

BROADAXE EA

WILDLIFE REPORT

D. Riley, 7/5/05

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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. Under its regulations, the Forest Service is to maintain viable populations of existing and desired species, and to maintain and improve habitat of management indicator species.

The Forest Plan, in compliance with NFMA, establishes Forest-wide management direction, goals, objectives, standards and guidelines for the management and protection of wildlife habitat and species including: old growth habitat, management indicator species, sensitive species, and threatened and endangered species.

Direction concerning implementation of the ESA and NFMA can be found in Forest Service Manuals (FSM) and various letters/memos from the Forest Service's Washington Office, Regional Office, and the Idaho Panhandle National Forests (IPNF) Supervisor's Office.

Geographic Scope

The Broadaxe Project Area was refined late in the planning process when a portion of the larger Quartz Gold Project was focused on the dead and dying timber resulting from mountain pine beetle. The project area was delineated based on watershed boundaries encompassing the majority of the

area affected by mountain pine beetle. 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. Timber subcompartment 280-2 is used as the wildlife analysis area for those species with smaller home ranges, as it takes in the Broadaxe Creek and Pretty Creek drainages. Adjacent watersheds are added to the project area to create the analysis area for species with larger home ranges such as fisher, goshawk and lynx. For some species with very large home ranges (i.e. wolf, wolverine), habitat adjacent to the project area has been considered in the analysis. Also, for some species, due to the nature of species occurrence, distribution of capable/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 risk to resources and species, 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 is tiered 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 (final and draft) for wildlife species
- Additional scientific literature as appropriate

The analysis also incorporates the concepts in documents such as the *IPNF Standardized Effects Analysis Method for some Sensitive and Management Indicator Species* to help develop and conduct the analysis. 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
- Management Indicator Species (MIS)

Quantitative modeling approaches to assessing potential effects are not always plausible because of limited information about many species. Available models were used when appropriate based on available information and applicability (project file documents W4 and W8).

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 TSMRS (project file W10). This information reflects conditions that are a result of previous management activities and natural conditions. 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. 4,251 acres or 18.4% of the analysis area (Gold Creek, East Fork, Gold Creek and Bruin Creek drainages) received field exams in 2004. All values should be considered approximate due to such factors as rounding of acres and combining/grouping of stands.

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 Broadaxe 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 Management History Report). The amount of late successional habitat in the project area is above historic average levels for the St. Joe River Drainage (USDA 1997, *Toward a Forest Ecosystem Approach: an Assessment for the St. Joe Area*, p. 71). The emphasis of the proposed action on salvaging dead and dying timbered stands while retaining structure provided by other species and avoiding allocated old growth and potential old growth influences the level and intensity of analysis.

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/desirable species are the result of past and current management activities. (See Management History Report). 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 Forest Service 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 action 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 action, 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, 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 was conducted.

Table W1 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.

Table W1 - 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				
Gray Wolf***	Y	Y	Y	
Woodland Caribou	N	N	N	1
Threatened				
Bald Eagle	Y	N	N	2
Grizzly Bear	N/I	N	N	2
Canada Lynx	Y/I	Y	Y	
Sensitive				
Black Swift	Y/U	N	N	2
Black-Backed Woodpecker	Y	Y	Y	
Western Toad	Y	N	Y	
Coeur d'Alene Salamander	Y	N	N	2
Common Loon	N/I	N	N	2
Fisher	Y	Y	Y	
Flammulated Owl	Y	Y	Y	
Harlequin Duck	Y	N	N	2
Northern Bog Lemming	N	N	N	1
Northern Goshawk	Y	Y	Y	
Fringed Myotis	U	N	N	2
Peregrine Falcon	Y/I	N	N	2
Townsend's Big-Eared Bat	U	N	N	2
Pygmy Nuthatch	U	N	N	2
Wolverine	Y	Y	Y	
Management Indicator				
Elk	Y	Y	Y	
Moose	Y	Y	N	3
Marten	Y	Y	Y	
Pileated Woodpecker	Y	Y	Y	
Other				
Forest Land Birds	Y	N	N	3
Cavity/Snag Habitat	Y	Y	N	2

*Yes, No, Unknown or Incidental (if at all).

**1 Rationale and documentation is provided in the project file (W1) 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 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

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 0.33 mile of water). (MBEWG 1991, p.9)

Species/habitat presence: Gold Creek and the St. Joe River above Avery may receive occasional incidental and opportunistic migrating bald eagle use. The Broadaxe project area is too far upriver for consistent use as over-wintering habitat. At this location Gold Creek is a relatively small creek 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 (e.g. Riparian Habitat Conservation Areas buffers), the potential for effects on bald eagle habitat in areas adjacent to water is negligible. Project activity will have no effect on the bald eagle or capable habitat under any alternative. No further analysis or discussion is warranted.

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 shrub fields in the Selkirk Mountains Ecosystem and the Cabinet/Yaak Ecosystem.

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. However, 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, 2000a, Grizzly Bear Recovery in the Bitterroot Ecosystem, Summary of the Final EIS, p.10). There is no evidence or reason to suspect that grizzly bears are present in the Broadaxe analysis area.

Rationale for No Further Analysis: The Broadaxe analysis area is not within the Grizzly Bear Evaluation Area of the Bitterroot Ecosystem (USFWS, 1995, Grizzly Bear Recovery Plan Bitterroot Ecosystem Chapter, p.2). The Broadaxe analysis area is therefore not expected to provide habitat for grizzly bears that would contribute to population recovery. The land management objectives including timber production and motorized road/trail access; and the resulting conditions (e.g. secure habitat fragmentation, higher road densities) result in the area being unlikely to be used except, incidentally by grizzly bears. The location of the project outside of the Recovery area precludes the potential for effects on the species. This project will have no effect on the grizzly bear. No further analysis or discussion is warranted.

Black swift: This bird requires moist cliff environments for nesting. They nest behind or next to waterfalls and wet cliffs, or in shallow caves. Generally, there are five factors present at nest sites: water, high relief, inaccessibility, out of direct sunlight, and unobstructed flyways. 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 is a known waterfall on Broadaxe Creek within the project area. This is potential habitat but it is not known if black swifts are using it. The waterfall is not in any sale unit and is further protected from impacts by the 300' no entry buffer on Broadaxe Creek. There would be no change to conditions for black swifts with the implementation of the proposed action. This project will have no impact on this species. No further analysis and 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 et. al., 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 et. al., 1994, p.6).

Species/habitat presence & Rationale for No Further Analysis: There are no known salamander sites in the Broadaxe project area. There are no fractured rock seeps for potential habitat known of in the vicinity of the proposed units. Potential habitat within the project area along FH50 has been surveyed, no salamander sites were found (Wilson 1991, p.42). The requirement for riparian buffer zones means that any suitable habitat associated with stream edges and waterfall spray zones would not be affected by timber harvest. The temporary road would not have any stream crossings. There would be no change to conditions for Coeur d'Alene salamanders with the implementation of the proposed action. This project will have no impact on Coeur d'Alene salamanders.

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, Caring for Our Natural Community, 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 will 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 forage for insects in riparian and wetland areas. They have been captured in ponderosa pine and Douglas fir forest while foraging over willow/cottonwood areas. They use caves, buildings, bridges,

crevices and large cavities 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.

Species/habitat presence & Rationale for No Further Analysis: There is no known suitable habitat in the Broadaxe project area. There is no treatment of mature ponderosa pine or Douglas fir cover types and there are no known mines or caves in the project area. 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.

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 et. al., 1996, p.11).

Species/habitat presence & Rationale for No Further Analysis: Near the project area the St. Joe River is the only stream listed in the Harlequin Duck Conservation Assessment and Strategy (Cassirer et. al., 1996, p. 27, 29, 31) as having the potential to support harlequin ducks. Based on the lack of suitable habitat and occurrence there will be no impact on habitat or the species. No further analysis and discussion is warranted.

Peregrine Falcons are seasonal migrants to northern Idaho, nesting in the northern temperate regions while wintering in the US 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. There is no known potential habitat within the Broadaxe project area. 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 shows a strong and almost exclusive preference for ponderosa pine habitat, especially mature to late seral stands that are fairly open (<70% canopy cover). Species abundance is directly correlated with snag density (i.e. cavity availability). They feed on pine seeds and insects extracted from the bark of trees. Risks to the species include: 1) timber harvest that results in the loss and fragmentation of late seral, large-diameter live ponderosa pine stands, and large snags, 2) fire exclusion resulting in a shift in stand composition from shade-intolerant, mid-seral species to shade-tolerant, late-seral species, 3) human development that modifies and reduces habitat, and 4) livestock grazing that affects fuels as related to fire exclusion.

Species/habitat presence & Rationale for No Further Analysis: There is no suitable mature, open, ponderosa pine habitat in the Broadaxe project area. 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.

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 old buildings for roosting and in some places have been known to use building attics as nursery sites. 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 (Pierson, et al, 1999, pp. 2, 26)

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 are no known mines or caves 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 occurrence and the absence of potential habitat, there will 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 lower elevation portion of 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 buffers for fish. 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).

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 (flamulated owl), wetlands/riparian habitat (western toad), old growth (flamulated owl, fisher, pileated woodpecker and northern goshawk), and snag dependent species (pileated and black-backed woodpeckers). Therefore, no analysis specifically for landbirds is warranted.

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 et al. 1997, p. 28 and p.31) recommends providing snags in every 5 to 25 acre stand to satisfy distribution needs.

In the action alternative many snags (i.e. cavity habitat) would be lost as the proposed action is a salvage harvest. 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 and leave trees 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 also persist in unloggable areas of the treated stands, i.e. terrain breaks or out of reach spots. The uncut ridgeline buffer will also maintain snags within the project area. The retention of some snags to provide coarse woody debris recruitment in the logging units will also contribute to the overall snag density in the analysis area. Green tree retention needs would be met as only lodgepole pine will be salvaged, leaving all other tree species 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 (project file, W3). Snags and snag replacements would be retained at levels recommended by scientific literature based on recent studies (USDA 2000, Northern Region Snag Protocol, p.6). Snag retention objectives exceed Forest Plan standards.

The analysis for snag and cavity habitat dependent species such as black-backed woodpecker, flammulated owl, and pileated woodpecker, would 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 both alternatives. No further analysis is needed.

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 would 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, W10). 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 W2 – Measurement Issues for Wildlife

Habitat/Species	Indicator of Effects	Measurement
Terrestrial Habitat		
Disturbance/Access	Changes in human access	Road density & changes in road status
Connectivity	Changes in vegetation in travel routes & barriers to movement	Maintenance of vegetation along ridges and riparian areas
Threatened and Endangered Species		
Gray wolf	Changes in disturbance & prey availability	Road density and potential elk use
Canada lynx	Changes in suitable habitat	Acres of suitable denning habitat and % habitat made unsuitable in last decade
Sensitive Species		
Fisher (and Marten)	Changes in suitable habitat and trapping-vulnerability risk	Acres of suitable habitat and road density
Wolverine	Disturbance of denning habitat and security	Activity near denning and road density
Northern Goshawk	Changes in suitable nesting habitat and nest disturbance	Acres of suitable nesting habitat and activity in nest stands
Black-backed Woodpecker	Changes in suitable habitat	Acres of suitable habitat
Flammulated Owl	Changes in suitable habitat	Acres of suitable habitat
Western Toad	Impacts on breeding habitat and direct mortality	Impacts to riparian habitat and risk of mortality
Management Indicator Species		
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). This type of disturbance 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 would avoid an area being disturbed by road construction, logging, 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 in and adjacent to the Broadaxe 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 length of each 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 storage and closing of roads after the timber sales would also help reduce the amount of time displacement effects persist.

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 afford. 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 assessment categorized road density levels (expressed as mi/mi²) of 0 - 0.02 as none, 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 extreme (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. 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 et. al. 2000, p. 7-10). The ICBEMP assessment also found a great deal of ambiguity about the amount of road access needed to satisfy public needs. Data displayed in this report 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/would influence disturbance and access. Past road building and current road management has led to a reduction in secure habitat for

wildlife. However, regardless of the cause for any disturbance or impact on access, road miles and densities best measure the effect. These effects are measured at the Elk Habitat Unit scale. In the wildlife analysis area there are approximately 303 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 68.5 mi² Quartz Gold Elk Habitat Unit analysis area of 4.4 mi/mi². There are approximately 192 miles of open road that results in an open road density of 2.8 mi/mi².

Environmental Consequences

Table W3 displays the total road miles, total road densities, open road miles, and open road densities in the Quartz Gold Elk Habitat Unit for proposed action. Road densities are displayed as mi/mi². The data displayed includes only roads that may impact wildlife.

Table W3 - Roads

	Alternatives		
	No Action*	Proposed Action**	Proposed Action***
Total road/trail miles	303.2	304.1	303.2
Total road/trail densities	4.43	4.44	4.43
Open road/trail miles	192.4	194.3	192.4
Open road/trail densities	2.81	2.84	2.81

- * - No Action depicts the existing condition.
- ** - Depicts Proposed Action during sale activity.
- *** - Depicts Proposed Action post-sale conditions.

The following discussions by alternative describe the activities that would lead to the conditions displayed in Table W3.

Direct, Indirect, and Cumulative Effects of No Action

There would be no new road construction or reconstruction with the No-Action Alternative. No roads would be treated to address watershed, fisheries or wildlife concerns. The open road density would remain high, at well above 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 Proposed Action

This alternative would build a total of 0.9 miles of new temporary road and open one mile of currently stored Road 3694 with no motorized use in the project area to access proposed treatment Unit 11. Road 1405 is currently closed to full size vehicles by an earthen barrier but is used by ATVs and motorcycles. The barrier would be removed to allow access to Unit 9 by logging equipment. After sale activities are complete, temporary roads would be closed and rehabilitated. The Road 3694 opened to access Unit 11 would be restored to its previous status of unavailable for

motorized use. The earthen barrier would be restored on Road1405 and it would again be open to ATV use.

There would be a temporary increase in open road density for the duration of the timber sale activity. This is a small increase and it would occur in the area where the effects of disturbance from logging activity are already present. This is a short-term increase that would mainly be limited to the 1-3 year duration of the timber sale. Post-sale conditions for wildlife related to access (i.e. fragmentation, security, vulnerability) would not be changed from the existing condition.

Connectivity

The spatial arrangement of existing forest structure, land uses (e.g. dispersed campgrounds) and roads (especially Forest Highway 50) affect 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. The proposed units for this project are species designation salvage cuts; harvest types that retain the timber cover from all other tree species within individual stands. The design criteria to retain a 200' uncut ridgeline buffer in any unit within designated travel corridors (project file document W5), is the major method for maintaining connectivity within the project area. No entry riparian buffers would also retain canopy cover along project area stream courses that are also potential travel corridors.

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 (project file W-15). Areas that create an impediment to travel within these corridors, (for this analysis areas having less than 30% canopy cover and exceeding 100m wide) (USDA 1995, p. 57) 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 wildlife analysis 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 travel cover would be maintained. There would be no impact on the travel corridors that were identified and mapped for analysis purposes. Conditions in the project and larger analysis 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 Proposed Action

In this alternative there are seven units (1-7) that are partially within identified travel ways. The design features would retain all existing canopy cover within the designated travel corridor except in

Units 1 and 2 where it will be necessary to cut skyline corridors through the travel corridor buffer. This activity will not exceed guidelines for openings in travel corridors, i.e. limited to one side of the ridgetop, less than 300' wide, less than 25% of the corridor (IDFG 1995). The travel corridor will be protected by keeping the number of skyline corridors to a minimum, keeping the width of the corridors to a minimum (less than 20 feet and closer to 10 feet in most cases), locating skyline corridors in areas that are more sparsely timbered than the surrounding ridgeline stand, and spacing skyline corridors far enough apart to provide a **buffer** of uncut timber between them. The temporary road and the roads opened for the proposed timber sale are not in potential travel corridors. Opportunities for wildlife movement and travel would be maintained.

Cumulative Effects of Proposed Action

There would not be any further appreciable changes in permanent impediments to movement. 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 would still maintain corridors suitable for wildlife movement. Given the relatively limited amount of salvage harvest and road building proposed with this project, the design features of the proposed action alternative, and the conscious desire to minimize impacts through alternative design, this alternative would not have unacceptable, irreversible and irrevocable adverse impacts on connectivity. Alternative areas for movement by wildlife exist and opportunities for movement/travel would be maintained.

Threatened and Endangered Wildlife Species

The U. S. Fish and Wildlife Service (USFWS 2005, p.2) identified five listed or proposed wildlife species that may occur on the Idaho Panhandle National Forests (Species list # 1-9-05-SP-0154, March 4, 2005): Bald Eagle, Gray Wolf, Grizzly Bear, Woodland Caribou and Canada Lynx. Based on direction provided by the USFWS, the Species List, review of the area, a search of district records, scientific literature, professional knowledge of the area, the EAWS, and a review of information from the Conservation Data Center (CDC) species requiring analysis were identified.

Table W4 provides a short synopsis of the listed species, their habitat, and the existing condition within the wildlife analysis area.

Table –W4 - Listed Wildlife Species

Common Name	Habitat	Existing Condition in the Assessment Area
Bald Eagle	Nest in large dominant trees near large bodies of water in areas relatively free from disturbance. Perch sites, roost sites and access to prey are essential components of winter habitat.	No large bodies of water are present in the wildlife analysis area. There are no nests or reported sightings in the project area.
Canada Lynx	Mesic conifer forests that provide a prey base of snowshoe hare (generally above 4,000'). Late and early successional stages.	Based on elevation, forest type, and potential vegetation (habitat type) the analysis area contains sufficient suitable habitat to support the species.
Gray Wolf	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 assessment 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	Large areas of undisturbed habitat. Low elevation riparian areas, meadows, snowchutes, shrubfields, grasslands, and open timbered stands,	Project area in the Experimental Population Area of Bitterroot Ecosystem. Project area is not in the Bitterroot Recovery Area. No documentation of grizzly bears in the Bitterroot Ecosystem.
Woodland Caribou	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 is not known or suspected 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 report 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.

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 et. al., 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 et. al., 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 et. al., 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 Canada Lynx Conservation Assessment and Strategy (LCAS), (Ruediger et. al., 2000). Conservation measures for the maintenance of lynx habitat and populations would generally apply only to lynx habitat on federal lands within Lynx Analysis Units (LAUs). Recommended conservation measures and objectives 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 conservation measure would allow no net increase in groomed or designated over-the-snow routes and snowmobile play areas on federal lands by LAU.

Standards for project planning from the LCAS include:

- Management actions shall not change more than 15% of lynx habitat within an LAU to an unsuitable condition within a 10-year period;
- Within an LAU, maintain denning habitat in patches generally larger than 5 acres, comprising at least 10% of lynx habitat.
- Following a disturbance such as blowdown, fire, insects/pathogens, mortality that could contribute to lynx denning habitat, do not salvage harvest when the affected area is smaller than 5 acres. Exceptions to this include: 1) Areas such as developed campgrounds; 2) LAUs where denning habitat has been mapped and field validated (not simply modeled or estimated), and denning habitat comprises more than 10% of lynx habitat within a LAU; in these cases salvage harvest may occur, provided that at least the minimum amount is maintained in a well-distributed pattern.
- Maintain habitat connectivity within and between LAUs.

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. Suitable habitat is capable habitat that currently has both the fixed and variable stand attributes that enable it to produce the habitat requirements for a given species. See project file document W4 for parameters used to determine suitable 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.

In collaboration with the USFWS, Lynx Analysis Units (LAU) have been delineated on the IPNF. 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 et. al., 2000, p. 7-2). There is one LAU, Gold Creek, in the project area (Broadaxe EA, Gold Creek LAU Map). The Gold Creek LAU contains the project area and is approximately 23,119 acres encompassing the Gold Creek and Bruin Creek drainages. This LAU is comprised entirely of National Forest System (NFS) lands. 20,465 acres of the Gold Creek LAU is capable habitat. At 32 square miles, this area is large enough to encompass a lynx home range, and therefore adequate for analysis of cumulative effects.

Affected Environment

Table W5 shows the existing conditions (No Action) and post-activity conditions by alternative for the Lynx Analysis Unit in the project area.

Table W5 – Gold Creek LAU After Proposed Vegetation Treatments

	Recommended	No Action– Ex Con		Proposed Action	
		acres	%	acres	%
Unsuitable	≤30%	2245	11.0	2560	12.5
Change Last Decade	<15%	197	1.0	512	2.5
Forage Habitat		3393	16.6	3393	16.6
Late Successional Forage		6766	33.1	6766	33.1
Potential Denning Habitat	≥10%	4777	23.3	4777	23.3
Low Quality Forage		3284	16.0	2969	14.5

20,465 capable habitat acres = 88.5% of LAU

Late successional forage – for example – saplings under a mature timber canopy.

The LAU has well under 30% unsuitable habitat and well over 10% potential denning habitat according to the IPNF habitat model. There has been only a 1% change to unsuitable habitat within the last decade (1995-2005) for the Gold Creek LAU. This is within the 15% per decade standard set by the LCAS. Foraging and denning habitat appear to be well distributed and intermingled throughout the LAU.

The open road density is 3 mi./mi.² in the Gold Creek LAU. Table W6 depicts the open road density and percent of secure habitat for the existing and post-activity conditions within the LAU.

Table W6 – Open road density and secure habitat by LAU

	Alternatives	
	No Action	Proposed Action
Lynx Analysis Unit	Gold Creek	Gold Creek
Open Road/Trail Density	3.0	3.0
% Secure Habitat	4.1	4.1

Open road/trail density shown in miles/mile²

Snowmobile use is considered low in the project area. The only designated trail is about 13.3 miles on FH50 through the center of the LAU, then swinging east to the Montana border at Gold Pass. There is occasional use on some of the side roads, 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 LAU. 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 the lynx analysis unit. Potential denning habitat would remain above 10% and unsuitable habitat would remain below 30%, meeting LCAS standards. There would be no new road construction with this alternative. Current road management would continue, so the amount of secure habitat 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

There are no present or reasonably foreseeable federal actions that would measurably affect lynx habitat in the project area. The amount of forage habitat would increase over time as currently unsuitable seedling stands grow into the sapling size class. Some of the forage stands would grow out of suitable forage condition as these saplings stands become pole sized stands. Based on stand ages and sizes, more seedling stands would become forage than saplings stands would become poles. Overall, the net effect should be a small increase in foraging 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. The ongoing lodgepole mortality from mountain pine beetle would continue to reduce cover in some stands. The presence of other tree species and lodgepole too small for successful beetle attacks is expected to provide enough cover to keep stands from becoming unsuitable. The high open road densities (see Table W6) 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. The LAU would continue to meet the standards of the LCAS. There would be *no effect* on lynx through this alternative.

Direct and Indirect Effects of Proposed Action

Following completion of all activity, the amount of unsuitable habitat would increase by approximately 315 acres. This is a 1.5% increase in unsuitable habitat, remaining well below the 30% upper limit set as an LCAS standard. No potential denning habitat would be affected by the proposed action, and so would remain above the 10% LCAS standard. There are 0.9 miles of new temporary road that would be constructed for this alternative. One mile of currently closed Road 3694 would need to be opened for the timber sale, and would be returned to its previous non-motorized status after project activities are complete. There would be no change in the amount of secure habitat in the lynx analysis area. Open road densities would not be changed from existing levels in the LAU (see Table W6). There would be no change to the designated snowmobile trail system.

Cumulative Effects of Proposed Action

All of the proposed logging is salvage cuts, which would retain some of the timber structure and canopy cover in treated stands. While this affects the condition of the treated stands, it does not always change the suitability of the treated stands as lynx habitat. 194 acres would remain as low quality forage habitat following logging. There are approximately 509 acres of salvage harvest proposed with this alternative. The removal of dead and dying timber would cause a reduction in the amount of **potential** denning structure in these stands, however these stands are not currently considered denning habitat. The majority of the lodgepole to be removed are too small to provide adequate denning substrate, and based on amount potential denning habitat present, denning is not thought to be a limiting factor in this LAU. The changes in lynx habitat (see Table W5) are not expected to adversely affect the ability of the project area to support lynx. The arrangement and distribution of potential denning and foraging habitat would remain good across the project area. The Gold Creek LAU would continue to meet the standards of the LCAS. The maintenance of the existing open road density and amount of secure habitat in LAU should not change 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. 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 in the project area. For these reasons this alternative *may affect but is not likely to adversely affect Canada lynx*.

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 Broadaxe 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). The reintroduction of wolves in Central Idaho did not envision conflicts with current or anticipated management actions. No changes in land use

restrictions (other than the possibility of temporary restrictions near den sites) are required because of the reintroduction.

Methodology

High prey densities, particularly big game, and minimal conflict with human interests and uses characterize wolf habitat. Effects analysis is based in part on the Elk Habitat Potential (EHP), as this is one indicator of the ability of the project area to support an adequate prey base for wolves. The cumulative effects analysis area for wolves is the 68.5 mi.² Quartz Gold Elk Habitat Unit, as this is a more appropriate scale than the project area. (Refer to the section on Elk for specific details of the EHU). Human disturbance as measured by open road densities within the analysis area is also be used to disclose potential effects in this analysis. Other important habitat features for wolves include suitable and somewhat secluded areas for raising pups, i.e. den and rendezvous sites (Hansen, 1986, p. 50).

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 drainage. However, current open road/trail densities, and limited secure habitat decrease the likelihood of wolves using the area in more than a transitory manner. DNA analysis of a hair sample collected in 2001 with the National Lynx Survey conducted on the district detected a wolf about eight miles from the project area (NLS Results, 2001, project file W13). There are no known wolf dens or rendezvous sites in the wildlife analysis area. The nearest known area of pack activity is over 15 miles from the project area. The open road density is 2.8 mi./mi²., and 4% of the area is secure habitat, over ½ mile from an open road. The elk habitat potential (EHP) in the Quartz Gold Elk Habitat Unit analysis area is 42%. This is below the .51 target level set by the FS and IF&G 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 W7 displays the effects on open road/trail density, security, and prey availability by alternative.

Table W7 – Post activity conditions

Analysis Criteria	Alternatives	
	No Action	Proposed Action
Open road/trail density	2.8	2.8
% Secure habitat	3.6	3.6
Elk habitat potential	42.3	42.3

Direct, Indirect and Cumulative Effects of No Action

As no activities are proposed and this alternative does not change any of the above conditions within the project area, it would have *no effect* on the gray wolf.

Direct and Indirect Effects of Proposed Action

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. There would be: no impact on any known wolf den or rendezvous site, no adverse impact on any linkage or connections between habitats, no consequential increase in the likelihood of human wolf conflicts, and no adverse change to the prey base.

The Proposed Action would not change the open road/trail density, therefore maintaining the existing EHP. Since the stands being treated have been opened up as a result of lodgepole pine mortality, this alternative would have little effect on cover for elk. Foraging habitat for ungulates would be improved slightly as a result of the broadcast burning proposed in some units with this alternative. As these are high elevation stands, an abundant shrub response to burning is not expected. This alternative would improve conditions for wolves and wolf prey by a slight degree.

Cumulative Effects of Proposed Action

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. 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 of the prey base, (as shown by no decline in EHP), design features which would avoid adverse impacts (e.g. by maintaining corridors/linkages, avoiding known den and rendezvous sites) 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 alternative is *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 National Forest Management Act directs the Forest Service to review programs and activities to ensure that species do not become threatened or endangered as a result of Forest Service actions. The ICBEMP assessment found that species that are likely in decline (includes 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 would be managed to prevent further declines in populations to prevent federal listing.

Methodology

There are few quantitative models available which are appropriate for assessing potential effects on sensitive species. This analysis identified capable and suitable habitat based on the latest scientific literature for each species and available data in the TSMRS database (project file W8). Stand information from the database was closely reviewed to determine if it was still valid. Aside from the beetle-affected areas, there has been only one timber sale in the area over the last 10 years, so most of the stand information is still applicable to current conditions. 1,662 acres, or 41% of the wildlife project area received new field exams in 2004, including all the proposed action stands. Impacts on acres of suitable habitat (project file W10) would be measured 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.

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 as needing no further analysis.

Table W8 displays sensitive wildlife species from the U.S. Forest Service Region One list (USFS 2004) that may be affected by the proposed action, a short description of habitat requirements, and comments regarding habitat capability/suitability. The more detailed analysis for each species follows the table.

Table W8 - 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.
Northern Goshawk	Nest stands - mature to old forests structure.	Limited capable habitat in wildlife analysis area.
Black-backed Woodpecker	Conifer forests, dead/dying trees (especially fire killed).	Suitable habitat in wildlife analysis area.
Flammulated Owl	Mature to old Douglas fir and ponderosa pine forests.	Limited capable habitat within wildlife analysis area.
Coeur d'Alene Salamander	Fractured rock, seeps, waterfall spray zones, & streamsides.	Limited capable or suitable habitat in 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 et. al., 1994, p. 7) and potential impacts are analyzed for both species using the same methodology (the marten is a MIS and not a sensitive species but is 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 utilize 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, et. al. 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. Draft - Forest Carnivores in Idaho HCA/S, 1995, p. 33).

Marten associate closely with late-successional stands of mesic conifers (Ruggiero et. al., 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 percent 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 et. al., 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 *DRAFT, Forest Carnivores in Idaho*, (IDF&G, 1995, p. 65-70). 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 each analysis area described below.

The goal at the scale of this analysis (i.e. the Broadaxe 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 (IDF&G, 1995, p. 51). The roughly 4,005-acre wildlife project area is included in a larger (roughly 10,000 acres) area that is a size that would encompass, an average male and 2-3 female home ranges (Ruggiero et. al., 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 area used for analysis in the Broadaxe Project Area is Area 3 – Float/Broadaxe, at 10,531 acres. (project file W-24: Fisher / Marten Analysis Area Map)

Current literature (including existing draft assessments and strategies) can be used to establish existing conditions, identify opportunities/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 a parameter affecting habitat for forest carnivores, but the Forest Service has no jurisdiction concerning trapping; and it is beyond the scope of this project analysis. Road densities affect vulnerability (to trapping); however, there would be no change to open road densities under the proposed action. As the potential vulnerability to trapping would not be affected through this project, there is no need to address road densities specific to effects on fisher.

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. 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 W8 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.

Affected Environment

Guidelines for forest structure and the existing condition of capable forested habitat on NFS lands in the Broadaxe wildlife analysis area are displayed in the following tables.

Table W9 Analysis Area Guidelines for Forest Structure for Fisher and Marten

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

Table W10 Existing Forest Structure by Fisher/Marten Analysis Area

Forest Structure	Area 3 7,488 Acres of Capable Habitat	
	Acres	%*
Mature forest**	5,418	68.8%
Young forest***	837	11.2%
Pole/sapling	1,211	16.2%

* % of capable habitat in each fisher/marten 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 analysis area is currently high quality fisher/marten habitat.

Environmental Consequences

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 fisher/marten analysis area encompassing the Broadaxe project area by alternative. The No-Action Alternative shows the existing condition. The Proposed Action shows expected values after all project activities are completed.

Table W11 Suitable Fisher/Marten Habitat

Analysis Area	No Action		Proposed Action	
	Acres	%*	Acres	%*
Area 3	2,182	29.1%	2,182	29.1%

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

The amount of suitable habitat is 29% 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 (project file), although the most recent fisher observation is from tracks in 1995.

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 InFish guidelines would maintain this habitat during and after the proposed activity.

Table W12 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 W12 – Acres / percent of Forest Structure by Alternative for the analysis area.

Area 3		
FOREST STRUCTURE	ALTERNATIVE	
	No Action	Proposed Action
Mature forest	5418a/68.8%	5418a/68.8%
Young forest	837a/11.2%	803a/10.7%
Pole/sapling	1211a/16.2%	1,211a/16.1%

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.

Cumulative Effects of No Action

As this alternative does not affect any mature or suitable habitat, there would be no change to habitat quality for fisher/marten in the analysis area. The amount of suitable habitat, and the ability of the area to support fisher/marten would also remain unchanged. The proposed action stands would continue to lose timber cover through lodgepole pine mortality. The four stands that are capable habitat have enough other tree species present that they would remain as sparsely timbered stands. This would be a minimal change in cover, and the stands would remain as unsuitable habitat in the immature sawtimber, IMSA (9-14") size class. Therefore, this alternative would have *no impact* on fisher/marten.

Direct and Indirect Effects of Proposed Action

This alternative does not treat any suitable habitat or mature forest habitat. All of the proposed action stands are in the IMSA size class, and only four stands (204 acres) are capable habitat. Most of the treated portions of these stands (172 acres) would retain enough cover that they would remain IMSA stands. 34 acres are likely to become an opening following logging and slash treatment. This would reduce the young forest (IMSA) proportion of the analysis area to 10.7%.

Cumulative Effects of Proposed Action

The high quality habitat condition of the analysis area would not change with this alternative, as there is no treatment of any mature capable habitat. As there is no change in suitable habitat, or any reduction in the amount of mature capable habitat, effects on fisher from this project would be discountable. This degree of change in the IMSA size class amount is discountable and not expected to adversely affect the ability of the analysis area as a whole to provide fisher/marten habitat. This alternative *may impact individuals or habitat, but would 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 mi² to over 300 mi² in Montana and Idaho. The Broadaxe Project Area is only 6.3 mi², therefore the 68.5 mi² Quartz Gold Elk Habitat Unit (EHU) would be used as the cumulative effects area for this analysis.

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). 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 et. al., 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, USFA and BLM Draft Conservation Strategy for Forest-Dwelling Species in Idaho, p. 4).

Affected Environment

Wolverine tracks have been reported in the analysis area as recently as 2004. This sighting most likely represents a transient individual. No wolverines were detected at a trap site run by IDFG in the project area during the winter of 2003-2004. In a district wide assessment, potential wolverine natal denning habitat was not identified in the area; however several areas of potential natal habitat are just over the Montana state line immediately adjacent to the project area.

There is a designated snowmobile route in the Elk Habitat Unit/wolverine analysis area. It is about 22.8 miles long on FH50 along the southern boundary of the analysis area, and then swings north and east to the Montana border at Gold Pass. The portion of the trail within the project area is not groomed and only receives sporadic use.

The existing open road density in the Quartz Gold EHU is 2.8 mi/mi². The elk habitat potential is 42%, and 4% 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 of wolverines within the wildlife analysis area.

Environmental Consequences

Table W13 displays the effects on open road/trail density, security, and prey availability by alternative.

Table W13 – Post activity conditions

Analysis Criteria	Alternatives	
	No Action	Proposed Action
Open road/trail density	2.8	2.8
% Secure habitat	3.6	3.6
Elk habitat potential	42.3	42.3

Direct, Indirect and Cumulative Effects of No Action

As the No-Action Alternative would not change any of the above conditions within the project area, it would have *no impact* on wolverines.

Direct and Indirect Effects of Proposed Action

Based on the lack of habitat within the project area, there would be no disturbance of potential natal denning habitat. Proposed project activities would not cause disturbance to the natal denning habitat immediately adjacent to the project area in Montana because the stateline ridge is a topographic barrier between sale units and the potential denning habitat. It is unlikely that project activities would take place until after the denning season because of the high elevation and likelihood of snow accumulations at that time of year. This alternative would not change the amount or location of designated snowmobile routes within the project area. The open road/trail density would also be unchanged with the proposed action. Foraging habitat for ungulates would be slightly improved as a result of the broadcast and underburning proposed with this alternative. Conditions for wolverines are unlikely to be affected by the relatively short-term disturbance during the duration of the timber sale.

Cumulative Effects of Proposed Action

The proposed activities are unlikely to affect wolverines due to their wide-ranging nature and the relative lack of preference for special habitat. Based on: the maintenance of the prey base, design criteria which would avoid adverse impacts (e.g. by maintaining corridors/linkages), improved conditions for ungulates, and avoiding disturbance near natal den sites; the proposed actions evaluated with this project would not cause any adverse cumulative effects. This alternative *may impact individuals or habitat, but would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species.*

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).

The analysis of effects on goshawks uses direction in “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 et. al., 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, 1992, p. 3). The approximately 6,832-acre Goshawk Analysis Area (GAA) delineated for this analysis is a reasonable aggregation of timber sub-compartments surrounding the project area, as these are based on topographic and watershed boundaries. (project file W-29: Goshawk Analysis Area Map).

Management recommendations for each home range include at least two approximately 25-acre suitable nest areas less than 0.6 mile apart per home range (USDA, 1990, p. 23), and a mosaic of vegetation structural stages in both an approximately 420-acre post-fledging family area (PFA) and a 5,400-acre foraging area (FA)(Reynolds, 1992, p. 4). A goshawk home range size of roughly 6,000 acres is used in this analysis to be consistent with these figures. The PFA and 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, 1992, p. 22-30).

Affected Environment

Nesting Habitat

Although there is plenty of mature and old growth forest present, the steep slopes in the area and the amount of spruce-fir habitat limit the occurrence of capable habitat. Based on literature descriptions and the IPNF wildlife query of TSMRS habitat data, there are only 127 acres of capable and no suitable habitat available within the goshawk analysis area. The low amount of capable habitat is a result slopes and habitat types, and it is not a result of previous activity in the area. Goshawks are infrequently sighted within the wildlife analysis area. Numerous surveys from 2001 - 2003 throughout the analysis area have not detected nesting goshawks (project file, W6). There are no known nests in the project area. An active goshawk nest was found in 2002 within 10 miles of the project area. This nest was not used in 2003 (project file, W9). There is currently no suitable nesting habitat within the project area. A goshawk home range is considered suitable when it has two suitable nest stands within .6 miles of each other (USDA, 1990, p. 23). The lack of capable habitat limits the project areas ability to support a goshawk population. See the table below for existing and post-activity conditions.

Table W14 – Goshawk Nesting Conditions

Goshawk Analysis Area	No Action			Proposed Action		
	Nest stands >25 acres	Nest stands within .6 mi.	Suitable home range	Nest stands >25 acres	Nest stands within .6 mi.	Suitable home range
6	0	0	No	0	0	No

Foraging habitat

Given that the analysis area is not a suitable home range, and there are only 127 acres (1.9%) of capable nesting habitat present, it is unlikely this area can support goshawks. The larger size classes provide the most value for foraging habitat (USDA, 1990, p. 26), and are therefore the most important determinant of suitable habitat. There is no treatment of mature timber, so there would be little change to potential foraging conditions. Based on the reasoning above, there is no need for a detailed analysis effects on foraging habitat.

Environmental Consequences

Direct and Indirect Effects of No Action

This alternative does not have any vegetation treatment, and therefore no effects on the limited amount of capable nesting habitat present. There would be no change to foraging habitat conditions with the No-Action Alternative.

Cumulative Effects of No Action

Conditions for goshawk in the project area would not change with this alternative. There are no suitable nesting stands and no treatment of any capable habitat stands that could become suitable in time. The one capable habitat stand large enough to be useful for goshawks is of a cover type and canopy level unsuitable for nesting. The canopy level would remain low due to continued mortality from bark beetles and the subalpine fir cover type would persist. This stand is not going to become suitable nesting habitat under this alternative. The ability of the area to support goshawk would remain very low, as it is not a suitable home range. As this alternative does not change any of the above conditions within the project area, it would have no impact on goshawk.

Direct and Indirect Effects of Proposed Action

This alternative does not treat any capable nesting habitat, and there is no suitable nesting habitat present in the project or analysis area. Through the salvage harvest some potential foraging habitat would be changed from open timbered immature sawtimber habitat to shrub/seedling openings. Given that the analysis area has a very low probability of supporting goshawks, a small change to the less important component of foraging habitat is inconsequential.

Cumulative Effects of Proposed Action

The extremely limited amount of capable nesting habitat, and total lack of suitable nesting habitat present in the analysis area reduces the potential for adverse impacts on goshawk. A minimal decrease in lower quality foraging habitat in an area where goshawk are unlikely to be able to successfully nest, means this alternative would have little real effect on goshawk. The ability of the area to support a pair of goshawks would remain very low, and this alternative would not change that. Therefore, the implementation of this alternative would have no impact on goshawk.

Black-backed Woodpecker

Black-backed woodpeckers 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. 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, mixed severity and stand-replacing fires produced new habitat annually in greater amounts than is presently produced under a fire suppression strategy.

There have been no recent observations of black-backed woodpecker in the Broadaxe area, but their feeding sign has been found (project file, W11). Based on literature descriptions and field verification of habitat, capable and suitable habitat is available within the Broadaxe 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.

Affected Environment

Black-backed woodpeckers prefer mature and old growth forests and fire or insect damaged stands. The 4,005-acre Broadaxe Wildlife Project Area is used as the analysis area as it is large enough to contain several home ranges (WDW, 1991, p. 2). The wildlife analysis area contains 2,055 acres of mature and/or old forest (51.3%) and 1,254 (31.3%) acres of immature sawtimber size class (9-14" dbh) that is considered suitable habitat. Most of the lodgepole pine stands being affected by mountain pine beetle are in this smaller size class. 128 acres of suitable habitat stands were cut in 1998 with the Beetlemania T.S., and are now seedling habitat (project file W10). In addition to the proposed treatment stands, there are roughly 702 acres of stands containing enough recently (last 5 years) bug-killed trees to provide high quality habitat, based on 2004 field exams.

Timber mortality from insects and disease is continuing in the project area. There are some root rot areas as well as continuing infestations of mountain pine beetle and Douglas-fir bark beetle (Vegetation report). This trend is increasing the amount of quality habitat available for black-backed woodpeckers. Due to the fire history (about half of the area was not burned in 1910, see Fire and Fuels report) in the Gold Creek drainage, there is a good level of mature/old forest structure in the project area. The high levels of mature and old trees, coupled with the amounts of insect and disease related mortality, indicate a trend of increasing habitat quality for black-backed woodpeckers.

Environmental Consequences

Direct and Indirect Effects of No Action

There would be little change from existing conditions as there would be no harvest of any suitable habitat. Succession would continue on mature timber stands and improve their suitability as black-backed woodpecker habitat. Mortality through insect and disease agents is expected to persist at or above endemic levels (Vegetation report), providing a continuing supply of feeding and nesting habitat throughout the project area.

Cumulative Effects of No Action

Allocated old growth would be maintained at existing levels, and untreated stands would continue to age. The trend for continuing tree mortality through insect and disease agents is expected to persist. The amount and quality of suitable habitat should continue to increase. The project areas ability to support black-backed woodpeckers should improve over time. No Action does not reduce any suitable habitat however; it does not create any potential habitat through burning. Therefore, No Action would have no impact on black-backed woodpeckers.

Direct and Indirect Effects of Proposed Action

This alternative would treat 509 acres with salvage harvest designed to remove lodgepole. These cuts would remove the majority of dead and dying lodgepole trees that are the major component of suitable habitat. The broadcast burning proposed for slash treatment would have a likelihood of

improving habitat for black-backed woodpeckers by providing fire-killed trees. It is reasonable to expect mortality of some trees retained after harvest in these units, which would offset the removal of suitable habitat trees to some degree. Although snags and live trees would retain the required amounts of snags and live leave trees in the untreated portions of the stands, these salvage units would make the treated stands lower quality habitat. This alternative would cause a reduction in suitable habitat quality and quantity within the project area.

Cumulative Effects Common to Proposed Action

Retention of snags at levels in the design criteria would maintain some habitat value for black-backed woodpeckers (albeit at a lower level), within treated stands. The presence of an equal or greater amount of suitable dead and dying lodgepole habitat than is being treated would continue to provide sufficient habitat for black-backed woodpeckers to persist in the project area. It is not anticipated that any proposed federal action would contribute to adverse impacts on black-backed woodpecker populations within the project area or at a landscape level. For reasons listed above, the Proposed Action *may impact individuals or habitat, but would 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 one per 100 acres. (Hayward and Verner 1994, p. 22, 37). Stands composed of ponderosa pine or Douglas-fir cover types, in mature (>14") size classes, on dry habitat types, with a range of 35-65% canopy cover, are considered suitable habitat. 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.

Affected Environment

Due to their relatively small home range, the 4,005-acre Broadaxe Wildlife Project Area is a sufficient size for flammulated cumulative effects analysis. Approximately 163 acres of capable flammulated owl habitat exists in the wildlife analysis area. No suitable habitat is present. Three of the six capable habitat stands are currently seedling or sapling-dominated as a result of past harvest

activity. Some capable stands are too young and most do not have the drier Douglas fir or ponderosa pine cover type needed to be suitable habitat.

The low amount of capable habitat present indicates that a flammulated owl population is not likely to occur in the project area. There are only two blocks of capable habitat over 25 acres (those most likely to be occupied), within the project area. Though capable habitat is present, the limited occurrence of ponderosa pine and Douglas-fir cover types reduces the likelihood of use of the area by owls.

Environmental Consequences

Direct, Indirect, and Cumulative Effects of the 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 continued mortality of lodgepole pine from mountain pine beetle in the upper portion of the Broadaxe watershed would have little effect on flammulated owls due to the lack of capable habitat in that area. The potential of the analysis area to provide flammulated owl habitat would be unchanged with this alternative. This alternative would have no impact on flammulated owls.

Direct and Indirect Effects of Proposed Action

There is no suitable habitat in the analysis area and no treatment of any capable flammulated owl habitat with this alternative.

Cumulative Effects of Proposed Action

Post-activity habitat conditions for flammulated owls would be essentially unchanged from the existing condition, because no capable or suitable habitat is being treated. The amount of dry, open forest types that flammulated owls are associated with have been greatly reduced from past levels across the IPNF and the St. Joe District (Draft SZ wildlife GA, 2003, p. 4). The amount of suitable flammulated owl habitat is consequently at very low levels both forest and district-wide. Only 5% of the capable habitat on the St Joe District is in suitable condition for flammulated owls. As this is well below the historic range of variability, a preliminary risk assessment for flammulated owls was completed by wildlife biologists on the IPNF (see below). Because the Proposed Action does not treat any capable or suitable habitat, it would have no impact on flammulated owls, and no risk to populations.

IPNF Preliminary Risk Assessment

No Risk – No effects to suitable and capable habitat.

Low Risk – Treatment of capable habitat to improve, and no effect to suitable habitat.

Moderate Risk – Prescribed burning of suitable habitat, treatment that maintains suitable habitat, treatment that trends capable immature sawtimber or pole size classes away from suitable habitat parameters.

High Risk – Treatment that changes suitable habitat to an unsuitable condition, or treatment that trends mature or late immature sawtimber size class capable habitat towards unsuitable condition.

Risk levels are based on preliminary assessments by IPNF biologists discussed in June 2003. (project file, W12)

Western Toad

Affected Environment

Western 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.

There are no known observations of western toads within the project area. There are some mesic timbered stands present that could provide suitable habitat. These are most likely to occur along the lower reaches of Broadaxe Creek and along the portion of Gold Creek at the edge of the project area. It is unlikely the proposed units are providing suitable habitat as they are all high elevation (two units above 4900 feet, 9 units above 5200 feet), and not especially mesic. Potential breeding habitat is likely very limited, as there are no lakes, ponds, or marshes present. Breeding habitat is probably confined to the riparian zones of any slow-flowing, low-gradient creeks 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 the No Action

There would be no change to habitat conditions for western toads with the No-Action Alternative. This alternative would have *no impact* on western toads.

Direct and Indirect Effects of Proposed Action

Habitat alterations from timber harvest and recreation have not been shown as causative agents for population declines (Loeffler, 1998, p. 11). Given the minor amount of mesic, timbered stands present and the lack of any ponds or wetlands, it is likely that breeding habitat is limiting for western toads in the project area. The riparian buffer zones established on creeks in the project area means there would be no changes to potential breeding habitat. These no-cut buffers would also protect the majority of timbered stands near water that would be most likely to be used by toads. The nature of the proposed timber harvest units, mainly high elevation drier habitat types, means it is unlikely these stands would be important habitat for western toads

This species can breed along 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 throughout the forest. The highest potential for mortality would occur on existing open roads adjacent to potential breeding habitat. Any cumulative mortality from the action alternative is unlikely; and potential adverse effects would not significantly exceed existing levels of risks to the species.

Cumulative Effects of Proposed Action

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 this alternative *may impact individuals or habitat, but would 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 this alternative 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 W15.

Table W15 - Wildlife MIS for the St. Joe District

Species	Reasons Species are Used as Management Indicator Species	Existing Habitat / Need for Further Analysis
Goshawk	Associated with late successional forest habitat.	Habitat exists; analysis is documented in sensitive species section.
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 completed.
Elk	Hunted, important big game species, affected by human disturbance and human use of roads.	Habitat and species present, public issue, further analysis 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 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 are addressed under Sensitive Species along with Fisher and are not addressed further in this section. The goshawk is analyzed as a sensitive species and would not be 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.

Pileated Woodpecker

The pileated woodpecker is 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 (USDA, 1990, p. 10). Nest trees average nearly 30 inches; the minimum nest tree diameter is 20 inches.

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 1990, 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 4,005-acre Broadaxe wildlife project area is a sufficient size for the analysis of cumulative effects.

Existing Condition

Approximately 51% (2,055 acres) of the project area is large/mature/old forest and provides suitable habitat. At these levels, there is enough suitable habitat for at least two home ranges, since not every acre of suitable habitat needs to be high quality (USDA 1990, p. 15). For these reasons 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 distributed mainly throughout the center of the analysis area. This distribution pattern is the result of past harvest activities in the lower Broadaxe drainage and previous fires in the upper end of the drainage where the trees are still largely younger and smaller.

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 Broadaxe area. 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 forest present indicates good habitat quality for pileated woodpeckers in the wildlife project area (Old Growth report).

Environmental Consequences

Direct and Indirect Effects Common to No Action

Succession would continue on untreated stands and improve their suitability for pileated habitat as tree size increases and snags continue to be produced. This alternative would not impact existing allocated old growth. The amount of higher quality habitat provided by old growth stands would persist in the project area.

Cumulative Effects of No Action

The No-Action Alternative 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 No-Action Alternative would have no effect on pileated woodpeckers.

Direct and Indirect Effects of Proposed Action

No treatment of any mature timber stands that constitute suitable pileated woodpecker habitat is proposed. All the proposed harvest units are sanitation /salvage cuts of immature sawtimber size class stands. These cuts would be removing the majority of dead and dying lodgepole trees, some of which are a component of suitable feeding habitat. Canopy cover, snags, and live leave trees of other species would be retained. Given the amount of insect and disease activity in the area, the salvage treatment of a portion of the lodgepole stands in the area is not expected to have a major impact.

In addition the project area would retain snags at levels that have been shown to maintain viable populations of cavity dependent species (project file, W3).

Cumulative Effects of Proposed Action

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 (Vegetation report). The amount and quality of suitable habitat should continue to increase. The project area's ability to support pileated woodpeckers should improve over time. Based on the level of suitable habitat maintained (>50%), it is not likely that this alternative would adversely impact pileated woodpecker populations. The amount of mature nesting and feeding habitat remaining, the design features (i.e. snag retention levels), and prescriptions (i.e. lodgepole species designation) 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 both alternatives, the EHU analysis area was divided into nine 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 Broadaxe EA, Quartz Gold Elk Habitat Unit Map shows the name and arrangement of the area used for this project.

The original Quartz Gold project area (from which the Broadaxe project was derived) is almost entirely in Elk Habitat Unit 10, with a small amount (7%) in the adjoining EHU 14. For this analysis, that portion of EHU 14 was combined with EHU 10 and a weighted average of the elk habitat potential (EHP) values was used to determine the overall target EHP for the Quartz Gold analysis area. This Quartz Gold EHU would be 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. One of these smaller Elk analysis areas, #4, would cover the direct and indirect effects for the Broadaxe project area.

To disclose how the proposed action 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. 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 elk habitat potential (EHP) targets of .50 for EHU 10, and .69 for EHU 14 to meet the Forest Plan EHP goal of .65 on the Avery portion of the St. Joe Ranger District. The Elk Habitat Potential target calculated for the Quartz Gold EHU is .51. EHP targets are not assigned for the individual elk analysis areas, however, a higher individual area Elk Habitat Potential provides a better chance that the overall Elk Habitat Unit would 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. There is no winter range in the project area. Forage habitat is supplied mainly by past regeneration harvest units distributed throughout the area, and open timbered stands with a shrub component. Cover habitat is abundant, as 83% of the project area has timber cover in the immature or mature size classes. 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 (project file) in the development and design of the proposed action.

The existing EHP of the 43,865-acre Quartz Gold EHU is .42, which is below the .51 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 2.8 mi./mi². About 3.6% of the EHU is secure habitat.

Environmental Consequences

Table W16 displays the existing condition (No Action) 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. The proposed units are concentrated in the upper end of the Broadaxe drainage.

There would leave the majority of the lower and southern ends of the project area for wildlife to disperse to during sale activities.

Table W16 – Summary of Effects on Elk Habitat Potential.

Elk Analysis Area	Criteria	No Action	Proposed Action
Broadaxe	Open Road Density	2.5	2.5
	% Security	0	0
	EHP	.43	.43
Quartz Gold	Open Road Density	2.8	2.8
	% Security	3.6	3.6
	EHP	.42	.42

Open road densities are shown in miles per square mile. Figures depict post-activity conditions.

Direct and Indirect Effects of No Action

The No-Action Alternative would not change the existing conditions in the Broadaxe elk analysis unit. Forage levels and conditions would not be enhanced through burning. There would be no new road construction with this alternative. The EHP and amount of secure habitat would remain low and the open road density would remain high. The EHP in the Broadaxe elk analysis area is .43. This individual elk analysis area would have no secure habitat.

Cumulative Effects of No Action

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 (2.8 mi./mi.²) and resultant low amount of secure habitat (1580 acres, 3.6%) would continue unchanged under this alternative. There would be no change in effects on elk through this alternative.

Direct and Indirect Effects of Proposed Action

In the Broadaxe area the open road density and EHP would not change from existing conditions. In this elk analysis area there would still be essentially no secure habitat. There are 0.9 miles of new temporary road that would be constructed for this alternative. About one mile of currently closed road would be opened for the 1-3 year duration of the timber sale. This road would be returned to its previous non-motorized status, and the temporary road would be recontoured after project activities are complete. The proposed broadcast burning for slash treatment would slightly improve forage conditions in the area.

Cumulative Effects of Proposed Action

The overall high open road density and low amount of secure habitat in the Quartz Gold EHU would not be changed by this alternative. This level of security is below 20% and therefore is having a negative effect on the EHP. The overall Elk Habitat Potential would remain at .42, which is below the target level called for in the Forest Plan. This alternative would maintain existing conditions for elk in the project area.

Consistency with Forest Plan and Laws

Both alternatives are consistent with applicable goals, direction, standards, and guidelines from the Forest Plan for the management of wildlife habitat and species populations. Both alternatives, to varying degrees comply with other direction and recommendations regarding management of the various components of wildlife habitat. Both alternatives comply with applicable conservation strategies for wildlife species. Both the No-Action and Proposed Action Alternatives are consistent with the ESA, 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: BROADAXE

Species	NO ACTION	PROPOSED ACTION
Black-backed Woodpecker	NI	MIIH
Black Swift	NI	NI
Western Toad	NI	MIIH
Coeur d'Alene Salamander	NI	NI
Common Loon	NI	NI
Fisher	NI	MIIH
Flammulated Owl	NI	NI
Fringed Myotis	NI	NI
Harlequin Duck	NI	NI
Northern Bog Lemming	NI	NI
Northern Goshawk	NI	NI
Peregrine Falcon	NI	NI
Pygmy Nuthatch	NI	NI
Townsend's Big-Eared Bat	NI	NI
Wolverine	NI	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: Gates will be locked closed daily after hauling. Roads used for the timber sale will be restored to their pre-sale use status.

Recommendations: The district biologist should be notified if any sensitive species are observed during pre-sale and sale activity.

Prepared by: /s/ _____ Date: _____
Wildlife Biologist

Approved by: /s/ _____ Date: _____
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.

