suitable winter hare habitat condition as these sapling stands become pole sized stands. Based on stand ages and sizes, more seedling stands would become winter hare habitat than saplings stands would become pole stands. Overall, the net effect should be a small increase in winter hare habitat over the next 10-30 years. There should be little change over time to the rest of the lynx habitat in the project area. Within the project area, the high open road densities, (see table WL8), and resultant low amount of secure habitat, would continue unchanged under this alternative. The over-snow trail system and conditions for snowmobile use would not change under this alternative. Both LAUs would continue to meet the standards of the NRLMD. There would be <u>no effect</u> on lynx through this alternative.

<u>Direct and Indirect Effects of Precommercial Thinning Common to the Action Alternatives</u>

This project would precommercial thin (PCT) 775 acres of sapling stands with both alternatives B and C. These stands are units resulting from past regeneration cutting and would be treated with the same prescriptions under both action alternatives. Approximately 267 acres of the PCT are in the LAUs, and of that roughly 168 acres are in lynx habitat. No road construction or reconstruction is being done specifically for PCT units.

All the units to be precommercial thinned are in the seedling or sapling stage, and this would not be changed after thinning. There are nine units (168 ac.) in lynx habitat that are proposed for daylight thinning to promote planted rust-resistant white pine. This would reduce the canopy cover of saplings and seedlings by no more than 20% within those units. The thinning would result in less available forage for snowshoe hare, for a short period estimated to be less than ten years. The treated white pine crop trees are expected to increase growth and vigor as a result of the release treatment, as would any seedlings and saplings on the edges of the thinned areas. There would be an increase in the amount of small (2-6" diameter) down wood throughout the thinned stands from trees felled to release the white pine. Post treatment fuel loads are not expected to become a fire hazard due to the relatively low amount of area actually treated, 20% or less of each unit in lynx habitat, and because any slash created would be lopped and scattered.

This activity is an exception to Standard VEG S5 in the NRLMD which states: " Precommercial thinning projects that reduce snowshoe hare habitat may occur from the stand initiation structural stage until the stands no longer provide winter snowshoe hare habitat only: …5. For daylight thinning of planted rust-resistant white pine where 80% of the snowshoe hare habitat is retained…" (USDA 2007, attachment 1, p.3, 4).

Precommercial thinning has been consulted on in the Biological Assessment (Revised) of the Northern Rockies Lynx Amendment (USDA, 2007a), and addressed in the USFWS Biological Opinion on the effects of the Northern Rocky Mountain Lynx Amendment (USDI, 2007). This activity is consistent with management direction in the NRLMD Record of Decision (ROD) and the USFWS Biological Opinion, (including applicable Reasonable and Prudent Measures and Terms and Conditions). The acres of precommercial thinning in lynx habitat by LAU would be reported as part

of the required monitoring incorporated from the USFWS Biological Opinion (USDA, 2007, attachment 1, p.9).

Cumulative Effects of Precommercial Thinning Common to the Action Alternatives

The existing lynx habitat conditions are a result of previous management activities and natural conditions, and the proposed precommercial thinning would have no measurable effect on forest stand size class within or beyond the project area. Seedling and sapling stands thinned would remain seedling and sapling stands, with slightly more open conditions. Due to the reduction in competition, the smaller seedlings and saplings are expected to increase in growth and cover in the decade following treatment, over time essentially replacing the hare forage lost through the daylight thinning of the white pine. The treated white pine are expected to have an increased chance of survival and persist long enough to provide a valuable component in the stand as well as a future seed source. There are no reasonably foreseeable activities that would impact forest vegetation within the project area or the LAUs. For reasons stated above, there would be no cumulative effects from the proposed precommercial thinning beyond those covered in the current Biological Opinion.

Direct and Indirect Effects of Alternative B

Following completion of all activity, implementation of proposed restoration actions, and access management changes, the amount of stand initiation habitat would increase by 4 acres in the Stateline-Quartz LAU and 92 acres in the Gold Creek LAU. This is less than 1% in both LAUs. This increases the stand initiation habitat to 15.2% of the lynx habitat in the Stateline-Quartz LAU and 8.8% of the lynx habitat in the Gold Creek LAU, remaining well below the 30% upper limit set as an NRLMD standard. The amount of lynx habitat regenerated is less than 1% in each LAU, also remaining well below the 15% per decade standard. Denning habitat would be reduced by the proposed regeneration harvest of 4 and 92 acres in the Stateline-Quartz and Gold Creek LAUs, but would remain well distributed in the project area and throughout the LAUs. There would be 6,316 and 9,938 acres of mature timber for potential denning habitat remaining, respectively. Another 26 acres in the Gold Creek LAU would be commercially thinned with the proposed timber sale. This stand would still qualify as lynx habitat, although the quality would be reduced. There are 2.8 miles of new system road that would be constructed for this alternative; and 17.9 miles of road reconstruction. All seven of the new roads constructed for the timber sale would be put into long-term storage after project activities are complete. The amount of decommissioning and long-term storage proposed for existing roads, coupled with the proposed road management changes, would increase the amount of secure habitat in the project area. Open road densities would be reduced from existing levels in the portion of the LAUs within the project area (see Table WL8). There would be no change to the designated snowmobile trail system.

Cumulative Effects of Alternative B

The existing lynx habitat conditions are a result of previous management activities and natural conditions, and the changes in lynx habitat as a result of the proposed activities (see Tables WL6 and WL7) are not expected to adversely affect the ability of the project area to support lynx. Four acres (1 stand) of lynx habitat would be cut with the proposed timber harvest in the Stateline-Quartz LAU, and 118 acres (5 stands) in the Gold Creek LAU. The treatment of this small a percentage of lynx

habitat would have inconsequential effects on lynx habitat conditions. Most of the proposed logging is in either not lynx habitat (45 acres), or not in the LAUs (305 acres). The changes in lynx habitat (see tables WL6 and WL7) are not expected to adversely affect the ability of the project area to support lynx. The arrangement and distribution of denning and stand initiation hare habitat would remain good across the project area and LAUs. Both LAUs would continue to meet the standards and guidelines of the NRLMD. The proposed activities would not reduce snowshoe hare habitat in multi-storied mature or late successional forest. The decreased open road density and increased amount of secure habitat in both LAUs should improve conditions for lynx in the project area. The maintenance of canopy cover in travel corridor stands would continue to allow movement throughout the project area. There are no reasonably foreseeable activities that would impact forest vegetation within the project area or the LAUs. No change in the amount of snowmobile use is anticipated as a result of project implementation, and there would be no change to the designated snowmobile route (which is outside of the LAUs), in the project area. For these reasons the activities (excluding precommercial thinning) in this alternative <u>may affect but are not likely to adversely affect lynx or lynx habitat and there would be no adverse modification of designated lynx critical habitat.</u>

<u>Direct and Indirect Effects of Alternative C</u>

There is no commercial treatment of lynx habitat in the Stateline-Quartz LAU with this alternative. The acres of stand initiation habitat present and the amount of regeneration harvest over a ten year period would not change in this LAU. Following completion of all activity, implementation of proposed restoration actions, and access management changes, the amount of stand initiation habitat would increase by 39 acres in the Gold Creek LAU. This increases the stand initiation habitat to 8.5% of the lynx habitat in the Gold Creek LAU, remaining well below the 30% upper limit set as an NRLMD standard. The amount of lynx habitat regenerated is 0.2%, increasing the total to 3.1% in the LAU, also remaining well below the 15% per decade standard. Denning habitat would be reduced by the proposed regeneration harvest of 39 acres in the Gold Creek LAU, but would remain well distributed in the project area and throughout the LAU; with 9,991 acres of mature timber for potential denning habitat remaining. There are 0.8 miles of new system road that would be constructed for this alternative; and 7.3 miles of road reconstruction. The two new roads constructed for the timber sale would be put into long-term storage after project activities are complete. The amount of decommissioning and long-term storage proposed for existing roads, coupled with the proposed road management changes, would increase the amount of secure habitat in the project area. Open road densities are reduced from existing levels in the portion of the LAUs within the project area (see Table WL8). There would be no change to the designated snowmobile trail system.

<u>Cumulative Effects of Alternative C</u>

The existing lynx habitat conditions are a result of previous management activities and natural conditions, and the changes in lynx habitat as a result of the proposed activities (see Tables WL6 and WL7) are not expected to adversely affect the ability of the project area to support lynx. Only 39 acres (2 stands) of lynx habitat would be cut with the proposed timber harvest in the Gold Creek LAU, and none would be cut in the Stateline-Quartz LAU. The treatment of this small a percentage of lynx habitat would have inconsequential effects on lynx habitat conditions. Most of the proposed logging is in either not lynx habitat (45 acres), or not in the LAUs (208 acres). The changes in lynx

habitat (see Tables WL6 and WL7) are not expected to adversely affect the ability of the project area to support lynx. The arrangement and distribution of denning and stand initiation hare habitat would remain good across the project area and LAUs. Both LAUs would continue to meet the standards and guidelines of the NRLMD. The proposed activities would not reduce snowshoe hare habitat in multi-storied mature or late successional forest. The decreased open road density and increased amount of secure habitat in both LAUs should improve conditions for lynx in the project area (Table WL8). The maintenance of canopy cover in travel corridor stands would continue to allow movement throughout the project area. There are no reasonably foreseeable activities that would impact forest vegetation within the project area or the LAUs. No change in the amount of snowmobile use is anticipated as a result of project implementation, and there would be no change to the designated snowmobile route (which is outside of the LAUs), in the project area. For these reasons the activities (excluding precommercial thinning) in this alternative <u>may affect but are not likely to adversely affect lynx or lynx habitat and there would be no adverse modification of designated lynx critical habitat.</u>

Gray Wolf

Historically wolves were distributed throughout most of Idaho in unknown populations. Wolf packs of 4 to 10 animals appear to have ranged widely in the mountains of northern and central Idaho. A decline of native ungulates, control programs designed to eradicate wolves and conflicts with livestock and humans caused the decline of wolf populations in Idaho and led to the absence of a breeding population in Idaho (Hansen 1986, p.19).

The Fallen Bear project area falls within the Central Idaho reintroduction area where gray wolves are classified as nonessential experimental populations. This classification treats wolves as proposed for listing under the ESA (i.e. instead of endangered). There is no proposed critical habitat for the gray wolf. The reintroduction of wolves in Central Idaho did not envision conflicts with current or anticipated management actions. Wolf population recovery goals have been met since 2002 (Nadeau and others 2008, p.3). This removes any requirement for land- use restrictions *associated with the reintroduction*, including areas around den sites or other critical areas (USDI 1994, p.60271).

Wolves exhibit no particular habitat preference. High prey densities, particularly big game, and isolation from human disturbance characterize quality wolf habitat. Other important habitat features for wolves include den and rendezvous sites (Hansen 1986, p.50). Dens are commonly located on southerly aspects of moderately steep slopes, usually within 400 yards of surface water and tend to be located away from sources of human disturbance such as roads and campsites. Rendezvous sites are usually complexes of meadows and adjacent hillside timber (USDI 1987, p.8).

Methodology

Effects analysis is based in part on the quality of elk and deer habitat, Elk Habitat Potential (EHP), as this is one indicator of the ability of the project area to support an adequate prey base for wolves. While the project area is not in a known home range, wolves, if in the area would use an area larger than the project area. The cumulative effects area used for this analysis will be the project area and the surrounding Quartz – Gold Elk Habitat Unit (WL27). This provides an area of approximately 41,000 acres, 64 sq. miles, large enough to analyze effect on a wide-ranging species such as the gray wolf. Human disturbance as measured by open road densities within the analysis area is also used to disclose potential effects in this analysis. Human caused mortality, rather than human disturbance

itself, can affect the ability of an area to support wolves. The potential for mortality is related to the open road density and the amount of secure habitat, so these factors are also used to analyze effects on wolves.

Affected Environment

Existing habitat conditions do not preclude the presence of wolves in the project area. There are known or suspected pack territories all around the project area (Nadeau and others 2008, p.19). However current open road/trail densities and limited secure habitat decrease the likelihood of wolves using the area in more than a transitory manner. Based on a combination of field review and aerial photo assessment, there are no areas usually associated with den or rendezvous sites in the wildlife analysis area. From descriptions of common den and rendezvous sites, there is low potential for denning and rendezvous site(s) in the stands proposed for treatment. The open road density is 2.9 mi./mi^2., and 3% of the area is secure habitat, over ½ mile from an open road (WL17). The elk habitat potential (EHP) in the Quartz Gold analysis area is .42 (WL18). This is below the .50 target level set by the F.S. and Idaho Department of Fish and Game for the Elk Habitat Unit encompassing the project area. Potential elk use is a measure of prey availability (see the section on elk in this document).

Environmental Consequences

Table WL9 displays the effects on open road/trail density, security, and prey availability by alternative.

Table WL9 – Post activity conditions – Quartz-Gold EHU10

	Alternatives		
Analysis Criteria	A	B	C
Open road/trail density	2.9	2.7	2.6
% Secure habitat	3.2	4.8	7.2
Elk habitat potential	.416	.437	.461

Direct, Indirect and Cumulative Effects of No Action

As this alternative does not change any of the above conditions within the project area, it would have no effect on the gray wolf. No activities are proposed, and the amount of open roads and trails would remain high, limiting the amount of secure habitat available for elk and deer, and therefore wolves. Potential travel corridors would retain their existing cover; however the elk habitat potential would remain below the desired target of .50.

Direct and Indirect Effects Common to the Action Alternatives

There are no known dens or rendezvous sites in the project area; and the likelihood of direct effects is very low due to the nature of occurrence of wolves. The potential exists for disturbance from timber sale related activities to any wolves that may be in the project area. However there is inconsiderable potential for adverse effects due to the likely transitory occurrence of wolves in this project area as well as wolves ability to easily disperse long distances. There would be: no impact on any known wolf den or rendezvous site, no consequential increase in the likelihood of human

wolf conflicts, and no adverse change to the prey base. Travel corridors would be maintained, however there would be a reduction in their effectiveness in a few spots due to the number of units logged and roads constructed within potential travel corridors.

Both action alternatives would decrease the open road/trail density, with a resultant increase in secure habitat and EHP. Given the amount of past harvest in the project area, the reduction in timber cover would have a greater impact on ungulates than would the creation of future forage in proposed regeneration cut openings. Each of these alternatives would improve conditions for wolves and wolf prey by varying degrees. Alternative C shows the most improvement in secure habitat and EHP, with less impact on cover and travel corridors than alternative B.

Cumulative Effects Common to the Action Alternatives

Historically, gray wolf occurred throughout northern Idaho. Although there is evidence of occasional use of the area by wolves, there has not been the consistent, repeated amount of use that would indicate pack activity. Existing conditions for wolves are a result of previous management activities and natural conditions, and the proposed activities are unlikely to affect wolves due to their wide ranging nature and the relative lack of preference for special habitat. Based on: the maintenance or improvement of the prey base, (as shown by the increase in EHP), design criteria which would avoid adverse impacts (e.g. by maintaining corridors/linkages, avoiding known den and rendezvous sites), lack of critical habitat, and no consequential change in the likelihood of human wolf interactions; the federal actions evaluated in this proposal would not cause any adverse cumulative effects. The action alternatives are not likely to jeopardize the continued existence of the species or result in the destruction or adverse modification of proposed critical habitat.

Sensitive Wildlife Species

Sensitive species are determined by the Regional Forester (FSM 2670.5) and are those species for which population viability is a concern. The ICBEMP assessment found that species that are likely in decline (including many Sensitive species) are associated with landscape and habitat components that are declining. Forest Plan direction for the Idaho Panhandle National Forests (IPNF) states that habitat of sensitive species will be managed to prevent further declines in populations which could lead to federal listing under the Endangered Species Act.

Methodology

This analysis identified capable and suitable habitat based on the latest scientific literature for each species and available data in the TSMRS and FSVEG databases. Stand information from the databases was closely reviewed to determine if it was still valid. Apart from the shrubfield burning of a few stands along the St. Joe River in 2005 and 2006, there have been no major vegetation treatments in the project area over the last fifteen years. Existing forest habitat conditions are a result of previous management activities and natural conditions. Approximately 4,169 acres (40% of the project area) of new field exams have been conducted from 2003 -2008, and the remaining existing stand information is still applicable to current conditions. Impacts on acres of suitable habitat would be calculated by alternative and discussed for each species as appropriate.

Sensitive species on the Regional Foresters list were screened for their relevancy to the wildlife analysis area and the proposed action. See the Species Relevancy Screen and Rationale for No Further Analysis sections of this document for additional discussions regarding analysis needs of sensitive species. Further information can also be found in the project file (WL1).

Based on species occurrence, habitat capability and suitability, and the likelihood or risk of potential impacts on habitat and the species, there would be no impact on species identified in the Species Relevancy process (except BBWP) as needing no further analysis.

Table WL10 displays sensitive wildlife species from the U.S. Forest Service Region One list (USDA 2008) that may be affected by the proposed action and/or alternatives, a short description of habitat requirements, and comments regarding habitat capability/suitability. The more detailed analysis for each species follows the table.

Table-WL10 - Sensitive Wildlife Species and Habitats

Common Name	Habitat	Comments
Fisher	Mature and old forests structure (riparian linkages).	Suitable habitat available within wildlife analysis area. Marten occupy similar habitat.
Wolverine	Areas of adequate food supply in large remote areas.	Limited denning and secure habitat in wildlife analysis area.
Flammulated owl	Mature to old Douglas fir and ponderosa pine forests.	Suitable habitat within wildlife analysis area.
Western toad	Breed in lakes, ponds, streams and persistent water sources.	Potential breeding habitat limited in wildlife analysis area.

Fisher (and Marten)

Fisher and marten occupy similar habitat (Ruggiero and others 1994, p.7) and potential impacts will be analyzed for both species using the same methodology (the marten is a MIS and not a sensitive species but will be addressed in this section of the document).

Fisher are considered rare through most of Idaho. They prefer late seral stage coniferous and mixed forest habitat. Fisher use forest riparian habitats as resting sites and use them extensively for travel. Fisher appear to avoid high elevations (> 4,000 ft.) and non-forested areas (Ruggiero and others 1994, p.55). Extensive alteration of forest structure as a result of logging (i.e. reduction in canopy closure, snags, and down woody material) may reduce its habitat value for fisher (IDFG 1995, p.33).

Marten associate closely with late-successional stands of mesic conifers (Ruggiero and others 1994, p.22). In the western United States martens are most abundant in mesic mature to over mature spruce-fir forests where small mammal prey species are most abundant (USDA 1990, p.29). In general, marten prefer forest stands with greater than 40% tree canopy closure; and large down logs, stumps, and snags which provide access to prey under the snow and denning sites. Use or selection of riparian zones by marten has been reported in the literature (Ruggiero and others 1994, p.22).

Methodology

To conduct the analysis, assess potential effects and compare alternatives, the analysis uses management guidelines from *Fisher Biology and Management in the Western United States* (Heinemeyer and Jones 1994, p.35-41) and *Habitat Conservation Assessments and Strategies for Forest Carnivores in Idaho (Draft)*, (IDFG 1995, p.65-70), to help determine habitat quality in an analysis area. The percent of the area by forest structure (i.e. mature, pole, etc.) is displayed for each alternative and compared to the guidelines. Size class delineations and descriptions from the IPNF Timber Stand Database are used in this analysis. These existing conditions are a result of past activities and natural conditions. Changes from the existing condition are displayed and discussed relative to guidelines for forest structure within an analysis area.

The goal at the scale of this analysis (i.e. the Fallen Bear project area) is to maintain functional home ranges (Heinemeyer and Jones 1994, p.38) and contribute to a spatial distribution of multiple home ranges that maintain population viability (IDFG 1995, p.51). The 10,523 acre project area is a size that will encompass an average male and 2-3 female home ranges (Ruggiero and others 1994, p.57). The use of a cumulative effects area at this scale facilitates analysis and determination of effects, and allows the methodology recommended in the above scientific literature to be applied. The cumulative effects area used for analysis of project activities will be the Fallen Bear project area.

Current literature (including existing draft assessments and strategies) can be used to establish existing conditions, identify opportunities and direction for management, direct the analysis of potential effects, discuss tentative objectives for the wildlife analysis area, and establish some sideboards for management objectives.

Trapping is an activity with the potential to affect local populations of forest carnivores, but the Forest Service has no jurisdiction concerning trapping; and it is beyond the scope of this project analysis. However, open road densities affect vulnerability (to trapping) and will be addressed.

Vegetation/Habitat

Late successional habitat is an essential component of forest carnivore habitat. The physical structure of the forest appears to be more important for fisher and marten than the species composition. Habitat management considerations for fisher and marten emphasize maintaining late successional forest habitat. Mature riparian forest is especially important for denning sites and travel ways for fisher. Based on habitat requirements, the quality, amount and distribution of late successional forest habitat within the drainage is considered the most important factor for fisher and marten. Guidelines for the composition of forest structure within an analysis area are displayed in table WL11 below. Analysis area quality is determined mainly by the percentage of capable habitat that has a mature forest structure. Capable habitat is habitat that has the physical characteristics (i.e. habitat type) that would allow it to provide the timber cover and structure needed for suitable habitat. For fisher/marten, this analysis uses the IPNF wildlife habitat model, which defines suitable habitat as mature size timber stands with 50% or greater canopy cover on mesic habitat types. (See Project file document WL6 for details of suitable habitat by species.) The amount of suitable habitat within a potential home range is also used to indicate habitat quality. While there is no specific guideline

for the amount of suitable habitat required, changes in suitable habitat amounts and distribution are used to help display project effects.

Access/Vulnerability Risk:

Trapping-vulnerability risk has been cited as one of the factors affecting forest carnivores in Idaho (IDFG 1995, p.34). Two fishers have been accidentally trapped on the St. Joe District during the winters of 2003 and 2004 (WL33). Roads are correlated with trapping vulnerability and human disturbance. For areas with fisher or marten trapping seasons, areas with greater than or equal to 1mi/mi^2 open road densities have a high risk to trapping-vulnerability for fisher and marten. Areas with 0.25 - 1mi/mi^2 open road densities have a moderate risk, and areas with $\leq$ 0.25mi/mi^2 open road densities have a low risk (Heinemeyer and Jones 1994, p.36). As the effects from roads are associated with access, roads that effectively (either physically or legally) restrict motorized use are not included in the road density. The open road density used for analysis includes all roads and trails open to all motorized vehicles (i.e. motorcycles, ATV's automobiles, snowmobiles).

Affected Environment

Guidelines for forest structure and the existing condition of capable forested habitat on NFS lands in the Fallen Bear project area are displayed in the following tables.

Table WL11 – Analysis Area Guidelines for Forest Structure for Fisher and Marten

Forest Structure	High Quality	Moderate Quality	Low Quality
Mature forest**	65-75%	$\geq$40%	30-40%
Young forest***	10-25%	10-25%	10-25%
Pole/sapling	10-25%	10-25%	10-25%

* % of NFS capable habitat in the wildlife analysis area
** Mature forest equates to database size classes mature low risk sawtimber & mature high risk sawtimber
*** Young forest equates to database size class immature sawtimber

Table WL12 – Existing Forest Structure by Fisher/Marten Analysis Area

Forest Structure	9,100 acres of Capable Habitat	
	Acres	%*
Mature forest**	5512	60.6%
Young forest***	519	5.7%
Pole/sapling	2424	26.6%

* % of NFS capable habitat in the wildlife analysis area
** Mature forest equates to database size classes mature low risk sawtimber & mature high risk sawtimber
*** Young forest equates to database size class immature sawtimber

Based on the amount of mature forest structure, the Fallen Bear project area is currently classed as moderate quality fisher/marten habitat.

The Coeur d'Alene Tribe and Forest Service have conducted hair snare surveys for fisher from 2006 – 2008. Although no fisher have been detected in the Fallen Bear project area, widespread numerous

detections indicate there is a fisher and marten population on the St. Joe Ranger District (WL22 & 32).

Environmental Consequences

Table WL13 shows the change in forest structure by alternative. The amount of mature structure present is the overriding factor in determining analysis area habitat quality.

Table WL13 – Acres and percent of Forest Structure by Alternative.

Fallen Bear Forest Structure	ALTERNATIVE					
	A		B		C	
	acres	%	acres	%	acres	%
Mature forest	5512	60.6	5402	59.4	5458	60.0
Young forest	519	5.7	504	5.5	504	5.5
Pole/sapling	2424	26.6	2424	26.6	2424	26.6

The amount and distribution of suitable habitat present in an analysis area is an indicator of the quality of the area for fisher and marten, and the ability of that subdrainage to provide a home range with the potential to support the animals. The following table displays the amount of suitable habitat present in the Fallen Bear project area by alternative. The No-Action alternative A shows the existing condition, the remaining alternatives show expected values after all project activities are completed.

Table WL14 – Suitable Fisher/Marten Habitat

Analysis Area	Alt. A		Alt. B		Alt. C	
	acres	%*	acres	%*	acres	%*
Fallen Bear	3382	37.2	2945	32.4	3116	34.2

**The % figure shown is the percent of capable habitat.*

The amount of suitable habitat is 37% in the analysis area. The area is considered to have the potential to support fisher and marten. Both species are known to occur in the project area (District Records), although the most recent fisher observation is from tracks in 1995. Fisher hair snare surveys were conducted by the Forest Service in the project area in 2007, no fisher were detected WL22).

Due to their importance in supplying suitable habitat and providing preferred travel corridors, the condition of riparian zones also affects fisher habitat. The riparian buffers required to meet INFS guidelines would maintain this habitat during and after the proposed activities. All the action alternatives would treat some road within riparian areas to improve stream function. This project is designed to restore more natural conditions to the streams and accompanying riparian vegetation by storing and decommissioning roads. This would begin the process of restoring and moving the riparian habitat closer to desired conditions, thereby improving habitat for fisher and marten in the long term. The following table displays the amount of riparian road storage decommissioning by alternative, along with the portion that is encroaching (within 50’) on the streams.

Table WL15 – Road miles treated within Riparian Habitat Conservation Areas (RHCA)

Alternative	A	B	C
Road miles treated	0	7.5	8.3
Encroaching Road miles treated	0	3.0	3.2

Table WL16 displays the existing condition and the effects on open road densities and trapping-vulnerability risk by alternative. Alternative A is the existing condition and No-Action Alternative. Alternatives B and C display post-project conditions after all planned road work has been completed.

Table WL16 – Trapping Vulnerability Risk

Analysis Area	Alt. A	Alt. B	Alt. C
	Open road density/trapping-vulnerability risk		
Fallen Bear	3.2/high	2.4/high	2.0/high

Open road density is shown in miles per square mile.

The existing open road density in the Fallen Bear wildlife analysis area is above 1 mi/mi^2 and classed as a high trapping/vulnerability risk.

Direct and Indirect Effects of No Action

There would be no change in habitat conditions for fisher and marten under the No-Action alternative. The amount of suitable habitat and overall analysis area habitat quality would not change from existing conditions. Current road management would continue, so there would be no change in the open road system or the amount of riparian roads present. The trapping-vulnerability risk would remain high in the project area.

Cumulative Effects of No Action

Existing forest habitat information reflects conditions that are a result of previous management activities and natural conditions; and Alternative A would not change habitat quality, the amount of suitable habitat, or the ability of the area to support fisher and marten. As this alternative does not affect any mature or suitable habitat, there would be no change to habitat quality for fisher/marten in the project area. The amount of suitable habitat and the ability of the area to support fisher/marten would also remain unchanged. "No indication exists that forested ecosystems in the Northern Region have reached the 20 to 30% threshold of historic" (Samson 2006a, p.17). 37% of this project area is suitable habitat (Table WL14), meaning this alternative is above the threshold providing for species persistence. There would be no riparian road treatment and consequently no long-term improvement in the condition of these roaded riparian corridors as it relates to fisher/marten. There would be no road storage or decommissioning to reduce open road densities, so the current high trapping-vulnerability risk would also remain unchanged. Therefore, this alternative would have no impact on fisher/marten.

Direct and Indirect Effects of Alternative B

Approximately 437 acres of suitable fisher habitat would become unsuitable through canopy reduction and the likely decrease in the presence of large dead and downed logs; and for clear-cut

and seed-tree units, a change in size class to an early successional stage. Suitable habitat would be reduced to 2,945 acres or 32.4%, which is a 4.8% reduction from existing conditions. (See Table WL14). This would change 12.9% of the suitable fisher habitat in the project area to unsuitable. This alternative would convert 110 acres of suitable mature forest habitat to a seedling stage. This would be a reduction of 1.2% in the amount of suitable, mature habitat in the analysis area, Table WL13. As shown in Table WL16, open road densities would be reduced from 3.2 to 2.4 mi/mi^2 in the project area. Despite the improved conditions the trapping–vulnerability risk would remain high. Table WL15 shows 7.5 miles of riparian road would be treated under this alternative, contributing to an improvement in future riparian habitat conditions. Of this total approximately 3 miles of road encroaching on riparian areas (within 50' of the stream) in the project area would be recontoured. This would begin the process of restoring/moving the riparian habitat closer to desired conditions thereby improving habitat for fisher and marten.

Cumulative Effects of Alternative B

Existing forest habitat conditions are a result of previous management activities and natural conditions. The proposed activities, when added to the existing condition, are not expected to adversely affect the ability of the project area as a whole to provide fisher/marten habitat. While the overall moderate quality of the analysis area would not change with this alternative, the 13% reduction in the amount of suitable habitat could slightly reduce the ability of the project area to support fisher/marten. By maintaining 32% of suitable habitat (Table WL14), this alternative is considered capable of contributing to a fisher/marten population on the district. "No indication exists that forested ecosystems in the Northern Region have reached the 20 to 30% threshold of historic" (Samson 2006a, p.17). Although the trapping-vulnerability risk would not change, the 25% decrease in open road densities is expected to somewhat offset the decrease in suitable habitat, as would the improvement in riparian road corridor conditions. This degree of change in timbered vegetation is not expected to adversely affect the ability of the project area as a whole to provide fisher/marten habitat. 87% of the suitable mature forest habitat in the project area would remain untreated. This alternative may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species.

Direct and Indirect Effects of Alternative C

Approximately 266 acres of suitable fisher habitat would become unsuitable through canopy reduction and the likely decrease in the presence of large dead and downed logs; and for clear-cut and seed-tree units, a change in size class to an early successional stage. Suitable habitat is reduced to 3,116 acres or 34.2%, which is a 3% reduction from existing conditions (see Table WL14). This would change 7.9% of the suitable fisher habitat in the project area to unsuitable. This alternative would convert 54 acres of suitable mature forest habitat to a seedling stage. This would be a reduction of 0.6% in the amount of suitable, mature habitat in the analysis area, Table WL13. As shown in Table WL16, open road densities would be reduced from 3.2 to 2.0 mi/mi^2 in the project area. Despite the improved conditions the trapping–vulnerability risk would remain high. Table WL15 shows 8.3 miles of riparian road would be treated under this alternative, contributing to an improvement in future riparian habitat conditions. Of this total approximately 3.2 miles of road encroaching on riparian areas (within 50' of the stream) in the project area would be recontoured.

This would begin the process of restoring/moving the riparian habitat closer to desired conditions thereby improving habitat for fisher and marten.

Cumulative Effects of Alternative C

Existing forest habitat conditions are a result of previous management activities and natural conditions. The proposed activities, when added to the existing condition, are not expected to adversely affect the ability of the project area as a whole to provide fisher/marten habitat. With less than a 1% reduction in mature timber habitat, the overall moderate quality of the analysis area is essentially unchanged with this alternative. This alternative maintains 34% suitable habitat, which exceeds the 20 – 30% threshold of historic habitat thought to be needed for population persistence (Samson 2006a, p.17). The 3% reduction in the amount of suitable habitat is unlikely to affect the ability of the project area to support fisher/marten. Although the trapping-vulnerability risk would not change, the 38% decrease in open road densities is expected to somewhat offset the decrease in suitable habitat, as would the improvement in riparian road corridor conditions. This degree of vegetation change is not expected to adversely affect the ability of the project area as a whole to provide fisher/marten habitat. 92% of the suitable mature forest habitat in the project area would remain untreated. This alternative may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species.

Wolverine

Wolverines are low density, wide-ranging species that inhabit remote forested areas, ranging over a variety of habitats. Home ranges of resident female wolverines range from 11.6 mi^2 to over 300 mi^2 in Montana and Idaho. The Quartz-Gold EHU surrounding the project area is about 64 mi^2, and will be used as the analysis area for wolverine. Wolverines tend to use lower elevations in the winter and higher elevations in summer, when these areas provide the greatest potential food supply (Hornocker and Hash 1981, p. 1298, in Butts 1992). Wolverine habitat is generally described as possessing an adequate year- round food supply in large, sparsely populated, remote areas. The availability of large mammal (i.e. ungulate) carrion as food is important for the distribution, survival, and reproductive success of wolverines (Ruggiero and others 1994, p. 111). Quality wolverine habitat has been characterized as areas with open road densities below one mile per square mile. Factors with the potential to threaten local population viability of the species include reduction of "wilderness refugia" (large areas of habitat with limited human access) or natural reserves and food availability (Butts 1992, p.32).

Management objectives for wolverine at the drainage level primarily involve maintaining quality habitat by managing road systems to limit disturbance and reduce risk of displacement during critical wolverine denning periods (Feb. 1 - May 30) (USDA 1996, p.4).

Affected Environment

In a district wide assessment, potential wolverine natal denning habitat was not identified in the project or analysis areas; however several spots with potential natal habitat are just over the Montana state line immediately adjacent to the analysis area.

There is a designated snowmobile route in the analysis area. It is about 22.8 miles on FH50 along the southern boundary of the project area, then swinging north to the Montana border at Gold Pass. Only the 2.7-mile section to the Bluff Cr. road in the extreme SW corner of the analysis area is groomed and receives fairly regular use, and this part of the trail is not near any potential natal denning habitat.

The existing open road density in the Quartz Gold EHU is 2.9 mi/mi^2. The elk habitat potential is .42 and 3% of the project area is secure habitat over ½ mile from open roads or trails. The territory size requirements, low elk habitat potential (which could affect the prey base), lack of secure habitat, and the amount of existing access preclude the likelihood of other than incidental occurrence within the wolverine analysis area.

Environmental Consequences

Table WL17 displays the effects on open road/trail density, security, and prey availability by alternative.

Table WL17 – Post activity conditions – Quartz-Gold EHU10

	Alternatives		
Analysis Criteria	**A**	**B**	**C**
Open road/trail density	2.9	2.7	2.6
% Secure habitat	3.2	4.8	7.2
Elk habitat potential	.416	.437	.461

Direct, Indirect and Cumulative Effects of No Action

As the no-action alternative does not change any of the above conditions within the project area, it would have no impact on wolverines.

Direct and Indirect Effects Common to the Action Alternatives

Based on the lack of suitable habitat within the project area, there would be no disturbance to potential natal denning habitat. Neither of the action alternatives would change the amount or location of the designated snowmobile route within the project area. As can be seen from the above table, alternatives B and C would decrease the open road/trail density, with a resultant increase in secure habitat and EHP. The value of the increase in secure habitat for wolverines is somewhat offset by the remaining open road/trail system in both alternatives, which remains above the 1 mi/mi^2 level that characterizes quality wolverine habitat. Due to the improvement of conditions for elk (potential carrion), both of these alternatives would improve conditions for wolverines by varying degrees. Conditions show slightly more improvement in Alternative C than Alternative B.

Cumulative Effects Common to the Action Alternatives

Existing forest habitat conditions are a result of previous management activities and natural conditions. The proposed activities, when added to the existing condition, are unlikely to affect wolverines due to their wide ranging nature and the relative lack of preference for special habitat.

Based on: an absence of natal den sites to be affected, the maintenance or improvement of the prey base, (as shown by the increase in EHP), design criteria which would avoid adverse impacts (e.g. by maintaining corridors/linkages), lack of change to the designated snowmobile route, and an increase in secure habitat; the proposed actions evaluated with this project would not cause any adverse cumulative effects. These alternatives may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.

Flammulated Owl

Flammulated owls are seasonal migrants that occupy home ranges in the northern latitudes during late spring through early fall. They are cavity nesters that depend upon naturally occurring or excavated cavities for nesting. Consequently, snags and other defective trees are an important component of their breeding habitat. These owls are associated with relatively open, older forests featuring ponderosa pine and Douglas fir that are correlated with drier habitats.

Flammulated owls have a relatively small home range, with the average size ranging from 25 to 35 acres, with a home range/territory density no greater than 1 per 100 acres (Hayward and Verner 1994, p.22, 37). Stands composed of ponderosa pine or Douglas fir cover types, in mature (>14" dbh) size classes, on W, SW, S, and SE aspects, with a range of 35-85% canopy cover, with at least 1 10" dbh snag per hectare; are considered suitable habitat. These habitat parameters for flammulated owls are taken from the regional habitat relationships model in (Samson 2006, p.57). Capable habitat is habitat that is able to support the above stand conditions. Reynolds and Linkhart (1992, p.166) reported that all published North American records of nesting, except one, came from forests in which ponderosa pine was at least present, if not dominant. Flammulated owls generally reoccupy the same territory each year. The flammulated owl's preference for ponderosa pine and/or Douglas fir can also be linked to prey availability (primarily moths, beetles, crickets). Reynolds and Linkhart noted a stronger correlation between prey availability and ponderosa pine and Douglas fir, than with other common western conifers. Territories with large, (>14" dbh) ponderosa pine are higher quality than those without ponderosa pine.

Samson (2006, p.62) concluded that the flammulated owl in the Northern region is not an issue for the following reasons:

- No scientific evidence exists that the flammulated owl is decreasing in numbers.
- Increases in the extent and connectivity of forested habitat have occurred since European settlement.
- Well-distributed and abundant flammulated owl habitat exists on today's landscape.
- The level of timber harvest ([in 2004] 0.09% of the forested landscape in the Northern Region) is insignificant.

Affected Environment

Due to their relatively small home range, the 10,523 acre Fallen Bear project area is a sufficient size for flammulated owl cumulative effects analysis. There are approximately 7,431 acres of capable flammulated owl habitat in the wildlife analysis area. Of this, there are 994 acres (13% of the capable habitat), of suitable habitat in 28 stands that are fairly well distributed throughout the drier aspects where it has the potential to occur. 16 of these stands are larger than 25 acres, (11% of

capable habitat), and so would have a greater ability to support owls than the smaller stands. Most of the capable habitat stands do not have the drier Douglas fir or Ponderosa pine cover type needed to be suitable habitat.

The amount of capable and suitable habitat indicates that there is adequate habitat present to support flammulated owls. The distribution of and distance between suitable stands over 25 acres (those most likely to be occupied), should allow for dispersal and individual interchange between home ranges. According to stand exam data, there are no ponderosa pines present in any of the 16 suitable territories. Though suitable habitat is present, the limited occurrence of ponderosa pine and the lack of pine cover may be affecting the use of the area by owls.

W18 - Flammulated owl habitat

Alternative	**A**	**B**	**C**
Total acres of suitable habitat	994	981	994
Number of territories	16	16	16
Suitable acres within territories	820	820	820

Alternative A is the No Action alternative, and displays the existing condition.

Environmental Consequences

Direct, Indirect, and Cumulative Effects of No Action

There would be no management-created changes to habitat conditions for flammulated owls under the No-Action alternative. The increase or decrease in canopy cover resulting from normal growth and mortality would not make a measurable difference over the short term, i.e. 10-20 years. The potential of the analysis area to continue to provide flammulated owl habitat would be unchanged with this alternative. This alternative would have no impact on flammulated owls.

Direct, Indirect, and Cumulative Effects Common to the Action Alternatives

Both action alternatives would precommercial thin some capable flammulated owl habitat. This thinning reduces existing canopy to enhance growth and survival, generally favoring white pine and larch. Most capable stands to be treated are not Douglas fir cover types. As these stands are all seedling and sapling class, it would take many decades for any stand favoring Douglas fir to become suitable habitat. The precommercial thinning of capable flammulated owl habitat would have essentially no effect on owls or their habitat for the next 10-20 years. The absence of a ponderosa pine component further reduces the potential value of these stands for future flammulated owl nesting.

Direct and Indirect Effects of Alternative B

This alternative would treat 15 capable habitat stands (285 ac.), with timber harvest. All the treated stands would still be unsuitable habitat. Eleven of the stands do not have Douglas fir and/or

Ponderosa pine forest types, and the timber size is too small in two stands. Field reviews of the three stands with Douglas fir cover types did not class them as suitable habitat (WL23). All three stands would have insufficient cover after treatment and would remain unsuitable, capable habitat.

This alternative would treat one 13 acre stand of habitat currently considered suitable for flammulated owls, making it unsuitable due to the reduction in canopy cover. This stand is not large enough to be counted as a viable territory, and has no Ponderosa pine in it (WL23). The amount of suitable habitat in the project area would be reduced by 1.3%.

Cumulative Effects of Alternative B

Effects of previous management activities combined with natural conditions resulted in existing habitat conditions for flammulated owls. The proposed activities, when added to the existing conditions would have inconsequential effects on flammulated owls. Given the amount of suitable territories present, and the time needed for capable stands to become suitable habitat, the treatment of capable habitat is not a major factor in the determination of effects. The proposed action does not treat any suitable home ranges, therefore the number and distribution of home ranges through the project area remains unchanged. This alternative treats 13 acres of suitable habitat, a reduction from 994 to 981 acres. The loss of 1.3% of the suitable habitat outside of home ranges would have inconsequential effects on flammulated owls. For the above reasons this alternative may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species.

Direct and Indirect Effects of Alternative C

This alternative would treat 8 capable habitat stands (124 ac.), with timber harvest. Seven of these stands are currently unsuitable because they do not have a Douglas fir or Ponderosa pine cover type. The one stand with a Douglas fir cover type is unsuitable because it has an immature sawtimber size class. All these stands would remain unsuitable, capable habitat after treatment. This alternative does not treat any potential territories or habitat currently considered suitable for flammulated owls.

Cumulative Effects of Alternative C

Existing forest habitat information reflects conditions that are a result of previous management activities and natural conditions. Given the amount of suitable nest territories present, and the time needed for capable stands to become suitable habitat, the treatment of capable habitat is not a major factor in the determination of effects. The amount and distribution of suitable territories would not be changed with the implementation of this alternative. There would be no reduction in the amount of suitable habitat present. Because the treatment of capable stands has no measurable effect on potential flammulated owl habitat, and there would be no treatment of any suitable habitat, this alternative would have no impact on flammulated owls.

Western Toad

Western or boreal toad breeding habitat includes shallow, quiet water in lakes, marshes, bogs, ponds, wet meadows, slow-moving streams, backwater channels of rivers and other persistent water

sources. Young toads are restricted in distribution and movement by available moist habitat, while adults can move several miles and reside in marshes, wet meadows, or forested areas. Toads hibernate in the winter in habitats that maintain a high humidity and above-freezing temperatures. Areas that provide shelter for hibernating toads include rodent burrows, beaver lodges, and beaver dams (Loeffler 1998, p.7). Since this species depends on wetlands to breed, the reduction of wetlands or adverse impacts on wetlands potentially have detrimental effects on western toads. It is important that toads be able to move among their seasonal habitats. The biggest potential barrier to their movement is roads. Steep road cuts can be a barrier to toads moving between seasonal habitats. Juvenile toads are vulnerable to being killed by motorized vehicles when they are dispersing from their natal ponds.

The mesic nature of much of the forests of the IPNF indicate that toads have opportunities to find persistent small water sources for breeding, and could successfully disperse through moist forest.

Affected Environment

There are no known observations of western toads within the project area. There are many mesic timbered stands present that could provide suitable habitat. Potential breeding habitat is likely very limited, as there are no lakes, ponds, or marshes present. There are two areas of elk-wallow created pools at the headwaters of small creeks (WL23). This has created a number of small (≤6' diameter) pools, linked by slow-flowing creeks, and in some spots, subsurface flow. Besides these areas, breeding habitat is probably confined to the shallow edges of any slow-flowing, low-gradient creeks; or persistent roadside-ditch pools that exist in the area. Temporary pools from snowmelt and rainwater may also be used for egg laying, but these would have to be warm enough and persist long enough for tadpoles to metamorphose. It is possible but unlikely western toads are present in the project area.

Environmental Consequences

Direct, Indirect, and Cumulative Effects of No Action

There would be no change to habitat conditions for western toads with the No Action alternative. Therefore this alternative would have no impact on western toads.

Direct and Indirect Effects Common to All Action Alternatives

Habitat alterations from timber harvest and recreation have not been shown as causative agents for population declines (Loeffler 1998, p.11). Given the amount of mesic, timbered stands present, and the relative scarcity of any ponds or wetlands, it is likely that breeding habitat is limiting for western toads in the project area. The riparian buffer zones (RHCAs) established on creeks in the project area means there would be no changes to potential breeding habitat. The small elk wallow-pools would be protected by at least 50' no-entry buffer zones. These no-entry buffers would also protect the portions of timbered stands near water that would be most likely to be used by toads. There are only small, inconsequential changes in water yield, which are unlikely to adversely impact potential breeding habitat (see Water Resources Report). The majority of the proposed timber harvest, (360 acres Alt. B, 225 acres Alt. C), is intermediate treatments, and unlikely to cause the potential mesic timbered habitat to become unsuitable. Some overhead cover would be retained in these units,

which would keep the cool, moist forest conditions favored by toads. There are also clear-cut and seed tree units proposed (123 acres Alt. B, 68 acres Alt. C), these would likely reduce upland timbered habitat quality for toads due to the drier, more open conditions created.

This species can breed in roadside ditches and can be found in upland habitat that would not have any special protection. Some mortality occurs to adults and metamorphs in these situations, but it is unlikely to be significant to the population as a whole because of the low level of traffic on forest roads and the high number of other opportunities for breeding habitat (i.e. wet meadows, ponds, etc.) throughout the forest. The highest potential for mortality would occur on existing open roads adjacent to potential breeding habitat. The road decommissioning and storage proposed in the alternatives (67.5 miles in Alt. B, 73 miles in Alt. C), especially of riparian roads (7.5 miles in Alt. B, 8.3 miles in Alt. C); may tend to decrease the risk of mortality but this effect is difficult to measure in any meaningful way, and is not expected to be consequential. There are two creek crossings needed for proposed new road construction that would occur with Alternative B. In one unit the crossing would be near potential breeding habitat, and could affect breeding toads, if any were present. These new roads would be put into long-term storage after use. There are no creek crossings proposed with the new road construction in Alternative C.

Cumulative Effects Common to All Action Alternatives

For reasons listed above, any cumulative mortality from any alternative is unlikely; and potential adverse effects would not significantly exceed existing levels of risks to the species. The protection of potential breeding habitat along streams, and only minor changes to timbered habitat toads may use, coupled with the low probability of western toad presence, means these alternatives may impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or cause a loss of viability to the population or species. The impacts from proposed federal actions under all alternatives would not contribute appreciably to existing impacts and would not affect population viability.

Management Indicator Species

Management indicator species (MIS) are species selected to estimate the effects of management activities on wildlife populations. The Forest Plan identified the MIS for the Forests. They include several categories of species including: threatened, endangered and sensitive, commonly hunted or trapped, and species whose population changes are believed to indicate effects of management on other species or biological communities. In this analysis TE&S species have been addressed separately. Those species from the IPNF Forest Plan that are applicable to the St. Joe District and project area are displayed in Table WL19.

Table WL19 - Wildlife MIS for the St. Joe District

Species	Remarks	Existing Habitat / Need for Further Analysis
Goshawk	Associated with late successional forest habitat.	Suitable nesting habitat exists, further analysis will be completed.
Marten	Trapped, associated with late successional mesic conifer forest habitat.	Habitat exists; analysis is documented in section with fisher.
Pileated Woodpecker	Primary cavity excavator, dependent on large snags, associated with late successional habitat.	Habitat and species present, further analysis will be completed.
Elk	Hunted, important big game species, affected by human disturbance and human use of roads.	Habitat and species present, public issue, further analysis will be completed.
Moose	Hunted, relatively unique big game species, occurs in low numbers throughout the IPNF.	Habitat and species present, elk analysis meets analysis needs, no analysis specifically for moose will be completed.

MIS were screened for their relevancy to the wildlife analysis area and the proposed action. See the Species Relevancy Screen and Rationale for no Further Analysis sections of this report for additional discussions regarding analysis needs of MIS. Further information can also be found in the project file.

Marten and potential effects on their habitat were addressed with Fisher and are not addressed further in this section. The Species Relevancy Screen determined that there was no benefit to analyzing potential impacts on moose and that further analysis is not warranted.

Northern Goshawk

Goshawks use a variety of forest types, structures, and successional stages, but are primarily associated with late successional habitat. For nesting, goshawks utilize mature to old stands on gentle to moderately steep slopes. Forest habitat, pole stage or larger, which is open enough to allow unimpeded flight through the understory (less than 750 trees/acre larger than three inches dbh) is considered suitable for foraging (USDA 1990, p.20). Goshawks have a wide distribution in the Northern Region (Kowalski 2006, p.9)

The analysis of effects on goshawks uses direction in “Northern Goshawk Northern Region Overview” (Brewer and others, 2007), “Old-Growth Habitats and Associated Wildlife Species in the Northern Rocky Mountains” (USDA 1990) and “Management Recommendations for the Northern Goshawk in the Southwestern United States” (Reynolds and others, 1992) to determine potential effects.

Geographic Scope

Goshawk home ranges are approximately 5,000 to 6,000 acres and are recommended for evaluation of potential goshawk habitat suitability (USDA 1990, p.23 and Reynolds and others 1992, p.3). The 10,523 acre Fallen Bear project area is an appropriate size to contain two potential home ranges. The Bruin Cr. and Tumbledown Cr. drainages are adequately sized to represent home ranges based

on logical watershed boundaries; at 4,883 and 5,640 acres, respectively. Based on reported densities of goshawk in the western U.S., suitable habitat for at least one pair should be provided within each approximate 10,000-acre area (USDA 1990, p.24). Therefore, each approximately 10,000-acre area should contain one suitable 5,000 – 6,000 acres home range. This is roughly equivalent to one suitable home range for every two home ranges. The desired condition for Fallen Bear with two potential home range areas would be to have at least one of those areas in suitable condition.

Methodology

Management recommendations for each home range include at least 240 acres of nesting habitat per 5,000 acre foraging area in stands of at least 40 acres. From (Brewer and others 2007, p.35), suitable nesting habitat is stands of at least 40 contiguous acres, with at least 40% canopy cover of any tree species, and a 10" or greater size class. The size class used for this analysis is ≥9" dbh, to match the size class break between pole and immature sawtimber used by the IPNF. For this analysis, a potential nest stand is a single stand of at least 40 acres with the canopy cover and tree size to meet suitable nest habitat criteria. A potential nest area is a group of stands that together make up 40 or more contiguous acres with the canopy cover and tree size to meet suitable nest habitat criteria. The home range should also include a mosaic of vegetation structural stages in both an approximately 420-acre Post-fledging Family Area (PFA) and a 5,400-acre foraging area (Reynolds and others 1992, p.4). The PFA and foraging area (FA) should have a certain structural composition (i.e. seedling/sapling, pole, immature sawtimber, etc.), to meet the desired habitat conditions listed in the goshawk management recommendations, (Reynolds and others 1992, p.22-30). This structural composition has the same size class percentages for the PFA and FA. Management direction is to conduct an analysis of PFA habitat on known or recently occupied nests (Brewer and others 2007, p.37). Without the presence of known nest sites, it is not feasible to delineate any PFAs; therefore the analysis for vegetation structural composition will be conducted on the entire home range area to include both the FA and the potential locations of any PFAs. The structural stages used have been adapted for this analysis to better fit the way size class information is presented in the IPNF timber stand database.

Affected Environment

Nesting habitat

Based on literature descriptions and field verification of habitat, there is capable and suitable nesting habitat available within the Fallen Bear project area. Goshawks are occasionally sighted within the wildlife analysis area. However, numerous surveys from 2001 - 2003 throughout the analysis area have not detected nesting goshawks (WL25). There are no known nests in the project area. See the table below for existing nest habitat conditions in each potential home range.

Table WL20 – Existing Goshawk Nesting Conditions

Alternative A*			
Goshawk Analysis Area	Nest stands ≥40 acres	Nest areas ≥40 acres	Suitable home range
Bruin Cr	24	13	Yes
Tumbledown	31	20	Yes

** - Alternative A depicts the existing condition and is the No-Action Alternative*.

The Bruin Creek drainage has 1,668 acres in 24 stands ≥ 40 acres that meet nesting habitat criteria and are potential nest stands. Another 43 stands totaling 937 acres meet criteria, but are all less than 40 acres. These stands can be grouped to make 13 individual, contiguous potential nest areas that are ≥ 40 acres. Potential nest stands and areas are well distributed and abundant in this potential home range analysis area.

The Tumbledown Creek drainage has 1,777 acres in 31 stands ≥ 40 acres that meet nesting habitat criteria and are potential nest stands. Another 64 stands totaling 1,423 acres meet criteria but are all less than 40 acres. These stands can be grouped to make 20 individual, contiguous potential nest areas that are ≥ 40 acres. Potential nest stands and areas are well distributed and abundant in this potential home range analysis area.

Foraging habitat

Goshawks use a broad-range of habitat conditions in the foraging area. Foraging area structural composition is designed to provide the habitat requirements for a range of potential prey species while emphasizing the larger timber. "Goshawk foraging habitat will have sustainable and abundant prey when the majority of forests are in older age classes" (Reynolds and others 1992, p.19). The following tables show the current vegetation structure composition for each goshawk analysis area.

Table WL21 – Bruin Creek Existing Conditions – Foraging habitat

Bruin Creek Drainage (Timber Compartment 231)

Tree Size Class (DBH)/Canopy Cover	**Acres**	**% of Total Acres Existing Condition**	**Desired Condition**
Shrub/forb/grass	143	2.9	10
Tree/0.0 – 4.9"	1522	31.2	10
Tree/5.0 – 8.9"	26	.5	20
Tree/9.0" plus	3192	65.4	60
Totals	4883	100	100
Canopy Cover 50% + & size of 5.0" or larger	2146	66.7% of 5.0" plus trees	60

Table WL22 – Tumbledown Creek Existing Conditions – Foraging habitat
Tumbledown Creek Drainage (Timber Compartment 232)

Tree Size Class (DBH)/Canopy Cover	Acres	% of Total Acres Existing Condition	Desired Condition
Shrub/forb/grass	101	1.8	10
Tree/0.0 – 4.9”	1300	23.0	10
Tree/5.0 – 8.9”	72	1.3	20
Tree/9.0” plus	4167	73.9	60
Totals	5640	100	100
Canopy Cover 50% + & size of 5.0” or larger	2204	52.0% of 5.0” plus trees	60

The largest size class provides the most value for foraging habitat (USDA, 1990 p.26), and is therefore the most important determinant of suitable habitat. In both areas the amount of mature and immature sawtimber trees (≥9” dbh) is over 60% of the potential home range. In the Bruin Creek area there are over 60% of the larger timber with over 50% canopy cover. The Tumbledown Creek area at 52% is below the desired condition for the amount of large timber with over 50% canopy cover. These two categories are the key values for determining foraging habitat quality and suitability. As a result of past logging, both areas are considerably above the desired amount of seedling and sapling (0-4.9”) habitat.

Environmental Consequences

Table WL23 – Post-Activity Nest Habitat Conditions

	Alternative B*			Alternative C		
Goshawk Analysis Area	Nest stands ≥40 acres	Nest areas ≥ 40 acres	Suitable home range	Nest stands ≥40 acres	Nest stands ≥ 40 acres	Suitable home range
Bruin Creek	24	11	Yes	24	11	Yes
Tumbledown	31	19	Yes	31	20	Yes

** - Alternative B is the Proposed Action Alternative.*

Table WL24 – Bruin Creek Post-Activity Conditions – Foraging habitat
Bruin Creek Drainage (Timber Compartment 231)

Tree Size Class (DBH)/Canopy Cover	Alternative B		Desired Condition	Alternative C	
	Acres	% of Total Acres		% of Total Acres	Acres
Shrub/forb/grass	226	4.6	10	3.8	186
Tree/0.0 – 4.9”	1522	31.2	10	31.2	1522
Tree/5.0 – 8.9”	26	.5	20	.5	26
Tree/9.0” plus	3109	63.7	60	64.5	3149
Totals	4883	100	100	100	4883
Canopy Cover 50% + & size of 5.0” or larger	1928	61.5% of 5.0” plus trees	60	64.9% of 5.0” plus trees	2059

Table WL25 – Tumbledown Creek Post-Activity Conditions – Foraging habitat
Tumbledown Creek Drainage (Timber Compartment 232)

Tree Size Class (DBH)/Canopy Cover	Alternative B		Desired Condition	Alternative C	
	Acres	% of Total Acres		% of Total Acres	Acres
Shrub/forb/grass	143	2.5	10	2.3	127
Tree/0.0 – 4.9”	1300	23.0	10	23.0	1300
Tree/5.0 – 8.9”	72	1.3	20	1.3	72
Tree/9.0” plus	4125	73.1	60	73.4	4141
Totals	5640	100	100	100	5640
Canopy Cover 50% + & size of 5.0” or larger	1946	46.4% of 5.0” plus trees	60	47.7% of 5.0” plus trees	2008

Direct, Indirect and Cumulative Effects of No Action

This alternative does not include any vegetation treatment, and the existing forest structure and cover is expected to remain relatively unchanged in the near future. There would be no change to potential nesting or foraging habitat conditions with the No-Action alternative. The ability of the project area to continue to provide suitable goshawk home ranges would be unchanged with this alternative. This alternative would have no impact on goshawks or their habitat.

Direct and Indirect Effects of Alternative B

This alternative treats seven potential nest stands and areas in each home range. Of the 14 nest stands and areas treated; two potential nest areas would become unsuitable in the Bruin Cr. home range, and one would become unsuitable in the Tumbledown Cr. home range. 119 acres of potential goshawk nesting habitat would become unsuitable in the Bruin Cr. drainage. 66 acres of potential nesting habitat would be made unsuitable in the Tumbledown Cr. drainage. Most stands treated either retain at least 40% cover or have an untreated portion of the stand that remains suitable nesting habitat. Foraging habitat suitability would be relatively unchanged from existing conditions under alternative B. See Tables WL24 and WL25. The most important forage habitat components are the ≥9” trees and the ≥50% canopy cover amounts. The Bruin Cr. area shows a 1.7% decrease in trees ≥ 9”, and a 5.2% decrease in the ≥50% cover category from existing conditions. This level of change is inconsequential as the Bruin home range would still have slightly over the 60% target in these key timber size classes preferred for foraging habitat. The Tumbledown Cr. area shows a 0.8% decrease in trees ≥ 9”, and a 5.6% decrease in the ≥50% cover category from existing conditions. The decrease in the amount of ≥9” tree size class is also inconsequential, as the level would remain well above the 60% target. While 5.6% is a small decrease, the ≥50% canopy cover amount starts below the desired 60% level, and this alternative moves it further from the desired condition.

Cumulative Effects of Alternative B

Existing goshawk habitat conditions are a result of previous management activities and natural conditions. Proposed activities, when added to the effects of previous management activities, would not change the overall ability of the project area to support goshawk. Both suitable nesting and

foraging habitat are treated with these alternatives. See Tables WL23 – WL25. The changes resulting from these alternatives will not change the overall ability of the project area to support goshawk. There is an abundant amount of nesting habitat in the project area. As a minimum, a suitable home range needs six suitable nest stands or areas (Brewer and others 2007, p.35). Both potential home ranges have well over this amount (Table WL23), with 35 in Bruin Cr. and 50 in Tumbledown Cr. Given the amount of suitable nesting habitat present, the loss of three nest stands is inconsequential.

The proposed shelterwood cuts and commercial thinning would not change the existing size class structure of treated stands. Foraging habitat quality would be affected, with some stands (especially those reduced to below 50% canopy cover), decreasing in quality; and in a few stands that were densely timbered, forage quality would be increased; however all stands given intermediate treatments would remain forage habitat. The seven proposed clear-cut and seedtree units would affect foraging suitability by converting timbered stands to the grass/forb/shrub stage. In the Bruin Cr. drainage, both key values for foraging habitat would remain above the desired level. In the Tumbledown drainage, the slight reduction of one of the key values further below the desired level is expected to have a minor effect on forage habitat quality. With one home range fully suitable, and the other's foraging habitat quality only slightly reduced, this alternative does not change the overall ability of the project area to support goshawk. Therefore, the implementation of this alternative may impact individual goshawks and goshawk habitat, but is not likely adversely affect the use of the project area by goshawks.

Direct and Indirect Effects of Alternative C

This alternative would treat four potential nest stands and areas in the Bruin home range and seven in the Tumbledown home range. Of the 11 nest stands and areas proposed for treatment; two potential nest areas would become unsuitable in the Bruin Creek home range, and none would become unsuitable in the Tumbledown Creek home range. 81 acres of potential goshawk nesting habitat would become unsuitable in the Bruin Creek drainage. 32 acres of potential nesting habitat would be made unsuitable in the Tumbledown Creek drainage. Most stands treated either retain at least 40% cover or have an untreated portion of the stand that remains suitable nesting habitat. Foraging habitat suitability would be relatively unchanged from existing conditions under Alternative C. See Tables WL24 and WL25. The most important forage habitat components are the ≥9" trees and the ≥50% canopy cover amounts. The Bruin Creek area shows a 0.9% decrease in trees ≥ 9", and a 1.8% decrease in the ≥50% cover category from existing conditions. This level of change is inconsequential as the Bruin home range would still have slightly over the 60% amount desired in these key timber size classes preferred for foraging habitat. The Tumbledown Creek area shows a 0.5% decrease in trees ≥ 9", and a 4.3% decrease in the ≥50% cover category from existing conditions. The decrease in the amount of ≥9" tree size class is also inconsequential, as the level would remain well above the 60% target. While 4.3% is a small decrease, the ≥50% canopy cover amount starts below the desired 60% level, and this alternative moves it further from the desired condition. This alternative affects less goshawk habitat than the proposed action.

Cumulative Effects of Alternative C

Existing goshawk habitat conditions are a result of previous management activities and natural conditions. Proposed activities, when added to the effects of previous management activities, would not change the overall ability of the project area to support goshawk. Both suitable nesting and foraging habitat would be treated with this alternative. See Tables WL23 – WL25. The changes resulting from this alternative would not change the overall ability of the project area to support goshawk. There is an abundant amount of nesting habitat in the project area. As a minimum, a suitable home range needs six suitable nest stands or areas (Brewer and others 2007, p.35). Both potential home ranges have well over this amount (Table WL23), with 35 in Bruin Creek and 51 in Tumbledown Creek. Given the amount of suitable nesting habitat present, the loss of two nest stands is inconsequential.

The proposed shelterwood cuts and commercial thinning would not change the existing size class structure of treated stands. Foraging habitat quality would be affected, with some stands (especially those reduced to below 50% canopy cover), decreasing in quality; and in a few stands that were densely timbered, forage quality would be increased; however all stands given intermediate treatments would remain forage habitat. The five proposed clear-cut and seedtree units would affect foraging suitability by converting timbered stands to the grass/forb/shrub stage. In the Bruin Cr. drainage, both key values for foraging habitat would remain above the desired level. In the Tumbledown drainage, the slight reduction of one of the key values further below the desired level is expected to have a minor effect on forage habitat quality. With one home range fully suitable, and the other's foraging habitat quality only slightly reduced, this alternative does not change the overall ability of the project area to support goshawk.

Pileated Woodpecker

The pileated woodpecker was identified as an old growth indicator because of its strong tie to the availability of large snags. Pileated woodpeckers require tall, large-diameter dead or live defective trees within forested stands for nesting. Nest trees average nearly 30 inches; the minimum nest tree diameter is 20 inches (USDA 1990, p.10). Carpenter ants make up the bulk of their diet. Feeding habitat includes large snags with advanced decay, the moist decaying butts of live trees, logs greater than 10 inches diameter, and natural or cut stumps. Large trees, canopy cover and the number and size of feeding sites (e.g. dead trees greater than 10 inches diameter) are all important features of quality pileated habitat (Aney and McClelland 1985, p.4, 13). Activities that reduce these habitat features would reduce pileated habitat suitability. Pileated home ranges average from 500 to 1,000 acres (USDA 1990, p.15); therefore the 10,523 acre Fallen Bear project area is a sufficient size for the analysis of cumulative effects.

Methodology

Methodology for the analysis of project effects on pileated woodpeckers is taken from "A Conservation Assessment of the Northern Goshawk, Black-backed woodpecker, Flammulated Owl, and Pileated Woodpecker in the Northern Region, USDA Forest Service" (Samson 2006), and "Old-growth Habitats and Associated Wildlife Species in the Northern Rocky Mountains" (USDA 1990).

1,000 acres is used as an average home range size, and each home range must have suitable habitat for nesting and winter foraging (Samson 2006, p.65, 66); (thought to be more limiting than foraging habitat at other times of year as most down logs, a foraging habitat component, are covered by snow).

Suitable winter foraging habitat is provided by timbered stands (defined as ≥ 10% canopy cover) with an average diameter of 10" (Samson 2006, p.65, 66). The assumption is that the dead and defective trees used for feeding substrate will be present and will approximate the average diameter of the overall timber stand. Timber stands with the following size classes will be considered suitable winter foraging habitat as they can provide the average tree size of 10" or greater: immature sawtimber 9-14", (IMSA), sawtimber 14"+, (SAWT), mature low-risk sawtimber 14"+, (MLRS), and mature high-risk sawtimber 14"+, (MHRS). About 100 acres of suitable winter foraging habitat are required within a home range (Bonar 2001, in Samson, 2006, p.66).

Suitable nesting habitat is provided by timbered stands (defined as ≥ 10% canopy cover) with an average diameter of 15" (Samson, 2006, p.66). The assumption is that the dead and defective trees used for nesting will be present and will approximate the average diameter of the overall timber stand. Timber stands with the following size classes will be considered suitable nesting habitat as they can provide the average tree size of 15" or greater: sawtimber 14"+, (SAWT), mature low-risk sawtimber 14"+, (MLRS), and mature high-risk sawtimber 14"+, (MHRS). The home range should include 100 contiguous acres of optimal, or high quality habitat, or 200 acres of suitable nesting habitat (USDA 1990, p.13). For this analysis, optimal high quality habitat is considered to be those suitable habitat stands SAWT, MLRS, and MHRS that are allocated as old growth or recruitment old growth. The assumption is that these stands are larger and older and are therefore more likely to have the larger diameter dead and defective trees favored for nesting by pileated woodpeckers.

To maintain populations of pileated woodpeckers, feeding and nesting habitat should be well distributed within each home range and throughout the project area. Warren (USDA 1990, p.15) recommends maintaining one suitable home range per 2,500 acres, to allow for recolonization of unoccupied habitat. For the 10,523 acre Fallen Bear project area, this means maintaining at least four suitable home ranges out of the potential ten home ranges within the project area.

Affected Environment

Table WL26 – Pileated Woodpecker Habitat in Wildlife Analysis Area

Fallen Bear Analysis Area		
Size class	**Acres**	**%**
MHRS	6550	62.2
MLRS	362	3.4
SAWT	0	0.0
IMSA	*519*	*4.9*
POLE	26	0.3
SAPL	2341	22.2
SEED	481	4.6
HGHB	0	0.0
LOWB	231	2.2
NONS	13	0.1
TOTAL	10523	100

Nesting habitat (in bold) is comprised of the sawtimber, mature low risk sawtimber and mature high risk sawtimber size classes from the TSMRS database. Foraging habitat is nesting habitat plus the immature sawtimber size class (in italics).

MHRS = mature, high-risk sawtimber
SAWT = sawtimber
IMSA = immature sawtimber
POLE = pole-sized trees
SAPL = saplings
MLRS = mature, low-risk sawtimber
SEED = seedlings
HGHB = high brush
LOWB = low brush
NONS = nonstocked

Winter Foraging Habitat

The 10,523 acre project area has 7,431 acres of winter foraging habitat in stands IMSA size or greater. This is 70.6% of the project area. This habitat is well distributed and greatly exceeds the minimum 100 acres of foraging habitat per home range, which would be a total of 1,000 acres for this project area.

Nesting Habitat

The 10,523 acre project area has 6,912 acres of potential nesting habitat in stands SAWT size or greater. This is 65.7% of the project area. 2,885 acres (27.4% of the project area) of this potential nesting habitat is allocated as either old growth or recruitment old growth and is considered optimal habitat. The remaining 4,027 acres (38.3% of the project area) is classed in suitable condition for nesting habitat. This habitat (both optimal and suitable) is well distributed and greatly exceeds the minimum 200 acres of suitable nesting habitat per home range, which would be a total of 2,000 acres for this project area.

At these levels, neither feeding nor nesting habitat is thought to be limiting. A review of stand information in the timber stand database shows that these stands provide structure and attributes of habitat used by pileated woodpeckers. This suitable habitat is well distributed throughout the analysis area.

Pileated woodpeckers are known to exist in the project area. District records contain numerous observations, and pileated feeding sign was often noted in stand exam reports and is commonly seen throughout the Fallen Bear area. Several trees with nest holes were also found during field reviews of the project area (WL23). Timber mortality from insects and disease is increasing in the project area. The amount of snag habitat available for use as feeding and nesting sites for pileated woodpeckers is increasing because of this. The high level of mature and old growth timber present indicates good habitat quality for pileated woodpeckers in the analysis area.

Environmental Consequences

Direct, Indirect and Cumulative Effects of No Action

This alternative does not have any vegetation treatment, and the existing forest structure and cover is expected to remain relatively unchanged in the near future. There would be no change to potential nesting or foraging habitat conditions with the No-Action alternative. Alternative A does not reduce any suitable habitat, and the amount of higher quality habitat provided by old growth stands would persist in the project area. Succession would continue on mature stands and improve their suitability for pileated habitat, as tree size increases and snags continue to be produced. The ability of the project area to continue to provide suitable pileated woodpecker home ranges would be unchanged with this alternative. The No-Action alternative would have no impact on pileated woodpeckers.

Table WL27 Pileated Winter Foraging Habitat

	Alternative A	Alternative B	Alternative C
Minimum foraging habitat required	1,000 acres	1,000 acres	1,000 acres
Untreated foraging habitat	7,431 acres	6,940 acres 6.7% decrease	7,133 acres 4.0% decrease
Foraging habitat w/reduced quality	0 acres	366 acres 4.9%	229 acres 3.1%
Habitat converted to non-foraging	0 acres	125 acres 1.7%	69 acres 0.9%

Alternative A is the No-Action alternative and the existing condition. Alternative B is the proposed action.

Table WL28 Pileated Nesting Habitat

	Alternative A	Alternative B	Alternative C
Minimum nesting habitat required	2,000 acres	2,000 acres	2,000 acres
Untreated nesting habitat	6,912 acres	6,481 acres 6.2% decrease	6,658 acres 3.7% decrease
Optimal nesting habitat	2,885 acres	2,833 acres 1.8% decrease	2,885 acres 0% decrease
Nesting habitat w/reduced quality	0 acres	321 acres 4.6%	199 acres 2.9%
Habitat converted to non-nesting	0 acres	110 acres 1.6%	54 acres 0.8%

Direct and Indirect Effects of Alternative B

Winter Foraging Habitat

This alternative treats 125 acres with regeneration harvest (clear-cuts and seed tree cuts) that would change the size class structure of these units. These stands would become openings after treatment, and would no longer be considered as able to provide foraging habitat. They would remain unsuitable for pileated woodpecker winter foraging for decades, until they reached an immature sawtimber size class. This would reduce the winter foraging habitat by 1.2% to 7,306 acres (69.4%), which is still an ample supply to provide for all potential home ranges in the project area.

There are 294 acres of commercial thin treatment and 72 acres of shelterwood cuts proposed for this project. This would affect habitat conditions for woodpeckers on 366 stand acres. The reduction in canopy cover and basal area along with incidental removal of snags for safety would reduce the quality of winter forage habitat. Stands that are commercial thinned and shelterwood cut are not considered to have become openings for pileated woodpecker foraging habitat. The retention of low to moderate canopy levels, mature stand structure, and the application of the snag and leave tree guidelines means these stands could still provide winter foraging habitat. These stands are considered to provide marginal habitat quality after commercial thinning and shelterwood treatment. Overall, with 6,940 acres (66.0%) of untreated foraging habitat, the ability of the project area to support pileated woodpeckers would be maintained.

Nesting Habitat

The 125 treated acres of regeneration harvest proposed for this project would change the timber structure of these units. 110 acres of these stands would become openings after treatment, and would no longer be considered as able to provide nesting habitat. (One 15 acre unit is immature sawtimber and not considered nesting habitat). They would remain unsuitable for pileated woodpecker nesting for decades, until they reached a sawtimber size class. 16 of these acres would treat optimal nesting habitat in one stand, reducing it to 2,869 acres or 27.3% of the project area. The remaining 94 acres treats suitable nesting habitat, reducing it to 3,933 acres or 37.4% of the project area. This would reduce the overall nesting habitat to 6,802 acres (64.6%), which still exceeds the minimum 200 acres of suitable nesting habitat per home range, which would be a total of 2,000 acres for this project area.

There are 294 acres of commercial thin treatment and 72 acres of shelterwood cuts proposed for this project. This would affect nesting habitat conditions for woodpeckers on 321 stand acres. (45 acres treat immature sawtimber stands not classed as nesting habitat). 36 acres of optimal nesting habitat are affected, along with 285 acres of suitable nesting habitat. Optimal nesting habitat would be reduced to 2,833 acres or 26.9% of the project area, by the treatment of 36 acres in two stands. The reduction in canopy cover and basal area along with incidental removal of snags for safety will reduce the quality of nesting habitat. Stands that are commercial thinned and shelterwood cut are not considered to have become openings. The retention of moderate canopy levels, mature stand structure, and the application of the snag and leave tree guidelines means these stands could still provide potential nesting habitat. These stands are considered to provide marginal habitat quality after commercial thinning and shelterwood treatment. Overall, with 6,481 acres (61.6%) of untreated nesting habitat, the ability of the project area to support at least four and up to ten home ranges would be maintained.

Cumulative Effects of Alternative B

Existing pileated woodpecker habitat conditions are a result of previous management activities and natural conditions. Proposed activities, when added to the effects of previous management activities, would not adversely impact pileated woodpecker populations. This alternative would reduce foraging habitat by 125 acres (1.7%), and reduce the quality of another 366 acres (4.9%). Untreated forage acres would be reduced by 4.2%. Optimal nesting habitat (allocated old growth) would be reduced by (1.8%), and untreated stands would continue to age and increase tree size. The trend for continuing tree mortality through insect and disease agents is expected to persist (See Forest Vegetation section). The amount (1.6%) and quality (4.6%) of suitable nesting habitat would decrease slightly with this alternative. The project area's ability to support pileated woodpeckers should improve over time on untreated stands. Based on the level of suitable habitat maintained it is not likely that this alternative would adversely impact pileated woodpecker populations. The amount of mature nesting and feeding habitat remaining, and the design features (i.e. snag retention levels, RHCA buffers), and prescriptions (i.e. thinning), used on treated stands, would maintain the suitability of the analysis area for pileated woodpeckers.

Direct and Indirect Effects of Alternative C

Winter Foraging Habitat

This alternative treats 69 acres with regeneration harvest (clear-cuts and seed tree cuts) that would change the size class structure of these units. These stands would become openings after treatment, and would no longer be considered as able to provide foraging habitat. They would remain unsuitable for pileated woodpecker winter foraging for decades, until they reached an immature sawtimber size class. This would reduce the winter foraging habitat by 0.6% to 7,362 acres (70.0%), which is still an ample supply to provide for all potential home ranges in the project area.

There are 185 acres of commercial thin treatment and 44 acres of shelterwood cuts proposed for this alternative. This would affect habitat conditions for woodpeckers on 229 stand acres. The reduction in canopy cover and basal area along with incidental removal of snags for safety would reduce the quality of winter forage habitat. Stands that are commercial thinned and shelterwood cut are not considered to have become openings for pileated woodpecker foraging habitat. The retention of low to moderate canopy levels, mature stand structure, and the application of the snag and leave tree guidelines means these stands could still provide winter foraging habitat. These stands are considered to provide marginal habitat quality after commercial thinning and shelterwood treatment. Overall, with 7,133 acres (67.8%) of untreated foraging habitat, the ability of the project area to support pileated woodpeckers would be maintained.

Nesting Habitat

The 69 acres of regeneration harvest proposed for this alternative would change the timber structure of these units. One 15 acre unit is immature sawtimber and is not considered nesting habitat. The remaining 54 acres would become openings after treatment, and would no longer be considered as able to provide nesting habitat. They would remain unsuitable for pileated woodpecker nesting for decades, until they reached a sawtimber size class. There is no treatment of optimal nesting habitat with this alternative. The 54 acres treats suitable nesting habitat, reducing it to 3,973 acres or 37.7% of the project area. This would reduce the overall nesting habitat to 6,858 acres (65.2%), which still

exceeds the minimum 200 acres of suitable nesting habitat per home range, which would be a total of 2,000 acres for this project area.

There are 185 acres of commercial thin treatment and 44 acres of shelterwood cuts proposed with this alternative. This would affect nesting habitat conditions for woodpeckers on 199 stand acres. (30 acres treat immature sawtimber stands not classed as nesting habitat). 199 acres of suitable nesting habitat would be affected, and there is no treatment of optimal nesting habitat. The reduction in canopy cover and basal area along with incidental removal of snags for safety would reduce the quality of nesting habitat. Stands that are commercial thinned and shelterwood cut are not considered to have become openings. The retention of moderate canopy levels, mature stand structure, and the application of the snag and leave tree guidelines means these stands could still provide potential nesting habitat. These stands are considered to provide marginal habitat quality after commercial thinning and shelterwood treatment. Overall, with 6,658 acres (63.3%) of untreated nesting habitat, the ability of the project area to support at least four and up to ten home ranges would be maintained.

Cumulative Effects of Alternative C

Existing pileated woodpecker habitat conditions are a result of previous management activities and natural conditions. Proposed activities, when added to the effects of previous management activities and continuing future tree mortality would not adversely impact pileated woodpecker populations. This alternative would reduce foraging habitat by 69 acres, and reduce the quality of another 229 acres. Untreated forage acres would be reduced by 2.4%. Optimal nesting habitat (allocated old growth) would be maintained at existing levels; and untreated stands would continue to age and increase tree size. The trend for continuing tree mortality through insect and disease agents is expected to persist (See Forest Vegetation section). The amount (0.8%) and quality (2.9%) of suitable nesting habitat would decrease slightly with this alternative. The project area's ability to support pileated woodpeckers should improve over time on untreated stands. Based on the level of suitable habitat maintained it is not likely that this alternative would adversely impact pileated woodpecker populations. The amount of mature nesting and feeding habitat remaining, and the design features (i.e. snag retention levels, RHCA buffers), and prescriptions (i.e. thinning), used on treated stands, would maintain the suitability of the analysis area for pileated woodpeckers.

Elk

Elk are an important big game species within the analysis area. Elk were identified in the Forest Plan as general forest seral species easily affected by management activities. Land management activities, particularly timber harvest and associated roads affect elk habitat quality, potential elk use of habitat, and elk mortality from hunting.

Methodology

The analysis area for elk was determined by considering the proposed action, the delineated Elk Habitat Unit (EHU), and logical topographic boundaries (i.e. ridges and streams) within the EHU. For the purpose of displaying effects from the proposed action and to display the differences between alternatives, the analysis area was broken into eight separate evaluation areas based on

home range size. Smaller watershed drainages within the Quartz Creek and Gold Creek areas are used to provide a logical delineation of these individual elk analysis areas. The Quartz Gold EHU map (WL27), shows the names and arrangement of the areas used for this project.

The Fallen Bear project area is entirely in Elk Habitat Unit 10, the Quartz Creek and Gold Creek drainages. The Quartz Gold EHU10 is used as the cumulative effects area. The smaller home range-sized elk analysis areas are used to determine and display direct and indirect project level effects. Two of these smaller areas (Bruin Creek and Tumbledown Creek) would cover the direct and indirect effects for the Fallen Bear Project Area.

To disclose how the proposed action and alternatives would affect elk and potential elk use of habitat, the *Guidelines for Evaluating and Managing Summer Elk Habitat in Northern Idaho* (Leege 1984) was used. The procedure evaluates various factors affecting elk habitat quality (e.g. road miles, security acres, cover, forage, and other factors) and assigns a numerical rating. This rating is used to determine elk habitat quality (expressed as a percent of potential elk use or Elk Habitat Potential - EHP).

If all habitat factors were in optimum abundance and distribution, habitat would be rated at 100% of potential. If the procedure calculates the habitat to be at 50% of potential, this indicates that the area can support 50% as many elk as it could if all factors were optimal. Optimum conditions are rarely met, especially if roads are present. The most important factor usually regulating use of habitat by elk is disturbance by people. Most disturbance (and hunting mortality) is related to roads (Leege 1984, p.5, 6). The Elk Habitat Potential is largely determined by the open road density and amount of secure habitat (>.5 miles from open roads) available in the analysis area. For this analysis, any type of motorized use is considered an open road. If the amount of secure habitat is below 20% of an EHU, it decreases the elk habitat potential. Motorized trails contribute to the open road density of an analysis area.

To establish habitat management potential goals for the Forest, Elk Habitat Units (EHUs) were delineated across the Forest. There are 15 EHUs on the Avery portion of the St. Joe Ranger District. In 1993 the Forest Service and Idaho Department of Fish and Game established an elk habitat potential (EHP) target of .50 for EHU 10, to meet the Forest Plan EHP goal of .65 on the Avery portion of the St. Joe Ranger District. EHP targets are not assigned for the individual elk analysis areas within an EHU; however a higher individual area EHP provides a better chance that the overall EHU will meet the target EHP value.

Affected Environment

Past disturbances, forest succession, the existing road systems, and present management of roads combine to affect existing elk habitat quality. A small portion (<10%), of the project area is identified in the Forest Plan as big game winter range (i.e. MA-4). However, elk use the area throughout the year. Goals for wildlife in MA-4 are to provide sufficient forage and cover. Forage habitat is supplied by past regeneration harvest units distributed throughout the area, natural shrubfields which occur mainly along the breaklands above the St. Joe River; and open timbered stands with a shrub component. Cover habitat is abundant, as 71% of the project area has timber cover in the immature and mature sawtimber size classes. Cover, forage, and their availability are

not thought to limit big game habitat in the project area. Areas that typically are used by wildlife (including elk) for travel include ridges, riparian areas, and saddles. Areas in the project area that provide suitable conditions for travel have been mapped and considered in the development and design of the proposed action and alternatives.

The existing EHP of the 40,822-acre Quartz Gold EHU is .42, which is below the .50 minimum habitat level set by agreement between the Forest Service and the Idaho Department of Fish and Game. The existing open road density (ORD) is 2.9 mi./mi^2. About 3.2% of the EHU is secure habitat (WL17).

Elk are common in the project area. Almost all stands reviewed for this project showed at least some signs of elk use, such as tracks, trails, pellets, rubs and browsed vegetation. Some areas are used heavily, as evidenced by deeper trailing, high browse amounts; and in some cases the creation of wallows (WL23). The combination of forage openings and timber cover is providing good quality elk habitat in the project area. Travel corridor conditions are adequate within the project area. Timbered corridors exist in most locations; however there are a few spots where travel corridor quality and usefulness has been degraded by past activities.

Table WL29 below displays information used in determining the Elk Habitat Potential.

Table WL29 – Open Road Density, Security, and EHP for Elk Analysis Areas by alternative.

Elk Analysis Area	Criteria	Alt. A	Alt. B	Alt. C
Entente	Open Road Density	2.9	2.9	2.9
	Secure acres	140	140	140
	% Security	3.0	3.0	3.0
	EHP	.42	.42	.42
Upper Quartz	Open Road Density	2.9	2.9	2.9
	Secure acres	0	0	0
	% Security	0.0	0.0	0.0
	EHP	.42	.42	.42
Float	Open Road Density	2.8	2.7	2.7
	Secure acres	505	607	607
	% Security	10.1	12.2	12.2
	EHP	.45	.46	.46
Broadaxe	Open Road Density	2.7	2.5	2.5
	Secure acres	0	0	0
	% Security	0.0	0.0	0.0
	EHP	.42	.43	.43
Lower Quartz	Open Road Density	2.2	2.2	2.2
	Secure acres	468	468	468
	% Security	9.7	9.7	9.7
	EHP	.47	.47	.47
Bruin	Open Road Density	4.0	2.6	2.5
	Secure acres	195	440	589
	% Security	4.0	9.0	12.1
	EHP	.37	.47	.50
Tumbledown	Open Road Density	2.4	2.3	1.6
	Secure acres	0	284	1119
	% Security	0.0	5.0	19.8
	EHP	.42	.47	.62
Lower Gold	Open Road Density	3.6	3.5	3.5
	Secure acres	0	11	11
	% Security	0.0	0.2	0.2
	EHP	.35	.35	.35
Quartz Gold EHU10	Open Road Density	2.9	2.7	2.6
	Secure acres	1308	1950	2934
	% Security	3.2	4.8	7.2
	EHP	.416	.437	.461

Open road densities are shown in miles per square mile. Alternative A is the No-Action Alternative. Figures depict post-activity conditions. Bruin and Tumbledown are the drainages within the Fallen Bear project area.

Environmental Consequences

Table WL29 displays the existing condition, (Alternative A), and the effects of the proposed activities on open road density, security and EHP by alternative. Conditions during the activities are not displayed for the individual elk analysis areas. This is because short-term reductions in habitat potential are allowed for within the entire EHU, as long as some security areas are provided during sale activities. Design features would provide for some temporal and spatial separation of sale activities during project implementation. The total project would have to be logged as different individual sales, or sale subdivisions at different times. This would provide wildlife with other parts of the project area to disperse to when sales are ongoing in any one section of the project area.

Direct and Indirect Effects of No Action

The No-Action Alternative would not change the existing conditions in any of the elk analysis units. There would be no new road construction with this alternative, and no road decommissioning or storage would occur. The EHP and amount of secure habitat would remain low, and the open road density would remain high. The EHP range in the elk analysis areas is from .35 to .47. Four of the individual elk analysis areas would have no secure habitat. Travel corridor cover, and the existing level of good quality elk habitat would not change.

Cumulative Effects of No Action

Existing elk habitat conditions are a result of previous management activities and natural conditions, and there are no present or reasonably foreseeable federal actions that would measurably affect elk habitat in the project area. The EHP for the Quartz Gold area would not be changed from the current below target condition of .42. The high open road densities (2.9 mi./mi.^{2}), and resultant low amount of secure habitat (1,308 ac., 3.2%), would continue unchanged under this alternative. There would be no change in effects on elk through this alternative.

Direct and Indirect Effects of Alternative B

Following completion of all timber sale and stand improvement activities; along with road decommissioning and storage, the EHP would improve in the two elk analysis areas within the project area. The Bruin Creek analysis area would show a 27% increase in EHP, from .37 to .47; and the Tumbledown Creek analysis area EHP would increased by 12% from .42 to .47. The amount of secure habitat would increase, and the open road densities are reduced from existing levels in both areas (Table WL29). Changes in the Float and Lower Gold elk analysis areas are a result of the proposed long-term storage of Rd.3696 which extends beyond the project area. The change in the Broadaxe elk analysis area EHP results from the completion of a timber sale and subsequent closure of temporary sale roads. There are 17.9 miles of road reconstruction, and 2.8 miles of new road that would be constructed for this alternative. All road reconstruction and construction would be decommissioned or stored after project activities are complete.

This alternative would treat fifteen units along travel corridors. Treatment of the blocks along the ridges west and east of Tumbledown Cr. are likely to decrease the ease of movement between summer and winter range. Although a design feature would retain a minimum level of canopy in

designated travel corridors, the reduction in cover along the ridgetop portions of these proposed units would decrease travel corridor quality from the existing condition. The reduction in canopy in proposed treatment units, particularly in those with current moderate to high levels of elk use, is likely to decrease the habitat quality for elk over the short term (i.e. $\leq$10 years). Forage levels are expected to increase in regeneration units, which would increase habitat quality. This effect would take several years to be fully realized, as the new shrub growth progresses.

Cumulative Effects of Alternative B

As this project only affects about 25% of the cumulative effects area for elk, it is not expected that the overall EHP can be increased enough to meet the target of .50. The completion of post sale road decommissioning and storage would affect conditions for elk in the project area and the EHU. The EHU open road density would be reduced to 2.7 mi./mi.^{2}, and the secure habitat would be increased by 642 acres to 4.8% of the Quartz Gold EHU. The Bruin and Tumbledown analysis areas would reduce open road density to 2.6 and 2.3 mi./mi.^{2}, and increase secure habitat to 9% and 5% respectively (Table WL29). Although this is an improvement in conditions for the Bruin and Tumbledown areas, this level of security is still below 20% and therefore would still have a negative effect on the EHP. The overall EHP for EHU 10 would be improved from .42 to .44 (a 5% change), which is still below the target level called for in the Forest Plan. This alternative would decrease habitat conditions for elk in the project area over the short term. Elk habitat security would be increased, and this will have a positive and long term effect on elk in both the project and cumulative effects area.

Direct and Indirect Effects of Alternative C

Following completion of all timber sale and stand improvement activities; along with road decommissioning and storage, the EHP would improve in the two elk analysis areas within the project area. The Bruin Creek analysis area would show a 35% increase in EHP, from .37 to .50; and the Tumbledown Creek analysis area EHP would increased by 48% from .42 to .62. The amount of secure habitat would increase, and the open road densities are reduced from existing levels in both areas (Table WL29). Changes in the Float and Lower Gold elk analysis areas are a result of the proposed long-term storage of Rd.3696 which extends beyond the project area. The change in the Broadaxe elk analysis area EHP results from the completion of a timber sale and subsequent closure of temporary sale roads. There are 7.3 miles of road reconstruction, and 0.8 miles of new road that would be constructed for this alternative. All road reconstruction and construction would be decommissioned or stored after project activities are complete.

This alternative would treat seven units along travel corridors. Treatment of the block along the ridge east of Tumbledown Creek is likely to decrease the ease of movement between summer and winter range. Although a design feature would retain a minimum level of canopy in designated travel corridors, the reduction in cover along the ridgetop portions of these proposed units would decrease travel corridor quality from the existing condition. The reduction in canopy in proposed treatment units, particularly in those with current moderate to high levels of elk use, is likely to decrease the habitat quality for elk over the short term (i.e. $\leq$10 years). Forage levels are expected to increase in regeneration units, which would increase habitat quality. This effect would take several years to be fully realized, as the new shrub growth progresses.

Cumulative Effects of Alternative C

As this project only affects about 25% of the cumulative effects area for elk, it is not expected that the overall EHP can be increased enough to meet the target of .50. The completion of post sale road decommissioning and storage would affect conditions for elk in the project area and the EHU. The EHU open road density would be reduced to 2.6 mi./mi.^{2}, and the secure habitat would be more than doubled by 1,626 acres to 7.2% of the Quartz Gold EHU. The Bruin and Tumbledown analysis areas would reduce open road density to 2.5 and 1.6 mi./mi.^{2}, and increase secure habitat to 12% and 20% respectively (Table WL29). Although this is an improvement in conditions for the Bruin and Tumbledown areas, this level of security is still below 20% and therefore would still have a negative effect on the Bruin EHP. The overall EHP for EHU 10 would be improved from .42 to .46 (a 10% change), which is still below the target level called for in the Forest Plan. This alternative would decrease habitat conditions for elk in the project area over the short term. Elk habitat security would be increased, and this will have a positive and long term effect on elk in both the project and cumulative effects area.

Consistency with Forest Plan and Laws

The alternatives are consistent with applicable goals, direction, standards, and guidelines from the Forest Plan for the management of wildlife habitat and species populations. The alternatives, to varying degrees comply with other direction and recommendations regarding management of the various components of wildlife habitat. The alternatives comply with applicable conservation strategies for wildlife species. All alternatives are consistent with the ESA, MBTA, NFMA and other laws providing direction and requirements for the management of wildlife species and habitat.

Appendix A

SENSITIVE SPECIES BIOLOGICAL EVALUATION
SUMMARY OF CONCLUSION OF EFFECTS**

Project Name: FALLEN BEAR PROJECT

Species	Alternative A	Alternative B	Alternative C
Bald eagle	NI	NI	NI
Black-backed Woodpecker	NI	MIIH	MIIH
Black Swift	NI	NI	NI
Coeur d'Alene Salamander	NI	NI	NI
Common Loon	NI	NI	NI
Fisher	NI	MIIH	MIIH
Flammulated Owl	NI	MIIH	NI
Fringed Myotis	NI	NI	NI
Harlequin Duck	NI	NI	NI
Northern Bog Lemming	NI	NI	NI
Peregrine Falcon	NI	NI	NI
Pygmy Nuthatch	NI	NI	NI
Townsend's Big-Eared Bat	NI	NI	NI
Western Toad	NI	MIIH	MIIH
Wolverine	NI	MIIH	MIIH

Conditions: Include any actions or activities that are necessary to maintain the determination of effects.

Recommendations: Include any activities or opportunities that are optional.

Conditions: None.

Recommendations: The district biologist should be notified if any sensitive species are observed during project activity. Post project monitoring should be done to determine effects on habitat and wildlife use.

Prepared by:/s/ Dennis A. Riley Date: 3/26/09
Wildlife Biologist

Approved by:/s/ Date: 4/08/09
Wildlife Biologist

NI = No Impact
MIIH = May Impact Individuals Or Habitat, But Will Not Likely Contribute To A Trend Towards Federal Listing Or Loss Of Viability To The Population Or Species
WIFV* = Will Impact Individuals Or Habitat With A Consequence That The Action May Contribute To A Trend Towards Federal Listing Or Cause A Loss Of Viability To The Population Or Species
BI = Beneficial Impact

* Considered a trigger for a significant action in NEPA
** Note: The rationale for the conclusion of effects is contained in the Wildlife Report.

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