3.7 Wildlife

3.7.1 Introduction

3.7.1.1 Scope of the Analysis

Species were evaluated in relation to available habitat quality and quantity for the proposed Eastside Project. The scope of this analysis and extent of cumulative effects varies depending on each species relative home range size and critical habitat niche(s). For most wildlife species, effects analyses will be limited to the American River watershed. For certain species, the amount (acres) of potentially suitable habitat that would be modified will be the primary indicator for analysis and will be carried throughout the alternatives. Direct, indirect, and cumulative effects will be addressed predominantly within the American River watershed, and where applicable extend beyond the watershed.

3.7.1.2 Regulatory Framework

BLM Management Framework Plan and North Idaho Timber Management EIS
The Chief Joseph Management Framework Plan (MFP) (USDI-BLM, 1981a) and North Idaho Timber Management EIS (NITMEIS) (USDI-BLM, 1981b) provide principle policy and guidance which is relevant to wildlife and forest management. The MFP and NITMEIS documents goals, standards and guidelines for wildlife species. Following are some pertinent excerpts in regards to the Eastside Project proposal.

- Practice snag management to maintain adequate habitat for snag dependent species.
- Active raptor nests would be protected by non-disturbance zone.
- Appropriate vehicle use restrictions will be established to protect known high resource values.
- Protect and/or restore habitat for moose.
- Identifies riparian buffers for wildlife cover and travel.
- Avoid adverse actions to federally listed species.
- Guidance for closure of temporary roads.
- Maintenance of adequate hiding/security cover for deer and elk.
- Provides guidance for coordinating logging and elk habitat requirements.
- Riparian and aquatic restoration priorities for American River drainage.

Federal Land Policy and Management Act of 1976 and Endangered Species Act
Analysis and evaluation of wildlife and terrestrial threatened, endangered, and sensitive (TES) species data in this environmental impact statement (EIS) is based on direction contained in the Federal Land Policy and Management Act of 1976 and the Endangered Species Act of 1973 (ESA). The above Acts and BLM regulations require federal land managers to maintain viable populations of all native and desirable non-native wildlife species and to assure that federally listed (threatened and endangered) species populations are allowed to recover.

Threatened Species: Threatened or endangered status provides a species and its habitat special protections from adverse impacts from federally authorized or funded projects. It is the responsibility of the BLM to design activities that contribute to the recovery of listed species in accordance with recovery plans developed as directed by the ESA (50 CFR part 402). Section 9 of the ESA requires threatened and endangered species be protected from “harm” and “harassment” wherever they occur, regardless of recovery boundaries. According to U.S. Fish and Wildlife Service list #SL 06-0328 (dated 3/1/2006), federally listed wildlife species include gray wolf (*Canis lupus*) as a threatened experimental/nonessential species. The Canada lynx (*Lynx canadensis*) and bald eagle (*Haliateetus leucocephalus*) are listed as threatened species.

Sensitive Species: In accordance with national policy (BLM Manual 6840), the Idaho BLM Special Status Species List (2003) provide management direction and prioritization for BLM sensitive species and conservation management needs. An associated Memorandum of Understanding (MOU) has been signed by the State Director and Idaho Department of Fish and Game Director that designates BLM sensitive species (those species of concern but not federally listed or candidates for listing). Consistent with national policy, all BLM offices are to use this list to help them "…ensure, to the best of their abilities, that critical habits and populations of sensitive species occurring on lands administered by the BLM will be managed and/or conserved to minimize the need for listing these animals as threatened or endangered by either Federal or State governments in the future."

Neotropical Migratory Bird Laws: Migratory Bird Treaty Act (MBTA) of 1918 and Executive Order 13186 (E.O.) titled "Responsibilities of Federal Agencies to Protect Migratory Birds," provides specific direction that environmental analysis of Federal actions are to evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern.

On January 10, 2001, President Clinton signed Executive Order 13186, "Responsibilities of Federal Agencies to Protect Migratory Birds." The BLM and the U.S. Fish and Wildlife Service (FWS) signed a MOU complementing the Executive Order.

The 1988 amendment to the Fish and Wildlife Conservation Act mandates the FWS identify "…all migratory nongame birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act of 1973." Carrying out this mandate, the FWS published "Birds of Conservation Concern 2002" and recommends that its lists be consulted in accordance with Executive Order 13186.

The Migratory Bird Treaty Act covers many ground-nesting and shrub-nesting birds. Some migratory birds are covered by state hunting regulations; others are protected by non-game status by the Idaho Department of Fish and Game.

3.7.1.3 Desired Future Conditions and Analysis Methods

Historical Range of Variability

Ecosystems are not static and their conditions vary over time and space. The Historical Range of Variability (HRV) describes the dynamic nature of ecosystems. The historic range of conditions found in a given setting is used to understand the likely range of conditions found under natural disturbance regimes. HRV refers to the range of composition, structure, pattern and function of landscape elements like streams and aquatic communities, and terrestrial plant and animal communities in recent time (the last 2000 years) of relative climatic stability. It is considered to include the era prior to European settlement, but concurrent with Native American occupation. This concept is based on the assumption that if elements are sustained or restored to within their historic range of variability, viable populations will more likely be maintained and rates of extinction will not exceed natural rates. Actual information on historic conditions is inferred from more recent (1500s–early 1900s) information and available research data.

The wildlife analysis uses information at four scales: South Fork Clearwater Sub-basin 4th Code HUC (752,000 acres), American River watershed 5th Code HUC (58,612 acres), immediate project area, and treatment area. Each species listed in Table 3.7.4 that occurs in the American River watershed is discussed. Analysis of each species includes available habitat and population information. Species habitat analysis includes a summary of important habitat requirements and available habitat quality and quantity. Population information includes sighting information from local BLM and FS reports and Idaho Conservation Data Center reports and available survey information. The wildlife resource direct and indirect effects project analysis area is the American River watershed (7.79% of the South Fork Clearwater River Sub-basin). Table 3.7.1 displays proposed actions by alternatives at two scales.

Table 3.7.1 Size of Alternative Treatment Acres at Two Scales (South Fork Clearwater River and American River Watershed)

	Alt A	Alt B	Alt C	Alt D
Acres Treated	0	1,293	1,284	1,171
Percent of South Fork Clearwater River	0	0.17	0.17	0.16
Percent of American River Watershed	0	2.21	2.19	2.00

The extent of historical habitat for various wildlife species chosen for analysis in the South Fork Landscape Assessment (USDA-FS, 1998a) was calculated by identifying acres of potential habitat for each Vegetative Response Unit (VRU) and Ecological Reporting Unit (ERU) (geographic areas that provide structure for describing where conditions occur and a sense of place). The American River is identified as an ERU for the subbasin. Since not all acres would have supported certain wildlife species or would have possessed the preferred vegetation and structure, the midpoint of the HRV for various wildlife habitat components was multiplied by the number of potential acres within the subbasin. The end product was then termed "historical acres." Habitat for some wildlife species has increased, while habitat for some species has decreased due to fire exclusion. While the quantity of habitat may have increased, habitat quality could have decreased due to snag losses from firewood cutting, and loss of habitat heterogeneity from fire suppression, loss of large diameter trees due to timber harvest, and high road densities have direct and indirect effects on wildlife security and disturbance.

To characterize the historical (pre-settlement condition) and current condition of wildlife habitat, Vegetation Response Units (VRUs) were used. The components used to develop the VRU classification system are habitat type groups (potential vegetation), landform, and pre-settlement disturbance processes (like fire and disease regimes). VRUs are broad ecological land units that display unique patterns of habitat type and terrain with similar patterns of disturbance and succession processes. Patterns of plant community composition, age class structure, and patch size would tend to fall within certain ranges for each VRU. VRUs were used in this assessment to estimate resource capabilities, ecological integrity, and responses to natural and human-caused disturbance. Table 3.7.2 summarizes the VRUs found in the American River watershed (USDA-FS, 1998a).

Table 3.7.2 American River (ERU)–Vegetation Response Units[1]

Vegetation Response Units						
1	3	6	7	8	9	10
974	74	36340	10077	674	392	10100

[1]Source–*South Fork Clearwater River Landscape Assessment Volume 1*–page 93 (USDA-FS, 1998a)

VRU 6 (cold basins, grand fir and subalpine fir) is the most prevalent VRU in the watershed (USDA-FS, 1998a). This VRU is common at mid elevations. Grand fir and subalpine fir habitat type are dominant. Lodgepole pine was the dominant seral species. Western larch, Douglas-fir, and Engelmann spruce were important.

VRU 10 (uplands, alder, grand fir and subalpine fir habitat types) and VRU 7 (moist uplands, grand fir and Pacific yew) comprise similar amounts of the watershed (USDA-FS, 1998a).

The Eastside Project is in VRU 6, which comprises 36,340 acres and 62 percent of the American River watershed. Table 3.7.3 summarizes natural/historic disturbance regimes by size class for this VRU and existing conditions. The BLM utilized the NPNF data set for tree size class data within the American River watershed that used a large tree class of greater than 15 inch dbh.

Table 3.7.3 VRU 6 Natural/Historic and Existing Conditions in the American River Drainage

Size Class	Natural/Historic Disturbance Regimes[1]	Available Size Class Data Used For Analysis	Alt A Current Acres (%)[2]
Non-Forest	5–10%	Non-Forest & Shrub Dominated	3,005 (8.6%)
Seedling/Sapling (<5 inch dbh)	10–30%	Seedling/Sapling (<5 inch dbh)	10 (<0.5%)
Pole (5–9 inch dbh) and	30–45%	Small Tree (5–9.9 inch dbh)	4,178 (12%)
Small Tree (9–14 inch dbh)		Medium Trees (10–14.9 inch dbh)	11,988 (34.4%)
Medium Tree (14–21 inch dbh)	20–40%	Large (15+ inch dbh)	15,659 (44.9%)
Large Tree (>21 inch dbh)	5–20%		

[1]Source–*South Fork Clearwater River Landscape Assessment Volume 1*–page 96 (USDA-FS, 1998a)
[2]Source–NPNF GIS analysis data.

Analysis of effects for most species used comparisons of resultant effects of each alternative and any past, present, and reasonably foreseeable future actions on the most limiting habitat factors, habitat components, or species sensitivities known relative to the analysis area or larger landscapes as appropriate. Where appropriate, wildlife information related to the amount of existing habitat potentially available for certain sensitive and other species of interest was modeled using the Region 1 Vegetation Mapping project (R1-VMP) to describe abundance and distribution of wildlife habitat for the American River drainage (USDA-FS, 2005a). This product provided a consistent and continuous geospatial database for existing vegetation and associated attributes covering the Eastside Project area, in conjunction with the American and Crooked River project (USDA-FS, 2005a). Vegetation composition (habitat type and forest cover type), structural stages (tree size classes and canopy cover), acres, and distribution were all considered in defining the existing condition. These same criteria were used to determine the effects of the different alternatives on species habitat.

Where appropriate, the BLM utilized the Nez Perce National Forest 2000–2002 Forest Inventory and Analysis (FIA) survey to determine the abundance and distribution of certain wildlife habitat, old growth and snag habitats at the watershed (5th Hydrologic Unit Code–HUC) and subbasin (4th HUC) level. The FIA survey is a general purpose, national inventory that is designed for strategic assessments and produces statistical reports and analytical information on status and trends in forest vegetation across the nation (Czaplewski et al., 2003). FIA data were used to describe existing conditions for the following species and habitats: Northern goshawk, Williamson's sapsucker, olive-sided flycatcher, fisher, black backed woodpecker, old growth, early seral, and snags. Criteria used for data queries are located in the project file.

In addition, this EIS incorporates the effects on BLM terrestrial sensitive species (i.e., Biological Evaluation). Refer to Table 3.7.4 below for a summary of environmental consequences and conclusions for this analysis.

Elk Habitat: Outputs from the habitat suitability index model for north Idaho (Leege, 1984) were used to analyze summer elk habitats. The analysis area does not occur in primary elk winter range.

Lynx: The analysis for Canadian lynx followed conservation measures and habitat criteria direction from the *Canada Lynx Conservation Assessment and Strategy* (LCAS) (Ruediger et al., 2000). Analysis of effects to lynx and/or their habitat is conducted for lynx analysis units (LAUs) as directed by the LCAS. The LAU for the Eastside Project area includes BLM lands located in the east side of the Elk City township and NPNF lands located east and north east of the township (#3020306).

Old Growth: The BLM conducted stand exams within the project area to determine if individual stands met old growth criteria and no old growth stands were identified in harvest units. In addition, cumulative assessment was conducted at the watershed level by the NPNF for the American and Crooked River project (2005) which is summarized as follows. NPNF Stand exam data was queried for stands meeting criteria from the North Idaho Zone Old Growth methodology, as well as Forest Plan definitions. Stands meeting all criteria for existing old growth were reviewed using ARC/GIS system to ensure they have not been harvested or thinned in a manner that may have compromised their habitat effectiveness. Stands that met all criteria for replacement old growth were similarly verified. Unsampled stands were reviewed using the "Large Tree 2002" ARC/GIS screen (stands with large trees in 1935 and not since harvested or burned), and compared against known old growth stands using tree size, canopy, and common canopy texture as a guide before being considered old growth. These were also verified to be present on the landscape using the ARC/GIS tool along with aerial photos.

3.7.1.4 Alternative Comparison and Effects Determinations

Table 3.7.4 displays a brief summary of effects determination for federally listed species, BLM sensitive species, and other species of interest and habitat associations.

Table 3.7.4 Wildlife Species Effects Determinations for Federally Listed Species, BLM Sensitive Species, Other Management Indicators (Species and Habitat Associations) and Alternative Comparisons

Primary Status	Species and Status	Guild/ Priority Habitat	Alt A	Alt B	Alt C	Alt D
Threatened and Endangered Species	Canada Lynx (Threatened)	Early-seral Security	No Effect	May affect, but not likely to adversely affect		
	Gray Wolf (Experimental Population)	Early-seral Security	No Effect	Not likely to jeopardize continued existence of the species		
	Bald Eagle (Threatened)	Early-seral Riparian	No Effect	May affect, but not likely to adversely affect		
BLM Sensitive Species	Northern goshawk	Late-seral/ Old growth	No Impact	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species. Alternatives very similar, Alt. B impacts most habitat, Alt. D least.		
	Williamson's sapsucker	Late-seral	No Impact	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species. Alternatives very similar, Alt. B impacts most habitat, Alt. D least.		
	Olive-sided flycatcher	Early-seral	No impact	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species. Alternatives very similar, all Alts. beneficial. Alt. B improves most habitat, Alt. D improves least amount of habitat.		

Primary Status	Species and Status	Guild/ Priority Habitat	Alt A	Alt B	Alt C	Alt D
	Fisher	Late-seral/ old growth security	No Impact	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species. Alternatives very similar, Alt. B impacts most habitat, Alt. D least.		
	Wolverine	Security	No Impact	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species		
	Western toad	Aquatic Riparian	No Impact	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species. Alternatives very similar. Alt. C most beneficial for riparian restoration , followed by B.		
	Common gartersnake	Riparian	No Impact	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species. Alternatives very similar. Alt. C most beneficial for riparian restoration, followed by B.		
	Idaho giant salamander	Aquatic Riparian	No Impact	May impact individuals or habitat, but would not likely result in a trend toward federal listing or reduced viability for the population or species. Alternatives very similar. Alt. C most beneficial for riparian restoration, followed by B.		
Other Management Indicators	Elk	Early seral Security	Low-mod. summer habitat effectiveness; no forage improvement	Creation of more forage areas. Short term disturbance during project implementation. Decommissioning roads beneficial. Timber harvest related road construction, temporary roads would be obliterated after project. Varies slightly by alternative, Alternative B and C most beneficial, followed by Alt. D.		
	Shiras Moose	Late-seral/ Grand fir/ Pacific yew Riparian	No measurable impacts	Loss of some mature, dense canopy grand fir habitats. No loss of important moose winter range. Riparian habitat restoration and decommissioning roads in riparian areas beneficial. Varies slightly by alternative, Alternative C most beneficial for riparian restoration.		

Primary Status	Species and Status	Guild/ Priority Habitat	Alt A	Alt B	Alt C	Alt D
	Black-backed Woodpecker (BLM Watch List)	Fire/insect disturbance	No measurable impacts, no direct loss of nesting or foraging habitat	Losses of nesting and foraging habitat. Alternatives very similar. Alt. D impacts least acres, Alt. B impacts most acres.		
	Neotropical Migratory Birds	Old growth (Priority) Riparian habitats	No measurable impacts, no direct loss of nesting habitat	Old growth maintained; low nesting habitat loss. Some loss of mature-dense canopy mixed conifer stands, negligible effects at the watershed level. Varies slightly by alternative. Alternatives very similar.		
	Old growth habitat	Late-seral/ Old growth	Low improvement for old growth	Old growth maintained, treatments would reduce fire threats. Some loss of mature-dense canopy mixed conifer stands, negligible effects at the watershed level. Varies slightly by alternative. , Alt. B impacts most "large tree" stands, Alt. D least.		
	Fragmentation and Connectivity	Late-seral Riparian Disturbance Regimes	Existing trends and condition continue	Treatment caused "openings" in mixed-conifer and lodgepole stands. Mobile, wide-ranging species slight effects; small, less-mobile species, may affect more. Decommissioning roads and moving roads out of riparian areas beneficial. Fuel treatments would reduce threats of more severe fires in treated stands. Alternatives very similar, Alt. C most beneficial with road decommissioning, and Alt. D modifies least acres.		
	Snags and Large Down Wood	Late-seral/ Disturbance Regimes	Existing trends and condition continue	Loss of snags and large down wood in treatment areas, negligible effects at the watershed level because of dead and dying lodgepole. Following snag guidelines would reduce potential for adverse effects. Alternatives very similar, Alt. B most impacts and Alt. D least.		
	Riparian Habitats	Late-seral/ Mid-seral	Low improvement for riparian; successional trends continue	Riparian restoration in all alternatives supports upward trends within dredge mined areas. Decommissioning roads in riparian areas beneficial. Alternatives very similar. Alt. C most beneficial for riparian restoration, followed by B.		

3.7.2 Existing Habitat Conditions

3.7.2.1 Introduction

The purpose of this section is to present existing wildlife species' habitat conditions and to document the direct, indirect and cumulative effects of past, present, and reasonable foreseeable activities on wildlife species and their habitats.

American River wildlife species composition and abundance are primarily influenced by climate, landscape, and disturbance regimes. Disturbance events, primarily fire, insects, and disease pathogens, initiate plant community vegetative succession. Vegetative transitions support a varying abundance and diversity of wildlife habitat and species. Some species are adapted to early seral communities, others are best suited for late seral communities and old growth habitats, while others utilize a variety of habitats and are adapted to vegetative successional mosaics. American River watershed wildlife habitats are going through a large scale transition at this time due to the mountain pine beetle epidemic in the area.

Landscapes undergo large and small natural disturbances creating patches that have different structures, and compositions. The amount, spatial arrangement, shape, and size of landscape patches determine wildlife species composition and abundance supported by the landscape.

South Fork Clearwater River

The following summary was taken from the South Fork Clearwater River Landscape Assessment (SFLA) (USDI-FS, 1998A).

"The South Fork Clearwater River Subbasin provides habitat for approximately 190 birds, 61 mammals, 8 reptiles, and 6 amphibians (Groves et al., 1997)… Most however, are primarily associated with either the Camas Prairie or coniferous forest… The subbasin's coniferous forest varies from warm, low-elevation ponderosa pine, to cold, high-elevation whitebark pine. Similar coniferous forest abuts the subbasin to the north, east, and south, although there are subtle differences that affect wildlife (USDI-FS, 1998A:99)."

The SFLA concludes by recommending priority management themes by resource area, including wildlife and vegetation. Wildlife habitat themes were recommended for each of the 13 ecological reporting units (ERU), one of the ERUs was the American River watershed. The priority American River ERU wildlife habitat themes included: produce early seral habitat; conserve late seral habitat; and enhance wildlife security (USDI-FS, 1998A:140). The priority American River ERU vegetation theme was to restore vegetation pattern for Lower American River, specific to VRU 6 (USDI-FS, 1998A:139).

American River Watershed

The American River watershed is dominated by moderately warm, moderately dry grand fir (habitat group 3) and moderately warm, moist grand fir (habitat group 4). Key habitat features include riparian zones and streams, moist and wet shrublands and meadows, and moist old growth. Refer to Section 3.3 (Vegetation) for more information about cover types, structure, and canopy cover in the American River watershed. Habitat groups 3 and 4 are characterized by moderately cool and relatively dry grand fir and moderately warm and moist grand fir habitats. Tree species characteristic of this habitat include grand fir, Douglas-fir, lodgepole pine, Engelmann spruce and occasionally ponderosa pine and western larch. Understories range from beargrass and huckleberry to more diverse shrub and forb understories. These habitats are found at mid elevations on ridges or rolling hills in the south and east parts of the subbasins and on north slopes and lower slopes in areas that are too dry for western red cedar.

Other common habitat groups found within the watershed include cool, moist subalpine fir (habitat group 7), cool, wet subalpine fir (habitat group 8), and cool, moderately dry subalpine fir (habitat group 9). These habitat groups are dominated by subalpine fir, Engelmann spruce, and lodgepole pine with western larch and Douglas-fir less common. The cool and moist subalpine fir is common at upper

elevations on north aspects and moist lower slopes. The cool and wet subalpine fir is uncommon and occurs at upper elevations in riparian areas. Cool and moderately dry subalpine fir is very common on upper elevation ridges.

Wildlife Use of Lodgepole Pine Habitat

The dominant cover type occurring within the project area is lodgepole pine, of which the majority is dead or dying (for specifics, see Section 3.3 Vegetation). Lodgepole pine cover type dominance is 53% of the Eastside Project area and 15% of the American River watershed.

Information in this section of the document was extracted from the Forest Service Fire Effects Information System in November 2004 (USDA-FS, 2003e) and from the Red Pines Final EIS (2005b). Mule deer, moose, and elk may browse lodgepole pine, generally when other food is scarce. Lodgepole pine forests provide summer range for big game animals and habitat for a variety of non-game birds. Small mammals including snowshoe hares, pocket gophers, voles, porcupines, and squirrels feed on the cambium of lodgepole pine, as do porcupines and black bears. Downed lodgepole pine provides drumming sites for ruffed grouse.

Lodgepole pine seeds are an important food source for red crossbills year-round. Blue grouse and spruce grouse also eat seeds as well as needles of lodgepole pine. In late summer and fall, seeds are important for small mammals, especially red squirrels, which are lodgepole pine's most significant seed predator.

In Washington, densely stocked lodgepole pine stands are preferred foraging habitat for Canada lynx due to abundant populations of snowshoe hares. Mountain pine beetle larvae harbored by lodgepole pine are an important food source for woodpeckers.

Lodgepole pine stands provide cover for big game animals, upland game birds, small non-game birds, and small mammals. Cover value for big game animals changes over time, reflecting the growth and structural development of lodgepole pine stands. Lodgepole pine is used for roosting cover by ruffed grouse and provides nesting sites for a variety of birds including the northern goshawk.

Wildlife Habitat and Communities in Post-Epidemic Lodgepole Pine Forests in Northern Utah

Stone (1995) studied "The Impacts of a Mountain Pine Beetle Epidemic on Wildlife Habitat and Communities in Post-Epidemic Stands of a Lodgepole Pine Forest in Northern Utah." The 1995 Stone dissertation is lengthy. Included here is a brief summary of findings.

> "The abundance and diversity of wildlife species are generally enhanced following epidemic levels of this insect pest. Exceptions to this pattern are red squirrels, pine grosbeaks and Audubon's warblers…Goshawks were also most abundant in undisturbed stands…
>
> The most important aspect of forest habitat changes following the epidemic…was the increase in understory biomass as canopy foliage was reduced. Understory plant species diversity and structural heterogeneity also contributed significantly to explaining the variability in species' abundances in affected stands…The abundances of most species of birds and mammals were highest when understory plant biomass, species diversity, and heterogeneity had high values. Grazing herbivores appeared to be among the animals most benefited by mountain pine beetle epidemics in these lodgepole pine stands."

The resulting species diversity of understory plants, insects, birds, and mammals over the continuum of beetle-caused tree mortality generally suggests that species richness is highest when disturbance is intermediate in frequency or intensity. However, species diversity of the insect community and the small mammal community appeared to remain high or decrease only slightly in the most severely-disturbed stands. The study did not address colonization rates of new species, extinction rates of species, or competitive interactions between species.

Additionally, the cause of the increased diversity at moderate levels of beetle-caused tree mortality *could not* be determined. However, a high degree of association does exist between the diversity and abundance of avian and mammalian species and the habitat variables that indicate resource (principally food and cover) abundance, diversity, and heterogeneity.

The study concludes that the bark beetle epidemic was an intermediate type of disturbance in the northern Utah forest. The intensity of disturbance in these situations was identified as the primary factor of the disturbance regime in creating environmental heterogeneity or patchiness in the landscape. The American River was at 50–60% lodgepole pine mortality in 2003 (USDA-FS, 2005a), placing the American River environment in a moderate to high mortality category according to Stone (1995).

Past Events Affecting Existing Wildlife Habitat Conditions

The American River landscape has changed over the last 120 years in response to vegetative succession, insect and disease activity, timber harvest, road building, human-caused fire and fire exclusion, grazing, mining, and the introduction of non-native species. Motorized and non-motorized recreation use of forest habitats has altered wildlife habitat and use patterns as well. Fires, timber harvest, and fire exclusion have resulted in areas of lodgepole pine dominance. Harvest activities, as well as human-caused and natural wildfires, have removed larch and ponderosa pine overstories occurring at low and mid-elevations, leaving smaller size class lodgepole and mixed conifer understories.

Forest tree size classes and timber stand structure have changed from historic conditions; the most conspicuous change has been in early seral habitats and mature forest of medium and large trees. American River climate, geology, management history, species composition and fire history support smaller trees with lodgepole pine dominating in areas. Relatively simple one- and two-story stands have transitioned into complex multi-story stands in some places. Natural variation in structure within and between stands has declined. Past timber harvest units are simple, small to medium patches, without snags or residual large fire-resistant trees. Natural timber stands often had snag and residual large tree components and varied widely in size and shape. Low and mid elevation mature forest habitats have been fragmented by timber harvest and roads. The late 19th to early 20th century wildfires plus the 1950s–1990s timber harvests have left many areas low in large legacy trees, snags, and down wood. The recent lodgepole pine mortality has created dense patches of small-medium (9–14 inches dbh) snags; however they have lower utility to wildlife than other preferred tree species for snags. The preferred snags in the American River watershed are large (>21 inches dbh) ponderosa pine, western larch and Douglas-fir.

Lodgepole Pine Mortality

Lodgepole pine areas and mixed conifer forest (much of which has a lodgepole pine component) were established after wildfires in the late 1800s. These habitats have grown to small and medium tree size. Currently, the American River watershed is exhibiting widespread lodgepole pine mortality from a mountain pine beetle epidemic. More information can be found in Section 3.3 (Vegetation) of this document. Beetle epidemics predictably interact with fire, drought, and other climatic events to shape vegetative successional trends and structure plant communities. The current mortality is expected in lodgepole systems, also expected is large, stand-replacing fire. In the absence of wildfire, canopy cover will continue to decline and will continue affecting species use based on canopy cover conditions. Some species are negatively affected (i.e., fisher) and some are positively affected (i.e., elk).

Timber Harvest

Within the American River watershed, approximately 15 percent (8,820 acres) has undergone some sort of timber harvest (USDA-FS, 2005a). Past timber harvest left few live and dead medium and large trees in harvested areas compared to what would be left in an area maintained by wildfire disturbances.

Access Management/Recreation Development/Urban Area

Highway 14 parallels American River along the lower reach and provides the main access to Elk City. There are about 269 road miles in the American River watershed. Motorized use is restricted on approximately 55 percent of these roads, some of which are not passable due to vegetative growth. Groomed snowmobile routes overlap many of the watershed's roads and trails. Snowmobiles use non-groomed areas incidentally. Motorized use is increasing and use of motorized vehicles is not limited to roads and trails. Road restriction violations and off road and trail use of motorized vehicles has increased, increasing potential wildlife disturbance.

The effects on wildlife from roads, trails and recreational facilities (i.e., campgrounds) are generally negative. Roads and trails result in increased human access, habitat fragmentation, direct habitat alteration, disturbance, and in some cases direct mortality due to vehicle collisions. Roads and trails increase human access to once secure areas. Roads and trails increase human-animal encounters, increasing trapping, hunting, and poaching pressures. Access restrictions mitigate many of these effects. Habitat alterations (sometimes permanent) are associated with motorized and non-motorized recreation, development of campgrounds and facilities, and establishment of dispersed camping areas, among other activities. Motorized and non-motorized trails perpetuate human use within the American River watershed and continue to be places where human-animal encounters are probable. High human use areas (campgrounds, roads and trails) may be avoided by some species.

Mining

Mining has occurred throughout the watershed, with intensive mining activity occurring in the Elk City township. A minimum of 307 acres has been affected by dredge mining. American River, Little and Big Elk Creeks, and Buffalo Gulch have been most affected (USDA-FS, 1998a).

Noxious Weed

Weeds displace valuable forage plants and affect herbaceous communities important to wildlife. There is risk that current infestations will spread or new invasive species will enter the watershed. Invasive plants can expand following human-caused or natural disturbances and colonize degraded as well as intact habitats. Refer to Section 3.3.5 (Weeds) for more information.

3.7.3 Indicator 1–Threatened or Endangered Species

Listed species that may occur within the project area include gray wolf (experimental non-essential), Canada lynx (threatened), and bald eagle (threatened).

Gray Wolf

Existing Condition

Wolves were reintroduced into north central Idaho beginning in 1995. Within Central Idaho, total confirmed wolf packs now easily exceed 15 (http://mountain-prairie.fws.gov/wolf/annualreports.htm). The Rocky Mountain Wolf Recovery 2005 Annual Report (U.S. Fish and Wildlife Service et al., 2006) stated that an estimated 512 wolves occupy the state of Idaho. The report also identified that Idaho had 59 resident packs (40 packs reproduced and 36 packs qualified as breeding pairs). Based on local sightings, sign and formal monitoring results, wolves are abundant, widely distributed within the upper South Fork of the Clearwater River subbasin, and increasing numbers of reports suggest local populations of wolves continue growing. Relative to the Eastside Project proposal, only one wolf den exists in the general analysis area. The nearest Eastside Project harvest unit is approximately 2–3 miles from the den site. Denning and rearing take place in early spring/summer, proximity of the harvest unit and related activities are not expected to interfere with denning or rearing at this location. In addition, the "no land-use

restrictions may be employed" provision of the Wolf Reintroduction Final Rule (Federal Register, Nov. 22, 1994) is now applicable to wolves throughout the Cottonwood Field Office management area.

There are currently a total of at least 40 active packs in the Central Idaho Wolf Recovery Area. The Wolf Reintroduction Final Rule (Federal Register Nov. 22, 1994) stated that, "*when six or more breeding pairs are established in an experimental population area, no land-use restriction may be employed outside of national parks or national wildlife refuges, unless wolf populations fail to maintain positive growth rates toward population recovery levels for 2 consecutive years*." Currently, wolf populations locally are increasing.

Environmental Effects

Human activities can reduce habitat quality and availability for wolves and their prey. Various lands uses have altered the American River landscape. The presence of roads and motorized trails is likely the most significant landscape alteration related to quality wolf habitat. Wolf habitat is directly related to available prey and human-induced mortality. Wolf habitat was assessed based on Elk Habitat Effectiveness and big game security area effects discussed in the Elk section. Comparing gray wolf home range size with the scale of the proposed actions indicates the actions may not be large enough to make meaningful changes in the American River landscape compared to ongoing changes resulting from the mountain pine beetle epidemic. Wolves can withstand high levels of habitat variability in their relatively large home ranges. As evidenced by the increasing wolf populations in the upper South Fork of the Clearwater River, wolves can and will survive in highly managed settings where human presence is common. Human attitudes and tolerance for wolves are key factors in wolf recovery.

Based on available information, the analysis criteria for wolves and their habitat for this project is relative impact on ungulate prey (elk) and elk habitat effectiveness. Watershed restoration actions and post-harvest slash treatments are not expected to negatively impact wolves, elk or their habitats considerably regardless of alternative. Fire use would help cycle plant nutrients back to the soil increasing vigor and nutritive quality of post-burn forage plants. Noxious weeds that could infest burned and harvested sites would negatively impact elk foraging areas by displacing desirable plants, but this would not be expected to be sufficiently extensive or widespread to be of major significance under any alternatives.

Alternative A (No Action Alternative)
Alternative A would have few direct effects on wolves, but moderately high levels of motorized access in American River would continue to limit elk habitat effectiveness and quality prey habitat in the short term. Indirectly, as dead lodgepole trees begin to fall and eventually increase fuel buildup, the indirect effect of no action in some areas may eventually begin to discourage elk and deer prey from using the units because of difficulty of travel and the appearance of these habitats as "entrapment" areas. In the longer term, the "no action" alternative would increase the probability that untreated sites would add cumulatively to overall fuel loads increasing the total acres with high fuel loading. As a result of fuel continuity, more extensive and severe fires may become more likely which may have adverse affects on elk hiding cover (Refer to the fire effect analysis for more details). Stand-replacing fires would result in an increase of early seral habitats and improved forage production for prey species such as elk, deer, and moose.

Alternatives B, C, and D
The action alternatives would directly provide modest reductions in motorized access in the American River analysis area. Alternative B harvests the most acreage and Alternative C reduces motorized access to the highest levels. Overall, all three action alternatives are very similar, with a difference of only 122 acres between Alternative B with the most acres (1,293) and Alternative D with the least acres (1,171) acres. A difference of only 1.0 mile exists between the highest net reduction for decommissioned roads in Alternative C (minus 1.9 miles) and the lowest net reduction in Alternative D (minus 0.9 mile).

Timber harvest and burning in some stands would reduce available cover and connectivity in the short term. Thinned stands might enhance hiding cover quality over the long term. Under each alternative, certain aspects of he project such as road decommissioning would improve security for gray wolves. However, a slight short term reduction in elk habitat effectiveness would result from implementation of action alternatives. In these areas long term habitat improvement might increase the prey base for gray wolf. Because of disturbance and displacement, there could be a minor effect on the habitat use patterns of prey species, but their population levels or availability as prey would not be affected within the analysis area. Other prey populations, such as small mammals, would not be affected. Creating early seral communities would improve habitat for prey species such as elk, deer, and moose, where security and cover is provided in the long term.

The temporary increase of human activity in the planning area associated with harvest and vegetative treatments could increase the possibility of human-wolf interactions. The construction and use of temporary roads and reconstructed roads could displace wolves and/or their prey. All current motorized access closure would be maintained as part of the proposed project. Temporary roads would be closed (when not being used for project implementation) to public motorized vehicle use, reducing potential human impacts. Road decommissioning would help reduce human intrusion long-term.

Based on the nature and duration of the proposed project, the mortality risk for wolves would remain low. No known key wolf habitat areas, such as den sites, rendezvous sites, or whelping sites would be affected within or outside the project area.

Cumulative Effects (includes foreseeable future actions)

Cumulative effects will be addressed within the American River watershed.

Alternative A would have relatively little immediate cumulative effect on wolves or their habitats since no habitat-altering impacts would be directly added to the road density, timber harvesting, human disturbances, and other vegetative impacts imposed by past management. However, indirect effects of tree deaths and continued trend of fuel buildups, when added to existing cumulative effects would negatively affect wolf prey habitats particularly during post-wildfire recovery. An effects determination of “not likely to jeopardize the continue existence of the species or result in destruction or adverse modification of proposed critical habitat” is concluded.

All action alternatives would have moderate immediate cumulative effects because harvest would be directly added to the road density, harvesting, human disturbances, and other vegetation impacts imposed by past management. Longer term cumulative effects may be less impactive than Alternative A because of modest fuel reduction and staged regeneration of harvested areas in the event of wildfires for the entire American River watershed.

American River roads and trails increase human-wolf encounters. Human activities near active dens or rendezvous areas could have the greatest effect on reproducing wolves. Wolves often favor moist or wet meadows for homesites. These meadows are also valued for campsites and pack stock grazing. Current wolf population growth and pack formations in and around the upper South Fork Clearwater River indicate wolves can thrive even where human-wolf interactions occur regularly. Based on this, current actions do not appear to be preventing wolf recovery.

Reducing the exposure of gray wolves and ungulate prey to humans is a factor in maintaining high quality big game habitat and reducing the risk of incidental wolf mortality. The project area contains established human activities and development including roads, timber harvest, home sites, grazing, and recreational opportunities. In addition, the American River watershed receives hunting pressure for deer, elk, and moose, which not only affect the wolf prey base, but increases the number of wolf-human interactions. The most important cumulative effect to gray wolf recovery in Idaho is incidental mortalities from shooting, trapping, and vehicle-caused mortality. This probability increases with increased road access.

A minor amount of road decommissioning would take place under the proposed project, and exiting road access closures would remain in effect. Human access, available cover, and public attitudes largely determine mortality risk to wolves.

Other projects such as the NPNF American and Crooked River Project and private land logging in the area could affect ungulates, small mammals and their habitats. If the end result of these activities is the restoration of more stable vegetative patterns and natural or prescribed fires processes, these actions could help restore declining forage availability, productivity, and nutritional quality of important to big game species. Alternatively, if these actions result in a more fragmented landscape with poor interspersions of foraging and hiding cover, big game populations could decline, reducing the suitability of the area for gray wolves. Administrative uses of closed roads for reforestation or road-related work may affect wolf use of the area. These and other activities such as routine road maintenance, watershed improvements, trail reconstruction, and measures to control weeds are foreseeable and scheduled to occur. Across the analysis area, recreation uses, including hunting, will continue. A Forest Service livestock allotment occurs north of the project area, and grazing occurs on private and BLM lands in the American River watershed. There have been confirmed reports of wolves within the Eastside Project area. No geographic or manufactured barriers exist within the analysis area that would preclude wolf movements to adjacent populations.

The project proposal is consistent with the gray wolf management strategies identified in the South Fork Clearwater River Landscape Assessment (USDI-FS, 1998a), in that activities would help maintain ungulate populations and minimize risks of human-induced wolf mortality. It would be unlikely that individual wolves would be impacted by project activities, and cumulative effects on wolf populations are expected to be small to negligible at the project, watershed, and South Fork Clearwater Rive subbasin levels. The determination for the gray wolf would be "*not likely to jeopardize the continue existence of the species or result in destruction nor averse modification of proposed critical habitat*" is concluded for Alternatives B, C, and D.

Canada Lynx

Existing Condition

Canada lynx have been federally listed as a threatened species since March 2000. Although lynx have sometimes been portrayed as a late-successional forest species, lynx appear to be more closely associated with a mosaic of late- and early-successional states (Koehler and Aubry, 1994:86–89).

Suitable western mountain habitats for lynx are more fragmented and restricted in extent compared to Canada and Alaska habitats where high quality habitats are more prevalent. These habitat differences may be key to explaining why population strongholds are limited to Canada and Alaska boreal forests. Providing protected areas in optimal western mountains lynx habitat may be important for lynx persistence (Ruggiero et al., 1994) however, the American River watershed contains no large amounts of high quality or optimal boreal forest habitats.

Lynx typically occupy Idaho habitats occurring above 4,000 feet elevation. Lynx utilize Engelmann spruce, subalpine fir, or lodgepole pine habitats providing a mosaic of forest age classes. Lynx require cover for stalking and security, and usually do not cross openings wider than 300 feet (Koehler and Brittell, 1990). Forests that are about six years or older in 20 to 25 acre patches provide lynx foraging habitat. Koehler (1990) found that lynx prey almost exclusively on snowshoe hares. Forest wildfires and timber harvesting created American River lynx foraging habitat. Fire exclusion has halted fire-created lynx forage development. However, the onset of fire suppression coincided with the beginnings of active timber management. A large amount of the harvest units have revegetated to the point they no longer provide optimal lynx habitat. The ongoing insect epidemic is creating more foraging opportunities as lodgepole habitats revert to young grass/forb and shrub and seedling communities. Forest fires, usually following an insect event, will create abundant foraging habitat, but opening sizes may limit lynx use.

Lynx denning habitat is most often characterized as mature forests in moist or wet habitats. Denning sites can occur in a high density of logs, one to four feet above the ground (Koehler, 1990). Down logs and stumps are important for denning habitat because they provide cover for kittens. Timber stands used for denning are between one and five acres, and are connected by travel corridors through mature forest. Favored travel routes are forested areas along ridges and saddles.

No formal surveys for actual lynx occupation within the South Fork Clearwater River subbasin or the analysis area have been completed to date, but confirmed reports and unconfirmed sightings of lynx presence have been documented within the Nez Perce National Forest boundary. No recent lynx sightings have been confirmed. Lynx analysis unit (LAU) delineations and mapping of lynx habitat has been completed for the entire Cottonwood FO management area. Designation of LAUs and mapping of suitable habitat was coordinated with the Nez Perce National Forest according to Canada Lynx Conservation Assessment and Strategy (Ruediger et al., 2000), which commonly referred to as LCAS.

The Eastside Project contains no stands identified as providing suitable lynx habitats (refer to the updated lynx habitat map dated January, 2004). However, the project area does partially overlap into a LAU (#3020306) that may be indirectly or partially affected by some of the project actions. See Table 3.7.5 for existing habitat conditions.

Table 3.7.5 The No Action (Alternative A) Habitat Conditions and Acreages Within LAU Associated With Eastside Project

LAU #	% Denning	% Foraging	% Unsuitable	Total Habitat Acres	Drainage
3020306	18	81	<1	19764	American

The South Fork Clearwater River Landscape Assessment management theme for American River drainage recommend “producing early seral habitat” as very high priority, and identifies treatment objectives that include “creating forest openings by fire or timber harvest.” From the perspective of the landscape assessment, the goal to benefit lynx habitat would be to “create dense stands of deciduous brush and young conifers attractive to snowshoe hare” (USDA-FS, 1998a).

Despite substantial past harvesting in the analysis area, advance regeneration of trees and cover in plantations has maintained habitat connectivity and travel corridors as defined for lynx in the analysis area. Habitat management for lynx primarily addresses maintenance or improvement of vegetation structure for lynx and their prey.

Lynx are considered relatively tolerant of human presence and activities. Preliminary information (Ruediger et al., 2000:7–10) suggests that lynx may not avoid roads, except at high traffic volumes. Therefore, at this time, there is little compelling evidence to recommend management of road density to conserve lynx.

Several important landscape vegetation limitations must be followed when conducting timber harvest and fuel reductions in designated lynx habitats in order to comply with standards and guidelines outlined in the LCAS. LAUs must maintain at least 10 percent denning habitat, unsuitable acres cannot exceed the 30 percent maximum threshold of total lynx habitat within an LAU, and no more than 15 percent of the suitable lynx habitat can be converted to unsuitable habitat within a decade.

The LAU that includes the project area currently has more than 10 percent denning habitat and is not near the 30 percent maximum unsuitable habitat threshold. For this reason, since denning habitat is relatively abundant, and unsuitable habitat acres (before planned harvest), are well below LCAS thresholds, there is ample opportunity for creation of lynx foraging habitat while staying within all LCAS guidelines. The analysis criteria for lynx and their habitats will be relative amounts of suitable condition lynx habitats that are converted to early seral foraging habitat condition while meeting all LCAS measures. The BLM

Eastside Project is not proposing to modify any suitable lynx habitat. Primary use of the area would be secondary foraging by lynx and connectivity within and between LAUs and suitable habitat.

Environmental Effects

The primary analysis criteria for lynx would be related to desirable acres of mature forest within designated habitats converted to early seral foraging habitat for lynx. None of the alternatives will affect designated lynx habitats. Maintenance of connectivity between suitable lynx habitats and between LAUs is the primary analysis criteria that will be evaluated. Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact lynx or their habitats directly, regardless of alternative, because no treatments are proposed for lynx habitat in the analysis area.

Alternative A (No Action Alternative)
No vegetation treatments would occur with this alternative, and the overall existing condition would remain unchanged, at least in the short-term. The "no action" alternative neither affects lynx directly, nor converts any acres to early seral habitat. This alternative will have relatively little if any indirect effect to lynx or their habitats. With no action, early seral structure would continue succeeding to older stages and fires risks will increase. Eighteen (18) percent denning habitat would be maintained in LAU 3020306, which is above the 10 percent required minimum identified in LCAS (Ruediger et al., 2000).

At present most of the stands in the project area have a dead or dying overstory of lodgepole pine, with grand fir and spruce seedling regenerating in the understory. In some cases, these seedling and saplings have become dense enough and tall enough to provide habitat for snowshoe hares. With continued fire suppression and no vegetative treatments, seedling and sapling trees would eventually grow out of the reach of snowshoe hares, and self-pruning would reduce the amount of horizontal cover. The amount and distribution of available lynx foraging and snowshoe hare habitats would continue to decline. Open patches would decrease in size and in growth fills and matures in old openings. Stands with small to large-sized trees would continue to mature, providing potential denning and travel habitat for lynx. Given enough time, these stands could develop gaps and microsites that would provide suitable areas for hares and therefore potential foraging habitat for lynx, but overall, succession would result in the decline of the denning/foraging habitat mosaic important to lynx. The BLM project area does not involve mapped lynx habitat, consequently direct effects to lynx foraging habitat would be considered discountable; primary effects would occur to travel corridors within and between LAUs and indirect effects to lynx prey species.

As the mountain pine beetle epidemic continues, areas that currently provide cover will become too open to serve that function. As numerous dead trees fall to the ground, downed logs, shading from snags, and lack of seed sources may delay the regeneration of new trees relative to harvested areas. New, early seral patches would develop in those areas in which seedlings are able to establish themselves, and eventually these sites would develop shrub and tree growth sufficient to provide habitat for hares. In mixed conifer stands with a lodgepole pine component, the loss of beetle-killed trees would create micro-openings and gaps in the canopy that, through time, could provide potential foraging habitat. Those trees that fall to the ground would provide potential denning sites. The BLM project area does not involve mapped lynx denning habitat; consequently direct effects to lynx denning habitat would be considered discountable; primarily may involve some travel or incidental use within the LAU.

Common to All Action Alternatives
Because no BLM alternative will treat acres designated as lynx habitat, overall, no direct effects to foraging or denning habitat are expected to occur. Indirect effects are primarily related to treatments which may affect fragmentation or connectivity within or between LAUs or incidental foraging areas within the LAU. In all the action alternatives, treatments would not be implemented in RHCAs or in old growth. These stands would continue to provide potential travel habitat. Short term larger openings would

occur in stands that are dominated by lodgepole pine; however, effects to connectivity and travel for lynx are considered negligible.

Timber harvest and silvicultural prescriptions would move treated stands into a regenerating condition in the long term, thus increasing the amount of potential travel habitat available in each LAU, and potential incidental foraging areas within the LAU.

In mixed conifer stands, thinning treatments would retain large trees and improve growing conditions for those trees remaining after harvest. For stands with a relatively small lodgepole pine component, silvicultural prescriptions would be designed to maintain 30–50 percent canopy closure. Most large diameter logs would be left on site, and smaller diameter logs may be left in select areas in some units.

Alternatives B, C, and D would slightly improve habitat security compared to Alternative A, by reducing motorized access within the analysis area. Alternative C would have the largest reduction of motorized access.

Individual lynx may use the project area for travel or incidental foraging. The temporary increase in human activity as a result of project implementation would increase the possibility of human-lynx interactions and could disturb, displace, or disrupt individual lynx in the project area. Temporary roads would be closed (when not being used for project implementation) to public motorized vehicle use, reducing potential human impacts. All temporary roads used for project implementation would be decommissioned after treatments are completed. No long-term adverse harassment or potential for mortality is anticipated to result from project implementation.

Alternatives B, C, and D
Alternatives B, C, and D, harvest 0 acres of lynx denning habitat and 0 acres of lynx foraging habitat, consequently, no suitable habitat in LAU 3020306 would be converted to unsuitable. All alternatives would result in negligible impacts to connectivity within and between suitable lynx habitat and LAUs. Indirect affects to designated suitable denning or foraging lynx habitat within the LAU are considered discountable. Riparian restoration and road decommissioning would provide long term benefits to connectivity within and between suitable lynx habitat and LAUs. Alternative C has the highest amount of riparian restoration.

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis for lynx includes LAU 3020306 and connectivity within and to adjoining LAUs and suitable habitat.

Fire, wind, insects, and disease have played an important, historic role in maintaining the mosaic of forest successional stages that provide habitat for both snowshoe hare and lynx. With the advent of fire suppression, vegetative mosaics and species composition have been altered and may have reduced the quality and quantity of habitat for snowshoe hares. Denning habitat is becoming more extensive at the expense of foraging habitat. Timber harvest in the analysis area, while keeping pace with a typical fire regime in terms of cumulative acres of stand regeneration (USDA-FS, 1998a), has altered the distribution of lynx habitat, and has left numerous small (<40 acres), uniformly shaped patches. Suitable denning and travel habitat has been harvested or thinned across national forest, BLM lands, and private lands, generally leaving low amounts of snags and large downed wood. Overmature stands that have much structural diversity and numerous gaps and microsites, such as typically occur in old growth forests, are less available in the project area because of past timber harvest that targeted older, larger trees. Initially, openings created in the forest have a negative impact on both hares and lynx, through the reduction in cover and browse species for hares. Eventually, these areas produce good foraging and hunting habitat after about 15 years.

Road systems have increased human access and the potential for human-induced mortality from vehicles strikes or accidental shooting/trapping. Up until 1996, people were allowed to trap lynx in the project

area, potentially impacting population sizes or demographics. Firewood cutting along open roads has decreased downed logs important for lynx and their prey species. Groomed snowmobile routes overlap many of the watershed's roads and trails, and there is at least some snowmobile use of non-groomed trails. Snowmobile tracks can allow other predators access into areas they ordinarily could not use because of deep snow, and these predators could compete with lynx for snowshoe hare or other prey.

Private and public land timber harvest and road construction, fires suppression, livestock grazing, home development, and recreation activities are likely to continue. Cumulatively, these actions have and will continue to affect the distribution of lynx and lynx habitat across the landscape. Private and NPNF actions identified as occurring within the foreseeable future when considered with the Eastside Project would still not exceed established thresholds for foraging and denning. Table 3.7.6 below summarizes the NPNF selected alternative for the American and Crooked River Project FEIS (USDA-FS, 2005a), which would be within LCAS threshold guidance for denning and foraging habitats retained in suitable condition.

Table 3.7.6 NPNF American and Crooked River Project Summary of Effects on LAU 3020306 (American River)

LAU 3020306	Existing Conditions	FEIS Selected Alternative
Acres Denning Treated	0	47
% Denning Retained	18%	17%
Acres Foraging Treated	0	204
Total % Converted to Early Seral	0	1.3%
Total % Unsuitable in LAU	<1%	2%

The "no action" alternative would not add any measurable cumulative effects to lynx or their habitats since no habitat-altering impacts will be added to the road density, tree harvesting, human travel disturbances, and other vegetative impacts imposed by past and present management. The "no action" alternative would temporarily protect the integrity of forested land in the project area, but would contribute cumulatively to habitat imbalances for lynx in the long-term. This alternative meets all LCAS measures. The determination for lynx would be *"no effect."*

The project area occurs within a designated LAU for lynx; however, no acres of designated lynx habitat are modified by action alternatives. The primary effects from the action alternatives are indirect effects that may affect connectivity within and between suitable lynx habitat and LAUs, travel corridors, and indirect effects to security, incidental foraging areas, and denning habitats. Given the current condition of the habitat due to past fire impacts, harvests, roading, human disturbance, motorized travel and other land-disturbing activities, these alternatives add few positive or negative effects cumulatively to the habitat conditions for lynx.

All of the action alternatives would begin to address cumulative changes in patch and landscape mosaics by incrementally increasing the amount of early seral habitat in the project area while maintaining denning habitats, RHCAs, and old growth areas. The project would have few adverse effects at the project and watershed levels and might improve conditions for lynx through time. Across the range of the species, within the landscape level, and analysis area level, project effects would be expected to be negligible.

A determination of effect for lynx as a listed species would be "*may affect, but not likely to adversely affect*" for alternatives B, C, and D.

Bald Eagle

Existing Condition

Primary bald eagle use within the South Fork Clearwater River subbasin is for winter habitat. Within the analysis area, such winter use is primarily associated with the South Fork River corridor or incidental use of adjacent areas. Critical habitat niches for the bald eagle include nest sites, key communal or diurnal roost sites, or key foraging sites. None of the critical habitats are known to occur in the South Fork Clearwater River subbasin. Bald eagles primarily use the lower portions of the river corridor, primarily downstream from Mill Creek, due to the availability of ungulate carcasses and relatively ice-free river conditions during winter. If available, bald eagles will also use fish and waterfowl on wintering areas. Due to ice-up of the South fork Clearwater River at higher elevation in winter and lack of fish and waterfowl availability, relatively little or no use of the American River analysis area occurs by bald eagles during most winters. Sites most commonly used are approximately 30 miles downriver from the project area. However, during mild or "open" winters, bald eagles have been observed in the upper South Fork Clearwater River.

Monitoring of bald eagle populations for over 20 years within North Central Idaho indicates populations that are slightly increasing. The mid to upper reaches of the South Fork Clearwater River would not be expected to be heavy use areas because of ice-up conditions, consequently annual mid-winter counts for these reaches have been relatively low, compared to trend routes at lower elevations. Mid-winter trend counts for the mid- to upper-South Fork Clearwater River (Mt. Idaho Grade to the confluence of Red and American Rivers confluence) have averaged 2.2 bald eagles for the past five years (2001–2005).

Environmental Effects

There are no lakes in the analysis area large enough to support bald eagles. There are no known concentrated feeding or roosting sites in the analysis area. Bald eagles are regularly seen perched along the South Fork Clearwater River during the winter season. Bald eagles principally utilize ungulate carrion during winter occupation of the major river corridors, where ice-up conditions exists, and lack of waterfowl or fish exists. Increasing and maintaining early seral habitat conditions on ungulate winter ranges is a high priority; however, very little winter range occurs within the project area. Based on winter use patterns of bald eagles along the South Fork Clearwater River, to be effective, big game winter range improvements which may benefit eagles need to take place at elevations well below and downstream from the analysis area. Improvement of water quality and fish habitat would result in some indirect effects to the South Fork Clearwater River fish habitat. There is relatively little direct relationship between planned activities in the American River watershed and bald eagles or their habitats. Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact bald eagles or their habitats considerably regardless of alternative, because of the limited potential direct or indirect impacts to bald eagle habitats and forage species.

Alternative A (No Action Alternative)
This alternative will have no direct and few discountable indirect effects on bald eagles or their habitats. Indirect risks of high intensity, broad scale fires due to fuel-loading would remain and could indirectly impact downstream water quality and fish habitats. No restoration would be conducted for riparian and water quality improvements or improvement of big game forage. Ongoing restoration actions would continue for the South Fork Clearwater River subbasin, which is dependent on future funding. A determination of effect for bald eagles as a listed species would be "*no effect*" for Alternative A.

Alternatives B, C, and D
Action alternatives would have no direct impacts on bald eagles or their habitats. Downstream changes in water quality in the South Fork Clearwater River due to harvests, restoration actions, roads and other actions would have relatively minimal impact on bald eagle foraging habitats and forage species.

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for sediment and substrate is the American River watershed and the upper South Fork Clearwater River to just downstream of the mouth of Crooked River.

The indirect and cumulative effects of planned activities on water quality and fish habitats downstream from the analysis area are expected to impose only minor, limited or negligible cumulative impacts on foraging habitats (i.e., potential secondary winter food sources–anadromous fishes), but the magnitude of these impacts are considered very limited.

Aquatic resources in the American River watershed and the South Fork Clearwater River have undergone substantial physical changes from human disturbances such as dredge mining, timber harvest, road construction, domestic livestock grazing, home construction and private land development, agriculture, fires, and fire suppression. It is generally accepted that water quality and habitat in the South Fork Clearwater River is in a degraded condition, both from sediment and temperature impacts (USDA-FS, 1998a; IDEQ et al., 2004). These conditions have likely affected bald eagle numbers and winter use of the South Fork.

Past timber harvest, fires, fire suppression, and mining activity have altered habitat characteristics in the analysis area by reducing the amount and distribution of large and medium trees, snags, and down wood, and by creating numerous, small patches across the landscape. These changes have affected bald eagle ungulate prey species. Prior to fire suppression and timber management, elk and deer populations were dependent upon natural disturbances to create openings that provided the early succession growth they favor for foraging. Elk population numbers in the project area and across Game Unit 15 (which includes the South Fork Clearwater River) are declining. Other projects may also modify ungulate habitat which could affect population numbers on big game winter ranges thus affecting overwintering bald eagles.

The project proposal is consistent with the bald eagle management strategies identified in the South Fork Clearwater River Landscape Assessment (USDA-FS, 1998a) in that activities would encourage restoration of anadromous fisheries. It would be unlikely that individual bald eagles would be impacted by project activities, and bald eagle populations are expected to have negligible to discountable affects at the project, watershed, or subbasin levels.

A determination of effect for bald eagles as a listed species would be, "*may affect, but not likely to adversely affect*" for Alternatives B, C, and D.

3.7.4 Indicator 2–BLM Sensitive Species

Northern Goshawk

Existing Condition

In Idaho, Northern goshawks (*Accipiter gentilis*) are typically found in montane coniferous forest, where they occupy relatively large home ranges of 1,988 to 9,638 acres in size (Patla et al., 1995). In northern Idaho and western Montana, goshawks nest in stands or groups of tees in the mature to over-mature age classes principally on the mid to lower third of slopes. Douglas-fir and Western larch are preferred nest tree species (Hayward and Escano, 1989). Goshawks prey on a variety of medium-sized forest birds and small mammals. Pole stage or larger stands open enough to permit unimpeded flight are suitable for feeding (Hayward et al., 1990). However, foraging habitat may be as closely tied to prey availability as to particular habitat composition or structure (Patla et al., 1995).

Data from the SFLA is referenced to gain broader scale perspective on habitat availability within and around the project analysis area. Within the larger landscape of the South Fork Clearwater River subbasin, closed canopy old growth comprises some 24 percent of the subbasin coniferous forests, but historically this habitat would likely have accounted for only about 15 percent of the same area (USDA-FS, 1998a:104). Within the American River ERU, age class distributions are currently more favorable to

goshawk habitats than historically. The current amount of goshawk habitat is more prevalent than it was historically. In American River ERU, there is currently 205 percent as much suitable habitat as historically (USDA-FS, 1998b). This can be attributable to increases in more shade tolerant tree species, like grand fir, due to fire suppression and forest succession (USDA-FS, 1998a:83).

Current conditions of stands in the analysis area reflect more than 80 years of fire suppression. In the absence of fire, conifer densities have increased substantially over pre-settlement times. As a result, goshawk habitat is more prevalent in the analysis area now than historically. While overall habitat important to goshawk nesting is more prevalent now in the American River drainage, the distribution and connectivity of late seral and old growth stands is somewhat less effective due principally to past harvest and fire disturbance (USDA-FS, 2005a).

To avoid attracting nest predators, goshawks tend to remain relatively inconspicuous prior to and during early phases of nesting. As a result, active nest sites are difficult and very costly in time and resources to locate. Locating all alternate nests within a given pair's nesting territory may take five or more years of intensive, focused surveys, because each pair of goshawks typically alternate nest use from year to year to avoid chick predation by fishers, great-horned owls, and other predators. From two to as many as nine alternate nests may be used in each nesting territory by a given goshawk pair (Woodbridge and Detrich, 1994).

Pre-project field surveys of timber stands, watershed conditions, and wildlife habitat surveys by several BLM crews of resource specialists during the goshawk nesting and survey season of 2004 did not document any goshawk occurrences. No goshawk nests are known to occur within the project area currently; however, the sighting of a goshawk pair was recorded during July 2003 pre-project NPNF field surveys conducted for the American and Crooked River Project (USDA-FS, 2005a). The pair of goshawk was sighted on adjacent NPNF lands in the American River north of the Eastside Project area.

Goshawk sightings during June, July or August indicate the possibility of nest presence in the local vicinity. In the event active nests are discovered during project implementation within or immediately adjacent to planned harvest units, the nest trees and surrounding area of 10–15 acres would be removed from harvest.

The Habitat Conservation Assessment (HCA) and Strategy (CS) for the Northern goshawk in Idaho (Patla et al., 1995:3) cites that goshawks tend to use stand clusters greater than 61 ha (150 acres) dramatically higher than clusters less than 20 ha (50 acres) in size.

Regional differences exist over best management measures for goshawk habitats in various Forest Service regions, and are driven by responsible opposing viewpoints. Habitat management direction for the goshawk as such, has become region-specific in the western U.S. The USDA-FS, Southwest Region (R3) adopted goshawk nest site guidelines, which manage 2,428 ha (6,000-acre) areas around each nest site.

Much of the Southwest data suggest that extensive harvesting and canopy density reduction in the home range beyond the nest stand can negatively change nesting and hunting habitat structure resulting in reduced hunting effectiveness of goshawks, altered prey availability, and increased competition or predation by other raptors which result in nest losses and local declines in goshawk populations. Major differences exist in forest types, habitat productivities, availability of productive riparian zones, goshawk prey sizes, and prey species abundance between the contrasting precipitation and climate of the two regions. Currently, no guidelines for goshawk nest and habitat protection similar to those for the Forest Service Southwestern Region have been adopted within the Forest Service's Northern Region, Idaho Bureau of Land Management, or for the Eastside Project. Management recommendations proposed by Reynolds et al., (1992) were developed specifically for the southwestern United States. Thus, it would be inappropriate to apply these guidelines to the moister, intermountain west. Given that this project would not harvest old growth stands and that active or newly discovered goshawk nests would be protected, goshawks nests should be adequately protected.

This becomes particularly important given the extent of the current mountain pine beetle infestation and quickly diminishing live canopy cover within the Eastside Project analysis area. Most lodgepole pine in the area over six inches in diameter is now dead or predicted to be dead/near death within a very few years. Most of the existing canopy will thus disappear across thousands of acres in the analysis area. Harvesting some lodgepole pine stands will likely cause little measurable harm to goshawk foraging habitats around any nests. Harvest activities would help reduce fuel levels which in turn may help reduce eventual fire intensities that can threaten important old growth or mature forest stands.

Recent studies suggest that goshawks may not be as tied to old growth forests as previously understood. McGrath et al., (2003) indicate that old growth forest structures are not useful in predicting goshawk nesting habitat. In the northern Rockies, goshawks are often associated with mature forests, not necessarily old growth forests (Squires and Ruggerio, 1996; Clough, 2000).

The habitat information gathered and reviewed by the FWS indicates that changes have occurred in the distribution, amount, and structural characteristics of mature forests throughout much of the western United States. The primary change has been the reduction of mature forest cover by logging, although other factors such as fire suppression and catastrophic fire have also been implicated. While timber management has been demonstrated to affect goshawks at least at local levels (Crocker-Bedford, 1990), forest management practices, such as the use of controlled fire and selective thinning also may make habitats more suitable to goshawks by opening up dense understory vegetation, creating snags, down logs, and woody debris, and creating other conditions conducive to goshawks and their prey (Reynolds et al., 1992). The FWS found "no evidence that goshawk habitat is limiting the population, or that a significant curtailment of the species habitat or range is occurring. Goshawks remain widely distributed throughout their historic range in the western United States (U.S. Fish and Wildlife Service 1998).

For this analysis, goshawk nesting habitat was defined as mesic vegetation with large trees (greater than 10 inches in diameter at breast height or dbh) with closed canopies (greater than 60 percent). Foraging habitat consists of pole-sized trees (greater than 5 inches dbh) or larger with moderate and high closed canopies (greater than or equal to 25 percent). The following table shows the acres and percentage of each habitat for the American River watershed.

Table 3.7.7 Goshawk Habitat Acres within American River Watershed

Watershed	Nesting Habitat Acres (% Watershed)	Foraging Habitat Acres (% Watershed)
American River	17,107 (29%)	44,270 (76%)

By assuming an average home range size of 5,000 acres per bird (Hayward et al., 1990), an analytical index was developed to compare the effects of each alternative. Under the existing condition, 44,200 acres in American River could support about 9 goshawks. [Note: Because goshawks can forage in the stands they nest in, acres of nesting habitat are included in the foraging figures.] It is important to realize that this number is simply an analytical index and in no way attempts to measure actual densities or numbers of goshawks on the landscape. Goshawk home ranges can vary in size, and it is not known how much home range overlap might exist within or between goshawks or goshawk pairs.

FIA indicate that, overall, goshawk habitat is widely distributed across the Forest (this includes nesting and foraging habitat) (USDA-FS, 2005a). The total potential goshawk habitat represents approximately 38 percent of the forested lands forest-wide with a 90 percent confidence interval of 34 to 42 percent. Within the American River watershed, total goshawk habitat amounts to 69 percent of the forested lands. Table 3.7.8 displays the FIA data at three scales: Nez Perce National Forest; Subbasin (4th HUC); and watershed (5th HUC) (USDA-FS, 2005a). The amount and distribution of habitat is both a reflection of the capability and current condition of the landscape.

Table 3.7.8 Inventory/Analysis Data for Goshawk Foraging and Nesting Habitat[1]

Goshawk Habitat Use	Nez Perce Forest			South Fork Clearwater River			American River Watershed		
	CI Low	Mean	CI High	CI Low	Mean	CI High	CI Low	Mean	CI High
Goshawk Nesting Habitat	16	19	22	22	28	35	18	38	58
Goshawk Foraging Habitat	34	38	42	45	52	60	50	69	88

[1]Forest inventory and analysis data at three scale for percent goshawk foraging and nesting habitat, including 90 percent confidence intervals (CI low and CI high) (USDA-FS, 2005a).

Environmental Effects

Timber harvesting at or very near goshawk nest sites can directly disturb or displace birds, potentially impacting nest success and future nesting. All existing old growth stands and RHCAs have been protected in the Eastside Project area. Most trees harvested would be lodgepole pine in intermediate size classes. Some larger trees (various species), in mixed conifer stands are planned for harvest in all action alternatives. Goshawk-preferred nest species (larch, Douglas-fir) would be favored for retention in stands where they occur and may contribute as potential future nest trees.

All action alternatives of the Eastside Project implement general conservation strategies from the *Goshawk Habitat Conservation Assessment and Conservation Strategy for Idaho* (Patla et al. 1995). Protection of nest sites and surrounding forest vegetative conditions is done principally through nest site mitigation. All action alternatives would provide protection for a 10–15 acre, no-harvest buffer around each active nest discovered. No additional mitigation is deemed necessary to maintain goshawk population viability in the project and analysis area, because suitable habitat is 205 percent of historical amounts in the American River watershed (USDA-FS, 1998b).

Alternative A (No Action Alternative)
No direct effects to old growth stands, replacement old growth stands, or any mixed conifer stands will occur, thus existing old growth habitat patch sizes and connectivity will be maintained. Existing goshawk habitat would not be harvested under this alternative. In general, nesting habitat would increase and foraging habitat would decrease as forest succession continues to fill in understories and increase stand canopy closure. In predominantly lodgepole pine stands, additional trees would die as a result of the mountain pine beetle epidemic, and dead trees would eventually fall to the ground. This process would create openings and gaps that could be utilized as foraging habitat by goshawks. In lodgepole pine stands, the quality and amount of foraging habitat would be reduced if canopy cover is reduced substantially from dead and dying trees. High densities of downed logs, shading from snags, and lack of seed sources may delay the regeneration of new trees relative to harvested areas.

Areas with infrequent and very infrequent fire return intervals would proceed as they do naturally. This includes fuel buildup as stands mature and decline from age and outside agents such as beetles. As a result of this buildup, lethal, stand-replacing fires could become more prevalent (refer to fire effects analysis for additional details).

Fuel build-up resulting from fire suppression activities would continue, thereby increasing the likelihood of a stand-replacing fire. Stand-replacing fires could potentially reduce nesting habitat across the project area. However, the size and severity of the disturbance could either eliminate or create the various elements of goshawk habitat.

Alternative B, C, and D
The action alternatives could directly impact patches of mature mixed conifer habitats, but would produce no direct effects to existing old growth stands, or patch sizes. Old growth habitat connectivity would remain consistent within historical patterns by retention of riparian corridors. Relatively moderate levels of harvest of mixed conifers will be harvested.

Regeneration harvest and thinning can impact goshawks by removing suitable nesting habitat, although it can also create forest edges and in some cases smaller openings that goshawks could use for foraging. The proposed project design spreads potentially affected acres across the entire project area. As a result, most resident goshawks are likely to experience some habitat loss at a small or site-specific scale. Project activities near an active nest site could cause temporary avoidance or abandonment, depending on the length and intensity of activity.

Proposed treatments would break up the fuel patterns, which in turn could reduce the likelihood of severe fire effects within the project area and effects to goshawk habitat.

Table 3.7.9 shows the changes in goshawk habitat by alternative. Effects of the action alternatives would vary, with Alternative B and C being very similar. Alternative B would modify the greatest amount of nesting habitat. Alternative D would modify the least amount of nesting and foraging habitat.

Table 3.7.9 Estimated Acres of Northern Goshawk Habitat Modified by Each Action Alternative (American River Watershed)

American River	Alt A	Alt B	Alt C	Alt D	NPNF[1]
Acres (%) Nesting Habitat Treated	0	193 (1.6%)	182 (1.5%)	165 (1.5%)	384 (2.2%)
Acres (%) Nesting Habitat Treated and <60% Canopy Cover Maintained (Loss of Nesting Habitat)	0	-155 (-0.9%)	-144 (-0.8%)	-127 (-0.7%)	-384 (-2.2%)[2]
Acres (%) Foraging Habitat Treated	0	1,234 (2.9%)	1,223 (2.9%)	1,148 (2.6%)	995 (2.2%)
Acres (%) Foraging Habitat Treated and <25% Canopy Cover Maintained, (Loss of Foraging Habitat)	0	-770 (-1.7%)	-667 (-1.5%)	-667 (-1.5%)	-995 (-2.2%)[2]

1 Nez Perce National Forest (NPNF) selected alternative for American and Crooked River Project FEIS (USDA-FS, 2005a).
2 NPNF modified acres and loss of goshawk nesting or foraging habitat dependent on percent of canopy cover removed within each treatment stand.

Nesting Habitat: Changes in potential nesting habitat acres are identified by alternative in Table 3.7.9. Silvicultural treatments that encourage the development of large trees (greater than 21 inches dbh) over the project area and canopy cover over 60% would benefit goshawk nesting habitat. However, any harvest activity that would reduce canopy closure of mature stands below 60 percent would reduce the potential for those stands to be used as nesting habitat.

All alternatives would harvest less than 2 percent of potential nesting habitat (165–193 acres). Alternative D would modify the fewest acres of goshawk nesting habitat (less than one percent of the existing habitat in American River watershed), and Alternative B would modify the greatest acreage (less than 1.5 percent of existing habitat in American River watershed). No harvest activities would take place in old growth areas or RHCAs, so these stands would remain relatively intact and available for potential goshawk nest sites. Temporary roads would also reduce the amount of goshawk habitat.

Foraging Habitat: Changes in potential foraging habitat acres are outlined by alternative in Table 3.7.9. Alternative D would modify the fewest acres of goshawk foraging habitat (less than 3 percent of the existing habitat). Alternatives B and C would treat slightly more foraging habitat. However, Alternative C and D would have similar losses of foraging habitat because of adverse reductions in canopy cover, and would be followed by Alternative B. Using the Forest Service analytical index (USDA-FS, 2005a), under

Alternatives B, C, and D, enough goshawk habitat would remain in the project area to support about 9 goshawks, which is similar to current conditions in the American River watershed.

Harvesting would create openings across the project area. Goshawks could potentially use these newly created edges and openings as hunting areas. However, should the proposed harvest activities create large openings, particularly if the new units are adjacent to other past harvest units, the amount of foraging area for goshawks could decrease. Timber removal may affect the distribution of some goshawk prey species.

In mixed conifer stands, thinning understory trees such as dead, dying, and merchantable green lodgepole pine and other conifer species, would open up the lower layer of vegetation and create flyways through which goshawks could maneuver. Thinned stands could maintain or create more favorable conditions over time for goshawks as these stands develop structural diversity. Thinned, mixed conifer stands would be particularly useable if stands are managed for canopy closure values above 40 percent. Silvicultural prescriptions that retain many or all of the larger, wind-firm trees in Douglas-fir, and mixed xeric conifer stands, would maintain and improve these stands as potential goshawk foraging habitat.

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for goshawk is the American River watershed.

The "no action" alternative would not further contribute to harvest-related fragmentation and/or losses of existing or replacement old-growth habitat stands. As a result of widespread, cumulative fuels buildup, lethal, stand-replacing fires could become more prevalent with attendant risks to old growth habitats (refer to fire effects analysis for additional details). Due to a measure of uncertainty in estimating intensity of future fire risks to limited habitat conditions considered important for goshawk nesting, there could be impacts to goshawk habitat with this alternative.

The Eastside Project action alternatives would result in habitat losses that add to cumulative losses of existing and potential future goshawk habitat related to previous harvests, roading, and post-disturbance harvest projects as well as reasonably foreseeable harvests on private and nearby Nez Perce National Forest lands in the analysis area. Implementation of the FS American and Crooked River Project selected Alternative D would modify an additional 384 acres of nesting habitat (2.2%) and 995 acres of foraging habitat (2.2%) within the American River watershed, which would result in additional cumulative losses to those identified for Eastside Project in see Table 3.7.9. The Eastside Project and FS American and Crooked River Project cumulatively may result in a loss of 2.9 to 3.2 percent of existing nesting habitat and 3.7 to 3.9 percent foraging habitat. As identified above, current conditions for suitable goshawk habitat are above historical levels.

Eastside Project Alternative D would have the least cumulative effect (followed by C and B) and would contribute modestly to harvest-related fragmentation at the project level, adding to cumulative landscape fragmentation, increased openings, and human-disturbance risks. In untreated areas, the results would be the same as Alternative A.

Timber harvest and road construction have reduced the amount and continuity of mature and old growth habitat across the analysis area. In addition, past actions frequently targeted medium and large trees and valuable ponderosa pine and western larch. These actions have left fewer appropriate stands and trees within stands that could be used by goshawks. At the same time, active fire suppression since the early 1900s has allowed succession to continue in those stands that have not been harvested. Relatively simple one- and two-story stands have transitioned to more complex multi-story stands with increased canopy closure and individual trees have grown larger. Some of these stands may now qualify as suitable goshawk nesting habitat. Increased fuel loads from fire suppression and the current mountain pine beetle epidemic increase the chance of stand-replacing fires, which could remove some stands of older forest habitats from the landscape. Other private lands projects in or near the project area may also alter the amount, distribution, and connectivity of older, dense-canopied stands.

Project activities would likely improve growing conditions for grasses, forbs, and shrubs, and seedling trees in harvest units, which may in turn improve habitat conditions for some goshawk prey. Similarly, other projects that open or remove canopy may create edges and clearings that provide foraging habitat for goshawks. New harvest units or silvicultural treatments that abut old units or treatment areas could create openings too large to be used by goshawks, thus decreasing the acres of suitable habitat. The mountain pine beetle epidemic is creating large openings in some areas within the American River watershed.

Although individual birds or pairs could be disturbed by project activities, none of the proposed alternatives should affect populations at the local or watershed level. Management practices proposed in the Eastside Project would result in negligible effects to Goshawk habitat at the watershed level.

Goshawks are relatively common and widely distributed across the Nez Perce National Forest (USDA-FS, 2005a). Based on population monitoring information, there are currently at least a dozen known goshawk nest territories (fourteen known nests) widely distributed throughout the Nez Perce National Forest (USDA-FS, 2005a). Based on formal population monitoring results, widely scattered incidental sightings, and inventoried habitat information, local goshawk population trends remain relatively stable on the Nez Perce National Forest (USDA-FS, 2004b).

The sensitive species determination for goshawk would be "*may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species*" for alternatives B, C, and D.

Williamson's Sapsucker

Existing Condition

Williamson's sapsucker habitat use in Idaho is found in montane coniferous forests, especially fir and lodgepole pine (Groves et al., 1997). While conducting 2004 field surveys for the Eastside Project, Williamson's sapsucker were documented in the project area, and they occurred in mixed conifer and lodgepole stands (Craig Johnson, 2004 field notes).

Williamson's sapsuckers are primary excavators creating nest and roost sites for themselves and other cavity-dependent species in forested habitats. They forage by pecking, gleaning, and feeding at sap wells during the breeding season (Crockett and Hadow, 1975; Jackman, 1975; Bull et al., 1986). Ants may comprise 86% of the birds' food. They also eat white wood-boring larvae and moths of spruce budworms. In Colorado, upon first arriving on the breeding grounds, Williamson's sapsuckers fed primarily on the sap and phloem of live conifers (Stallcup, 1968, Crockett, 1975). Crockett (1975) observed each pair establishing four to five sap trees during the breeding season, noting that sap trees were significantly smaller in height and diameter compared to what was available.

They nest in cavities in standing snag/hollow trees; sometimes returning to the same tree, but not the same cavity, year after year (Groves et al., 1997). Williamson's sapsuckers seem to be severely restricted to large diameter trees and snags for their nest requirements, except when nesting in aspen. Bevis (1994) reported the mean dbh of nest trees as 92 cm (n=4); three were in live western larch and one was in a Douglas-fir snag. In Oregon, Bull et al. (1986) observed Williamson's sapsuckers nesting primarily in grand fir forest types, in large snags (mean dbh=70 cm). They nested in both dead (51%) and live tree (49%); mostly in western larch (62%). They are considered a poor excavator and the trees selected for nests had advanced heart rot (64% had broken tops) with most of the snags having died in the past three years.

For this analysis, Williamson's sapsucker nesting habitat was defined as forested stands with large trees (greater than 15 inches) and canopy cover greater than 60%. Foraging habitat consists of nesting habitat, plus pole-sized trees (greater than 5 inches dbh) or larger with canopy cover greater than 25 percent. The

following table shows the acres of each habitat and percentage of habitat within the American River watershed.

Table 3.7.10 Estimated Acres of Williamson's Sapsucker Nesting and Foraging Habitat

Watershed	Nesting Habitat Acres (% Watershed)	Foraging Habitat Acres (%Watershed)
American River	17,107 (29%)	44,270 (76%)

Environmental Effects

No existing old growth stands would be harvested under any alternative. An abundance of dead and dying lodgepole pine is present throughout the analysis area as foraging habitat and this will not change substantially, regardless of any action alternative. Therefore, the analysis criteria for Williamson's sapsucker is the degree to which each alternative maintains and protects mature mixed conifer stands preferred for future nesting habitat. The removal of dead, dying, and green trees would remove foraging and nesting sites and would constitute habitat losses. The net effects of harvest on Williamson's sapsucker would be relatively minor within the context of each alternative because of the limited areas treated. Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact Williamson's sapsucker or their habitats considerably regardless of alternative. An estimated 44–47 percent of total harvest acres would occur in mixed conifer stands for the action alternatives.

Alternative A (No Action Alternative)
Existing Williamson's sapsucker habitat would not be harvested under this alternative. No direct effects to old growth stands would occur, thus existing mature and old growth habitat patch sizes and connectivity would be maintained for nesting habitats. In general, nesting and foraging habitat would increase as forest succession continues to fill in understories and increase stand canopy closure. Indirect effects of the "no action" alternative may increase future risks to foraging habitat and some old growth or mature stands and a subsequent reduction of nesting habitat from more severe fires occurring with accumulation of fuels.

Alternatives B, C, and D
All action alternatives can impact Williamson's sapsuckers by removing suitable nesting habitat, as well as snags and down wood used for foraging. The proposed project design spreads potentially affected acres across most of the analysis area. As a result, most resident Williamson's sapsuckers would be likely to experience some habitat loss at a small or site-specific scale.

Table 3.7.11 Estimated Acres of Williamson's Sapsucker Nesting and Foraging Habitat, by Alternative

American River Watershed	Alt A	Alt B	Alt C	Alt D	NPNF[1]
Acres (%) nesting habitat treated	0	193 (1.1%)	182 (1.1%)	165 (0.9%)	384 (2.2%)
Acres (%) nesting habitat treated resulting in canopy cover <50% (loss of nesting habitat)	0	-155 (-0.9%)	-144 (-0.8%)	-127 (-0.7%)	-384 (-2.2%)[2]
Acres (%) foraging habitat treated	0	1234 (2.5%)	1223 (2.5%)	1148 (2.3%)	995 (2.2%)
Acres (%) foraging habitat treated resulting in canopy cover <25% (loss of foraging habitat)	0	-770 (-1.6%)	-667 (-1.4%)	-667 (-1.4%)	-995 (-2.2%)[2]

[1] Nez Perce National Forest (NPNF) selected alternative for American and Crooked River Project FEIS (USDA-FS, 2005a).
[2] NPNF modified acres and loss of Williamson's sapsucker nesting or foraging habitat dependent on existing conditions and percent of canopy cover removed within each treatment stand. No specific analysis was conducted by NPNF for Williamson's sapsucker.

Changes in potential nesting habitat acres are identified by alternative in Table 3.7.11. Silvicultural treatments that encourage the development of large trees (greater than 21 inches dbh) over the project area would benefit Williamson's sapsucker nesting habitat. However, any harvest activity that would reduce canopy closure below 50 percent would reduce the potential for those stands to be used as nesting habitat.

The action alternatives would harvest approximately one percent of the nesting habitat at the watershed scale. Alternatives D would modify the fewest acres of Williamson's sapsucker nesting habitat (less than one percent of the existing habitat in American River), and alternative B and C would modify the greatest acreage (less than one percent of existing habitat in American River). No harvest activities would take place in allocated old growth areas or RHCAs, so these stands would remain relatively intact and available for potential Williamson's sapsucker nesting habitat. The disturbance from road work and the edge effects created by the roads would probably not be of sufficient magnitude to change the suitability of these stands for nesting Williamson's sapsuckers.

Changes in potential foraging habitat acres are identified by alternative in Table 3.7.11 above. Alternatives D would modify the fewest acres of Williamson's sapsucker foraging habitat, and alternative B and C would modify the greatest acreage. All action alternatives would be expected to modify approximately 2.5 percent of the existing habitat in the American River watershed.

In mixed conifer or other vegetation types where lodgepole pine is a component of the stand, thinning prescriptions that leave greater than 25 percent canopy closure with adequate snags and down wood, such treatments would continue to provide foraging suitable foraging habitat for Williamson's sapsuckers. Thinned stands could maintain or create more favorable conditions over time for Williamson's sapsuckers as these stands develop structural diversity. Silvicultural prescriptions that retain many or all of the larger (greater than 20 inches), wind-firm trees in Douglas-fir and mixed conifer stands, would maintain and improve these stands as potential Williamson's sapsucker foraging and nesting habitat.

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for Williamson's sapsucker is the American River watershed.

The "no action" alternative would allow stands to transition to higher fire hazard conditions which would be cumulative to effects from past fire exclusion, roading effects, loss of large diameter trees, and other human-caused impacts on habitat quality. Harvests planned for nearby private or NPNF lands would add cumulatively to habitat losses and prior impacts. This alternative would indirectly result in slightly greater cumulative risks of fire damage or losses to some individual stands of existing old growth and/or mature mixed conifer stands.

Timber harvest and road construction have reduced the amount and continuity of mature and old growth habitat across the analysis area. In addition, past actions frequently targeted medium and large trees and valuable ponderosa pine and western larch snags. These actions have left fewer suitable stands, and trees within stands, that could be used by Williamson's sapsuckers. Past harvest left few snags or legacy trees, and little down wood. As these older harvest units have begun to mature, they are devoid of the structures that could be utilized by Williamson's sapsuckers. At the same time, active fire suppression since the early 1900s has allowed succession to continue in those stands that have not been harvested. Relatively simple one- and two-story stands have transitioned to more complex multi-story stands with increased canopy closure and individual trees have grown larger. Some of these stands now qualify as suitable Williamson's sapsucker habitat. Increased fuel loads from fire suppression and the current mountain pine beetle epidemic increases the chance of stand-replacing fires that could potentially remove stands or acres of older forest habitats from the landscape. Fires would create additional snags, but it would take many years before a new forest would mature to levels where burnt stands could be used by Williamson's sapsuckers. Other private and NPNF projects within the analysis area may also alter the amount, distribution, and connectivity of older, dense-canopied stands.

Implementation of the NPNF American and Crooked River Project selected Alternative D would modify an additional 384 acres of nesting habitat (2.2%) and 995 acres of foraging habitat (2.2%) within the American River watershed, which would result in additional cumulative losses to those identified in Table 3.7.11 above. The Eastside Project and FS American and Crooked River Project cumulatively may result in a loss of 2.9 to 3.1 percent of existing nesting habitat and 3.6 to 3.8 percent foraging habitat.

The proposed project and other projects proposed in the area could open or remove additional forest canopy cover. When new units abut old harvest units and stands undergoing beetle kill, the number and/or size of the openings could be too large to be used by Williamson's sapsuckers. The mountain pine beetle epidemic is creating many, large openings across the landscape. Within the American River watershed lodgepole pine dominant stand cover comprises approximately 15% (see Section 3.3 Vegetation).

Although individual birds or pairs could be disturbed by project activities, none of the proposed alternatives should affect populations at the local or watershed level.

The sensitive species determination for Williamson's sapsucker would be "*may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species*" for alternatives B, C, and D.

Olive-sided Flycatcher

Existing Condition

Olive-sided flycatchers are found in forests and woodlands (especially in burned-over areas with standing dead tress) such as subalpine coniferous forests, mixed forests, and borders of lakes and streams (Groves et al., 1997). They generally breed in montane and boreal forests in the mountain west of North America, as well as throughout the boreal forests of Canada (Kaufman, 1996). Olive-sided flycatchers are most often associated with forest openings, forest edges near natural (i.e., meadows, wetlands, canyons, rivers) or man-made openings, or open/semi-open stands with a low percentage of canopy closure (Kaufman 1996; Altman, 1997). Hutto and Young (1999) found olive-sided flycatchers were more abundant in early post-fire habitats than in any other major cover type. They had similar occurrence in seed tree cover types, and were only slightly less common in clear-cut and shelterwood cover types. They occur more frequently in disturbed than in undisturbed forests in the northern Rocky Mountains. In Douglas-fir forests of west-central Idaho, olive-sided flycatchers were found to be more abundant in forest types created by logging methods such as diameter-cut and single tree selection that retained residual medium and large trees (moderate to high canopy height) and low canopy closure (Medin 1985; Medin and Booth 1989). In northwestern Montana, Tobalske et al. (1991) found olive-sided flycatchers to be more abundant in logged (clear-cut and partial cut) than in unlogged forest.

Olive-sided flycatchers have been classified as common in spruce and aspen forest types, uncommon in mixed conifer, ponderosa pine, pine-oak, and cedar-hemlock forest types, and rare in lodgepole pine and pinyon-juniper (Hejl et al., 1995). In the northern Rockies, Hutto (1995) found that among undisturbed types, olive-sided flycatchers occurred most often in spruce-fir, marsh-wetland, and mixed conifer types, with some occurrence in riparian shrub, cedar hemlock, Douglas-fir, lodgepole pine, and ponderosa pine types. Although olive-sided flycatchers are more common in disturbed, early successional types, they appear to require residual large snags and/or live trees for foraging and singing perches (Altman, 1997).

For this analysis, olive-sided flycatcher nesting habitat was defined as forested stands with trees greater than 10 inches dbh and canopy cover 10–25%. Foraging habitat consists of shrublands, all seedling/sapling stands (early seral), and all other forest stands with a canopy cover less than 25%. The following table shows the acres of each habitat and percentage of habitat within the American River watershed.

Table 3.7.12 Estimated Acres of Olive-sided Flycatcher Nesting and Foraging Habitat

Watershed	Nesting Habitat Acres (% Watershed)	Foraging Habitat Acres (%Watershed)
American River	5000	9000

Environmental Effects

Re-creation of landscape condition (patch size, openings, and amount of edge) within the range of natural variation should benefit olive-sided flycatchers (Montana Partners in Flight, 2000). This may involve the creation of more edge in areas and openings where fire suppression has reduced the heterogeneity of the forest, reduced the amount of edge, and increased the average patch size or it may involve finding ways to reduce "fragmentation" (i.e., increase average patch size, decrease the amount of edge) of forests in managed lands.

All action alternatives should increase suitable habitat for olive-sided flycatcher with the implementation of forest management practices that approximate the structural conditions created by historic fire regimes, both at a stand and at the landscape scale. The action alternatives would benefit olive-sided flycatcher with project design that incorporates the following measures:

- Logging methods that retain medium to large trees with relatively open canopy closure, as well as treatments that create forest edge will benefit olive-sided flycatchers.
- Retention of forested edge habitat around riparian and wetland features will also benefit olive-sided flycatcher habitat.
- Reintroduction of fire may also benefit olive-sided flycatchers by creating post-fire habitats that were historically more common.
- Retention of snags and large trees post harvest within regeneration methods such as seed tree harvests will benefit olive-sided flycatchers by retaining important foraging and singing perches.
- Partial harvests which retain trees of varying heights to provide nesting sites as well as trees near or above the canopy height of the surrounding forest to provide flying space and height for foraging will benefit olive-sided flycatchers.
- Post-harvest broadcast burning, especially when it fits with the desired silvicultural regime, will potentially create ecological conditions most similar to historical olive-sided flycatcher habitat.

Alternative A (No Action Alternative)
The "no action" alternative would have no direct effect on olive-sided flycatcher or its habitat. This alternative would indirectly leave stands unharvested. This would maintain all predominantly lodgepole pine stands at risk for future wildfire impacts, which in turn could potentially become beneficial to olive-sided flycatchers with the creation of post-fire habitats.

As forest succession and fire suppression occur in overstocked stands, trees become more susceptible to attack from insects and disease. Infestations that kill trees and the resultant increase in early seral habitats or lower canopy cover (e.g., 5–25%) would result in increases of olive-sided flycatcher habitat. As the insect and disease outbreak advances, standing and down dead material would increase, which in turn increases the risk of stand-replacing fires, which would also benefit olive-sided flycatcher with the creation of post-fire habitats. Benefits to olive-sided flycatcher would be dependent on the size and edge affects created and residual trees remaining in the area. Without a fire event, the insect outbreak would eventually peak and subside. Grand fir and other more shade tolerant species that currently exist in the understory of stands with dead and dying trees would continue to grow, perhaps eventually causing the long-term loss of the early seral conditions and low canopy cover preferred by olive-sided flycatchers. Under the "no action" alternative, the existing level of patchiness in the watershed would persist until a stand-replacing fire or other management action(s) take place.

Alternatives B, C, and D
Treatments that include green and dead tree harvest to improve forest health and reduce the incidence of insects and disease increase suitable nesting and foraging habitat for olive-sided flycatchers. Not only would the habitat they are using be modified, it would result in increases in suitable habitat under all alternatives. The changes in nesting and foraging habitat acres are identified in Table 3.7.13 by alternative.

Table 3.7.13 Estimated Acres of Olive-sided Flycatcher Nesting and Foraging Habitat by Alternative

American River Watershed	Alt A	Alt B	Alt C	Alt D	NPNF[1]
Acres (%) existing nesting habitat treated	0	60 (1.2%)	60 (1.2%)	33 (0.7%)	0
Acres (%) nesting habitat after treatments	0	219 (+4.4%)	235 (+4.7%)	206 (4.1%)	863 (+17.3%)
Acres (%) existing foraging habitat treated	0	60 (0.7%)	60 (0.7%)	33 (0.4%)	0
Acres (%) foraging habitat after treatments	0	788 (+8.7%)	726 (+8.1%)	698 (+7.7%)	354 (+3.9%)

[1]Nez Perce National Forest (NPNF) selected alternative for American and Crooked River Project (USDA-FS, 2005a).
[2]NPNF modified acres and loss of olive-sided flycatcher nesting or foraging habitat dependent on existing conditions and percent of canopy cover removed within each treatment stand. No specific analysis was conducted by NPNF for olive-sided flycatcher.

Alternative B would result in the largest increase in olive-sided flycatcher habitat for nesting and foraging, followed by Alternatives C and D. Under all action alternatives it is expected that adequate residual large snags and/or live trees for foraging and singing perches will be maintained across the project area. Research has found that tall canopy height, low canopy cover, and clearcuts have been beneficial to olive-sided flycatchers. The silvicultural treatments under each alternative would result in an increase in suitable habitats. The relative amounts of dead and dying lodgepole pine in stands that would remain unharvested will also contribute to canopy cover openings and early seral habitats preferred by olive-sided flycatchers.

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for olive-sided flycatcher is the American River watershed.

The “no action” alternative could in effect, have positive cumulative effects from fire effects on olive-sided flycatcher habitat availability. Absence of fuel reduction and lodgepole pine harvest, would add cumulatively to overall risks of eventual fire spread, which could create post-fire and early seral habitats preferred by olive-sided flycatchers. In addition, dead and dying lodgepole stands would create openings and early seral habitats which also would contribute suitable habitat. Successional advancement for some stands would result in mid-aged and mature stands with high canopy cover, resulting in loss of suitable nesting and foraging habitats.

The action alternatives would result in habitat increases. Such increases add moderately to cumulative increases of existing and potential future olive-sided flycatcher habitat related to previous harvests and post-disturbance harvest projects as well as reasonably foreseeable harvests on private and nearby NPNF in the analysis area.

Implementation of the FS American and Crooked River Project selected Alternative D would reduce canopy cover on an additional 1,217 acres of timbered stands, which potentially could increase nesting habitat by an additional 17.3 percent and foraging habitat by 3.9 percent within the American River watershed, which would result in additional cumulative increases in olive-sided flycatcher habitat to those identified in Table 3.7.13 above. The Eastside Project and FS American and Crooked River Project

cumulatively may result in an increase of 21.4 to 22.9 percent of existing nesting habitat and 11.6 to 12.6 percent foraging habitat.

Increases of existing and future foraging and nesting habitat opportunities would result from this project, the increase would be relatively moderate in the American River watershed. The relative acres proposed for mechanical harvest are only a small portion of the total acres that are dead and dying, which would also provide potential suitable habitat for olive-sided flycatcher. These acres may burn by wildfires and become high quality post-fire habitat in the future, therefore the relative amount of anticipated olive-sided flycatcher habitat predicted to be increased from management treatments is relatively minor within the analysis area and relatively inconsequential. The mountain pine beetle epidemic has created many thousands of acres of potential future olive-sided flycatcher habitat in the upper South Fork of the Clearwater River subbasin.

Activities that reduce the potential for wildfire and insect outbreaks reduce habitat for olive-sided flycatchers; however, some treatments would create suitable habitat. Projects within the upper South Fork Clearwater drainages all target fuel loading and bug-infested trees in some capacity. Ongoing activities such as post and pole gathering, firewood cutting, road construction/maintenance, and fire suppression also affect habitats that could be utilized by olive-sided flycatchers. Past timber harvest activities have created a patchy landscape across the watershed, which has likely resulted in more suitable habitat than would occur in unlogged habitats. However, advancement of forest succession will result in these logged areas becoming unsuitable as trees mature and canopy cover increases.

Across the range of the species, especially the Interior Columbia River Basin, moderate or strong declines in unburned habitats potentially used by olive-sided flycatchers have occurred. However, timber harvest activities have created additional suitable habitats. The natural pattern of beetle outbreaks has been altered through silvicultural and fire management practices. Silvicultural practices directed at maximizing wood production by harvesting trees before they are susceptible to bark beetle attacks and salvage logging of beetle-infested, fire-killed, and wind-killed trees reduced the occurrence of beetles in some areas. Fire management policies have lengthened fire return intervals and allowed more frequent occurrences of beetles. Impacts of the Eastside Project and other past, present, and reasonably foreseeable future actions in and around the American River watershed appear negligible. With continued management emphasis on returning fire (both natural and prescribed) to the landscape and silvicultural treatments favoring more open canopy cover, openings, and early seral conditions, habitat conditions for the olive-sided flycatcher will improve.

The sensitive species determination for olive-side flycatcher would be "*may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species*" for alternatives B, C, and D.

Fisher

Existing Condition

Fishers are wide-ranging forest predators that prefer late seral, mesic (moist) forest habitats (Idaho Department of Fish and Game, 1995:9). Fishers are known to occur within the South Fork Clearwater River Subbasin.

Current distribution of fishers in North America is substantially fragmented compared to their historical (pre-European) distribution. Across the species' range, fisher populations declined in the early twentieth century, probably due to a combination of over trapping, predator poisoning, and habitat loss from settlement, logging and forest fires (Heinemeyer, 1994). Fishers and their habitat use were studied by Jones (1991) in the adjacent Newsome Creek watershed and surrounding areas near Elk City during the late 1980s. Jones concluded that over-trapping and historic habitat loss due to extensive fires in 1910 and 1934 were most likely responsible for the historical decline of fishers in Idaho.

No fisher trapping is currently allowed in Idaho, but animals are occasionally caught incidental to marten, coyote, and bobcat trapping. Trapping pressure within the American River watershed and South Fork Clearwater River Subbasin is currently limited due to low trapper interest (USDA-FS, 1998b; USDA-FS, 2004a).

Habitat conditions and relative amounts and larger blocks of old growth and late seral habitats preferred by fishers are prevalent in the American River. Currently, 51 percent of the American River drainage supports late seral habitat (USDA-FS, 1998a:141). However, developed portions of the American River drainage have been impacted and fragmented to varying levels by past timber harvesting and roading activities.

Overall however, fisher habitat has increased over historical conditions by approximately 188 percent within the South Fork Clearwater River subbasin. This can be attributable to increases in more shade tolerant tree species, like subalpine fir and grand fir, due to fire suppression and forest succession (USDA-FS, 1998a:83).

Suitable fisher habitat in American River drainage is currently 233 percent of historic amounts (USDA-FS, 1998b). Conserving the integrity of late seral habitats near the upper end of their historic range of variability would benefit fishers (USDA-FS, 1998a:140–141 and 148).

Fishers are believed to use selected suitable habitat portions of the American River watershed. Local trends in fisher populations remain stable based on (USDA-FS, 2005a):

- Population monitoring results,
- Incidental sightings,
- ICDC database records, and
- Local downtrends in the two of the most commonly recognized threats to fisher populations in the western U.S. (trapping pressure and clearcutting of late successional timber).

(FS 15th Annual Monitoring and Evaluation Report Draft; 2002 Fisher/pine marten monitoring data–Item 10 Population Trends of Indicator Species, Nez Perce National Forest, USDA-FS, 2004d).

The size of a male fisher's home range is larger than that of a female. Fisher home ranges in north-central Idaho were 2 to 15 times larger than other reported fisher home ranges, and averaged 82.6 km^2 (20,400 acres) for males and 40.8 km^2 (10,080 acres) for females (Jones, 1991:103). Even when home range size estimates were standardized across multiple studies, those in Idaho remained much larger than estimates from other geographic areas (Heinemeyer and Jones, 1994).

For this analysis, fisher summer habitat was defined as large trees (greater than 15 inches dbh) in mixed conifer and mixed subalpine fir forests. Mesic lodgepole pine was also determined to be considered summer habitat where diameters are greater than 10 inches. Fisher use appears in stands with greater than 40 percent canopy cover, but the NPNF dataset did not allow for selection for this. Instead, moderate to high canopy closure was selected (greater than or equal to 25 percent). Winter habitat was defined as summer habitat plus pole-sized trees (greater than 10 inches dbh) with greater than 25 percent canopy cover and drier lodgepole pine habitat types. The following table shows the acres of summer and winter fisher habitat for the American River watershed.

Table 3.7.14 Estimated Acres of Fisher Habitat

Watershed	Summer Habitat Acres (% watershed)	Winter Habitat Acres (% watershed)
American River	38,326 (65%)	40,651 (69%)

By assuming an average home range size of acres per female fisher (Jones, 1991), an analytical index was developed to compare the effects of each alternative. Under the existing condition, 40,600 acres of habitat could support about 4 fisher females in the American River watershed. It is important to realize that this

number is simply an analytical index and in no way attempts to measure actual densities or numbers of fisher on the landscape.

The results of the FIA indicate that, overall, fisher habitat is widely distributed across the South Fork Clearwater River subbasin and American River watershed (this includes summer and winter habitat). Within the American River watershed, total fisher habitat (represented by winter habitat as summer habitat is included in the calculations) amounts to 53 percent of the forested lands. The following table displays the FIA data at two scales:

1. Subbasin (4th HUC)
2. Watershed (5th HUC).

The amount and distribution of habitat is both a reflection of the capability and current condition of the landscape.

Table 3.7.15 Data at Two Scales for Percent Fisher Summer and Winter Habitat[1]

Fisher Habitat	South Fork Clearwater River			American River Watershed		
	CI Low	Mean	CI High	CI Low	Mean	CI High
Fisher Summer Habitat	20	26	33	13	28	45
Fisher Winter Habitat	35	43	51	32	53	75

[1]Forest inventory and analysis data at two scales for percent fisher summer and winter habitat, including 90 percent confidence intervals (CI low and CI high).

Environmental Effects

The Habitat Conservation Assessment for Fisher in Idaho suggests that although fisher trapping seasons are closed in Idaho, incidental trapping mortality may limit populations in the state (Idaho Department of Fish and Game, 1995:6). None of the alternatives will harvest in existing old growth timber. In addition, protection of RHCAs (riparian habitat conservation areas), would provide for maintenance of mature, old growth, and potential old growth stands within these areas and help maintain patch sizes and connectivity. A fundamental aim of the project is removal of fuel-loading from dead and dying lodgepole pine. Most of the lodgepole pine of 6 inches or greater diameter in the project area will no longer contribute to forest canopy cover irrespective of alternative harvest plans. Effects of each alternative on fishers and their habitats should also factor in the reduced risks (if any), for subsequent habitat losses due to future fire impacts.

Noxious weeds, watershed restoration actions, and post-harvest slash treatments using prescribed fire are not expected to impact fishers or their habitats considerably, regardless of alternative. Road decommissioning would be expected to help reduce motorized access on existing roads, contributing to reductions in fisher mortality risks from trapping. Based on best available information, the analysis criteria for fisher will be the extent to which each alternative:

1. Conserves or protects the integrity of late seral habitats,
2. The amount of habitat modified by each alternative, and
3. The degree to which each alternative provides security by limiting mortality risks from incidental trapping, because densities of accessible roads and trails facilitates human access.

Alternative A (No Action Alternative)
This “no action” alternative would have no immediate, direct negative or positive impacts on the fisher or its habitat. As local stands mature and decline with their attendant fuel-buildups, lethal, more severe fire risks would become more prevalent. Such risks would increase the chances of late seral habitat losses to wildfires. No direct or indirect changes in access would occur, so security would not improve. Existing road access levels that facilitate potential trapping for other furbearers would remain unchanged.

Existing fisher habitat would not be harvested under this alternative. In general, mature, high-canopied habitat would increase and small-tree winter habitat would decrease as forest succession continues to fill in understories and increase stand canopy closure. In predominantly lodgepole pine stands, additional trees would die as a result of the mountain pine beetle epidemic and dead trees would eventually fall to the ground. This process would create suitable habitat and niches for at least some of the small mammal species fisher prey upon. Fishers do not forage in openings; therefore, areas with significant fallen lodgepole pine would only provide habitat along the edges of these newly opened areas. High densities of downed logs, shading from snags, and lack of seed sources may delay the regeneration of new trees relative to harvested areas and extend the length of time it would take for new small tree and mature habitats to develop. In RHCAs, trees killed by insects and other successional processes would fall to the ground and into streams enhancing structural diversity in these areas.

Fuel build-up resulting from fire suppression activities would continue, thereby increasing the likelihood of a stand-replacing fire. Stand-replacing fires could potentially reduce mature and old growth habitat across the project area, depending on the size and severity of the disturbance. Similarly, fuel loads along streams and RHCAs would continue to increase and may expose these environments to intense fires. Stands of dead and dying lodgepole pine are particularly vulnerable to stand-replacing fires; small tree lodgepole pine winter habitat would likely be lost in a fire event. An increase of large logs on the ground due to fire or insect epidemics could provide denning structures and cover for fisher and several prey species, but these areas are likely to be avoided until the living canopy cover again exceeds 40 percent.

Alternatives B, C, and D

Treatments that include green and dead tree harvest to improve forest health and reduce the incidence of insects and disease would affect both summer habitat and winter habitat for fishers. The changes in habitat acres (overlap exists between summer and winter habitats) are outlined in Table 3.7.16 by alternative. Alternative D would modify the fewest acres of fisher summer (629 acres) and winter habitat (632 acres), and alternative B would modify the greatest acreage of summer (687 acres) and winter habitat (690 acres) in the American River watershed. All action alternatives are very similar for effects at a watershed level, and would harvest and modify less than 2 percent of the summer and winter habitat for fishers.

Using the NPNF analytical index, under alternatives B, C, and D, enough fisher habitat would remain in the project area to support about 3.9 female fishers in the American River watershed. This would be a slight reduction from the existing condition.

Table 3.7.16 Estimated Acres of Fisher Habitat in the American River Watershed by Alternative

Fisher Habitat	Alt A	Alt B	Alt C	Alt D	NPNF1
Acres (%) summer habitat treated	0	687 (1.8%)	678 (1.8%)	629 (1.6%)	246 (0.6%)
Acres (%) winter habitat treated	0	690 (1.7%)	682 (1.7%)	632 (1.6%)	262 (0.6%)

[1] Nez Perce National Forest (NPNF) selected alternative for American and Crooked River Project FEIS (USDA-FS, 2005a).

In the Northern Rockies, fishers evolved under a disturbance regime that created numerous openings in a matrix of mature forested habitats. Removing downed woody material and canopy cover in stands used by fisher and their prey could reduce suitable habitat in the short-term. Fishers do not forage in openings and would avoid using newly harvested units except perhaps along the edges of those units. However, the conversion of some percentage of older age class lodgepole pine and mixed conifer habitats to younger age classes could promote a diversity of prey species and thus have long-term benefits for fisher populations. At localized levels, it would also reduce the probability of fire spreading to high quality fisher habitats within the watershed. Tree planting and site preparation, such as the removal of dead and downed wood through burning, would accelerate regeneration of green canopy cover.

None of the action alternatives would harvest trees in RHCAs. Connectivity along riparian habitat corridors would remain intact for all action alternatives. As with the "no action" alternative, trees killed by insects and other successional processes would fall to the ground and into streams enhancing structural diversity in these areas. However, fuel loads along streams and RHCAs would continue to increase and may expose these environments to intense fires.

The temporary increase of human activity in the project area associated with harvest and vegetative treatments could increase the possibility of human-fisher interactions. By design, all current access closures would be maintained as part of the proposed project.

Action alternatives would not harvest in any existing old growth timber. Moderate harvest levels would have limited direct impacts on fisher habitat due to increased overall habitat fragmentation. Treated stands would provide moderate levels of on-site fuel reduction.

Security would improve slightly under all alternatives. Alternative C would improve security slightly more than the other alternatives with a reduction in motorized access, followed by Alternatives B and D.

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for fisher is the American River watershed.

Risks of fire-spread losses in old growth or other late seral stands would become cumulative to past and present effects of fire exclusion in the analysis area. Whether these effects would extend outside the project or analysis area is uncertain. The "no action" alternative would have no certain cumulative effects on the fisher or its habitat other than fire and security risks, which would eventually become additive to the past effects of roading, logging, incidental trapping risks, fire exclusion and other human disturbances of normal ecosystem processes and forest pattern.

The action alternatives would add moderately to forest fragmentation at the level; however, this would result in negligible cumulative effects compared to other past, present, and other foreseeable harvest activities in the American River watershed analysis area. Other projects include the American and Crooked River Project and private land timber harvest. It would reduce fuels at relatively moderate levels, potentially contributing to less fire risks to old growth and late seral habitats. The action alternatives would also slightly reduce potential levels of human access, thereby helping to reduce mortality risks from trapping.

Implementation of the FS American and Crooked River Project selected Alternative D would modify an additional 246 acres of summer habitat and 262 acres of winter habitat. The Eastside Project and FS American and Crooked River Project cumulatively may modify 2.2 to 2.4 percent of summer habitat and 2.2 to 2.3 percent of winter habitat (see Table 3.7.16).

Past insect outbreaks, fires, fire suppression, and timber harvest have left a mosaic of habitats on the landscape, but they are not characteristic of the patterns that occurred historically under a more natural disturbance regime. Most harvest units are simple, uniformly-shaped, small- to medium-sized patches (greater than 40 acres), without snags or large fire-resistant trees. Gone in these areas are the important snag, down wood, and residual large tree components that provide the structural diversity preferred by fishers once a stand regenerates. Past activities in developed portions of the watershed may have altered the availability of denning habitat, forested connectivity, and prey habitat for fisher. The loss of medium and large trees from timber harvest has reduced the older forest component that is important to fisher year-round. Across the analysis area, open roads facilitate access for trappers and firewood cutters, potentially decreasing fisher populations and the downed logs important for fisher and their prey species. However, at the watershed analysis level, current suitable fisher habitat is more abundant than historic levels.

Within the analysis area, private land logging and the American and Crooked River Project target dead, dying, and merchantable green lodgepole pine, and other tree species in some capacity. Cumulatively, the

loss of suitable habitat for fishers could affect fisher populations in the project area and in the American River watershed. Adding to this situation is the fact that many additional stands of small tree lodgepole pine and mixed conifers that are not proposed for timber harvest or silvicultural treatments are being altered or lost by a more "natural" process of bug kill, decay, and fire. At the project and watershed levels, fisher populations could be affected however, the effects of past, present, and reasonably foreseeable future actions appear small to negligible.

The sensitive species determination for fisher would be "*may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species*" for alternatives B, C, and D.

Wolverine

Existing Condition

The wolverine is an uncommon, wide-ranging carnivore that typically occurs at low densities across its range. Home ranges average approximately 100,000 acres. Within the western U.S., they occur principally in remote, high-elevation mountain basins and cirques, particularly during the breeding season (Rowland et al., 2003). The Conservation Strategy for Wolverine (*Gulo gulo*) in Idaho (Copeland and Hudak, 1995) defined wolverine habitat as areas associated with a component of seclusion or separation from human influence. Wolverines are relatively intolerant of human disturbance requiring large tracts of remote mountainous habitat (Hornocker and Hash, 1981). Habitat of this nature is most easily defined by existing tracts of set-aside or defined refugia such as RARE II land or designated wilderness.

Wolverine have been observed on the Nez Perce National Forest. Most observations have been within or adjacent to designated wilderness areas in relatively remote, isolated landscapes. The edge of the Gospel-Hump Wilderness is several miles southwest of the project area. Central-Idaho wolverines are known to commonly cross distances of 20 kilometers (12.4 miles), negotiating road systems and active timber sales, to reach insular subalpine habitats (Copeland and Hudak, 1995).

In Idaho, female wolverines use high-elevation cirque basins for natal sites, while making daily forays into lower montane habitats to forage (Copeland and Hudak, 1995). The analysis area (American River watershed) occurs approximately 20 mile northeast of the high elevation Gospel-Hump Wilderness. Absence of high elevation cirque basins and boulder talus within the project area, as well as extensive previous development, roading, harvest, and other human activities conducted in the project area make it unsuitable as breeding or denning habitat; however wolverine may occasionally traverse through the analysis area in search of food. Wolverines are opportunistic scavengers and ungulate carrion is considered an important food source. Activities that decrease ungulate populations may negatively affect wolverines (Copeland and Hudak, 1995).

Incidental trapping mortality is a potentially important factor in managing wolverine populations. Wolverine trapping is not allowed in Idaho, but animals are occasionally caught by accident by coyote and bobcat trappers. Within the analysis area, trapping pressure and risks to wolverine are relatively low due to low trapper interest (USDA-FS, 1998b).

The analysis area is well developed, substantially roaded and contains large amounts of ongoing vehicular and human disturbances. The American River ERU holds no areas of low human disturbance and is not considered quality habitat; however it may contribute foraging areas and overall habitat potentially capable of supporting wolverines (USDA-FS, 1998b).

Environmental Effects

The analysis area lacks seclusion from human influence, and the character of extensive roadless habitat security preferred for natal denning. No high elevation cirque basins occur in the analysis area either. Noxious weed effects can indirectly impact overall elk habitat quality, which may indirectly affect long-term availability of carrion for wolverines where weeds may dominate native vegetation, but these are not considered major impacts. Watershed restoration actions and post-harvest slash treatments using fire are not expected to impact wolverine or their habitat considerably regardless of alternative. Road decommissioning will help reduce human-wolverine conflict potentials.

Sites planned for harvests are well outside wilderness or Forest Service RARE II areas considered suitable as wolverine habitats (USDA-FS, 2005a). While wolverines may occasionally traverse through or across the American River analysis area, which is in proximity to three major, high elevation wilderness areas (Gospel-Hump and Selway-Bitterroot, Frank Church River of No Return), it is unlikely that wolverines would find the analysis area habitats attractive except perhaps as a travel corridor. Harvest, roading, watershed restoration actions and other similar project activities in all action alternatives would hold the potential to disturb or displace wolverine that may be traveling through the project area, but given the wide-ranging nature of the animal and lack of seclusion from human intrusion in the project area, this is unlikely.

Productivity of habitats and related ungulate carrion availability are important aspects of wolverine habitat management. For these reasons, the analysis criteria for wolverine will be impacts related to ungulate (elk) summer habitat effectiveness.

Alternative A (No Action Alternative)
No road decommissioning would occur under this alternative, and the current amount of wolverine habitat would be maintained. However, any stand replacing fires that occur in the project area might reduce the amount of subalpine fir and spruce forests available to wolverines. Subalpine cirque habitats would not be affected by this alternative, as they do not exist in the analysis area. Summer elk habitat is declining due to succession and the mountain pine beetle epidemic, and moose winter range may be increasing because of succession (see “Elk” and “Moose” discussions later in this section). Any effects these habitat changes have on ungulate populations could affect wolverines, as big game carrion is an important wolverine food resource during winter.

The “no action” alternative would have no meaningful direct effects on current elk habitat effectiveness. Although the longer term indirect effects of allowing unabated fuel buildups in the analysis area could eventually result in a more extensive imbalance of cover and forage for elk due to eventual large-scale wildfires, the net impacts to wolverine, given their extremely large home ranges, would likely be relatively immeasurable or nil.

Alternatives B, C, and D
Action alternatives would provide improved wolverine habitat, due to a slight reduction in roads open to motorized vehicle use over Alternative A. Big game security would be slightly improved, as well, through road decommissioning. However, a slight reduction in overall EHE would occur, primarily attributed to size and distribution of forage and cover areas. Refer to the discussion on elk.

None of the action alternatives would harvest trees in RHCAs except for individual trees that would be removed during temporary road construction, road reconstruction, or while creating cable corridors. Connectivity along forested drainage bottoms would remain intact for all action alternatives, as would potential wolverine habitat inside RHCAs. However, fuel loads along streams and RHCAs would continue to increase and may expose these environments to intense fires.

Proposed harvest activities would affect summer elk habitat in the project area. For details on how this analysis was conducted and the conclusions that were drawn, see the “Elk” section discussed later in this

section. Project activities would also affect moose habitat. Moose winter range is the most limiting aspect of moose ecology in the project area, no harvest of important moose winter range is proposed under the action alternatives (see the "Moose" section for additional details). If elk or moose populations decline as a result of proposed activities, wolverines may also be affected because of their reliance on ungulate carrion in the winter.

Alternatives B, C, and D would modestly improve habitat security compared to Alternative A by reducing motorized access particularly in the analysis area. Alternative C would slightly improve habitat security, compared to Alternatives B and C.

The temporary increase of human activity in the planning area associated with harvest and vegetative treatments could increase the possibility of human-wolverine interactions short-term and/or cause wolverines to avoid regions within the project area. As mitigation, all current access closures for public motorized vehicle use would continue as part of the proposed project. Temporary roads would be closed (when not being used for project implementation) to public motorized vehicle use, reducing potential human impacts. Road decommissioning would help reduce human intrusion long-term.

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for wolverine is the American River watershed.

Given all past development actions that have previously impacted overall wolverine foraging habitats including roading, logging, recreation activities, fire exclusion and others, and considering the very large size of wolverine home ranges, Alternative A would have no measurable cumulative effects. The sensitive species determination for wolverine would be "no impact."

The action alternatives would add additional impacts to the developed nature of the area, but overall effects relative to elk habitats would be very slightly reduced.

Past timber harvest, fire, fire suppression, and mining activity altered habitat characteristics in the project area by reducing the amount and distribution of large and medium trees, snags, and down wood, and by creating numerous, small patches across the landscape. These changes have affected wolverine prey species such as small mammals and ungulates. Prior to fire suppression and timber management, elk and deer populations were dependent upon natural disturbances to create openings that provided the early successional growth they favor for foraging. Larger, more connected tracts of mature and old growth forest provided suitable winter range for moose. Elk EHE and moose winter range would slightly decrease under action alternatives. The network of edges that the project would create could be beneficial to some small mammal prey species.

Road construction associated with past management activities has provided people relatively easy access into the area and has reduced the security and isolation the watershed once provided for wolverines. Human developments; hiking trails; pack trails and outfitter activity; and ATV and snowmobile use within the drainage have had far-reaching effects. These activities have increased human access into once remote areas. Roads that access high-elevation areas probably have reduced habitat quality the most. Snowmobile use may also have had effects on winter prey species by providing pathways for other predators to access a limited winter wolverine prey base. With the exception of constructing a new permanent road and vehicle bridge for additional access for the American River subdivision (Alternatives C and D), and relocating an existing road out of the American River riparian area and relocating the road to a toeslope area (Alternatives B and C), all other roads constructed under this project proposal would exist only temporarily on the landscape.

Other projects such as the American and Crooked River Project and private land logging in or near the American River watershed may also modify ungulate and small mammal habitat, as well as the large tree subalpine fir habitat used by wolverines. The project proposal is consistent with the wolverine management strategies identified in the South Fork Clearwater River Landscape Assessment (USDA-FS,

1998a). Activities will not occur around wolverine denning habitat, no new campsites or mine sites are proposed through this project, and the project does not target coniferous riparian forests or old growth mixed conifer, subalpine fir, or grand fir forests. A limited amount of mature timber would be harvested through the Eastside Project. Individual wolverines could be impacted at the project and watershed level, but this can be considered negligible.

The sensitive species determination for wolverine would be "*may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species*" for Alternatives B, C, and D.

Western Toad

Existing Condition

The western toad is found in a variety of habitats such as springs, streams, meadows, woodlands, ponds, lakes, reservoirs, and slow-moving rivers and streams (Groves et al., 1997). Several western toad occurrences were documented within the general project area and the American River watershed while conducting field surveys during 2004 and 2005, overall, they appear to be rare and not very abundant within the American River drainage (Craig Johnson, 2004/2005 field notes). The western toad will breed in a large variety of natural and artificial aquatic habitats, from the shallow margins of lakes and ponds to roads side ditches. It does not seem to matter if the sites have tree or shrub canopy cover, coarse woody debris, or emergent vegetation. Adult females may lay their eggs at depths of 5 centimeters to 2 meters (depths over one meter are rare) in the same location within sites each year. Outside the breeding season, western toads spend up to 90% of their time in terrestrial habitats. Adult toads can be found in forested areas, wet shrublands, clearcuts, and meadows. They appear to favor dense shrub cover, perhaps because it provides protection from desiccation and predators. Hibernation sites generally are deep enough to prevent freezing, and moist enough to prevent desiccation.

Environmental Effects

The primary analysis criteria for western toad are protection, enhancement, and maintenance of riparian and aquatic habitats, which is critical to reproduction. Western toads also use upland habitats the majority of the time, consequently upland treatments would have direct and indirect effects on western toads.

Alternative A (No Action Alternative)
This "no action" alternative would have no immediate, direct negative or positive impacts on the western toad or its habitat. As local stands mature and decline with their attendant fuel-buildups, lethal, stand-replacing fire risks would become more prevalent. Such risks would increase the chances of western toad mortality and habitat losses to wildfire. Western toad habitat effects from fire caused loss of shrubs, which provide security cover would result in toads being more susceptible to predation. Successional advancement would improve some riparian habitats.

Alternatives B, C, and D
All action alternatives would have direct and indirect affects on associated riparian and aquatic habitats. Such actions include riparian restoration, decommissioning of roads and fords, road construction and bridge construction within riparian areas. Short term negligible adverse affects would occur from soil and vegetation disturbance within riparian areas or adjacent to aquatic habitats. Long term benefits would occur to toad habitat with re-vegetation occurring. No timber harvest or fuels treatments are proposed to occur in RHCAs, which would provide for the primary protection of reproduction habitat associated with streams, ponds, spring, and seeps.

Upland actions such as road construction, road decommissioning, timber harvest, fuels reduction actions, and post-harvest slash treatments would be expected to have discountable direct and negligible indirect effect on western toad reproductive habitat. However, action alternatives do treat the upland areas to varying degrees, which may place toads at some direct risk for harm to individuals that may be present,

including minor potential indirect impacts on riparian habitat conditions from changes due to off-site generated silt and water quality impacts.

Implementing the watershed improvement projects associated with the action alternatives would cause a temporary increase in sediment short-term, but there would also be a long-term reduction in sediment. It is not expected that increases in sediment levels would adversely affect western toads, but it is reasonable to think that improvements to overall watershed quality and, particularly riparian habitats, would be beneficial to reproduction for the western toad.

Salvaging dead and dying trees and merchantable green trees would help reduce the risk of high-intensity, large-scale fires in the project area. Fuel loading within RHCAs would continue under all action alternatives and could expose toads and toad habitat to intense fires however, by reducing fuel loads outside of RHCAs, fires might not be as destructive to moist environments as under the "no action" alternative.

Proposed harvest and underburning activities are likely to alter existing non-breeding habitat for western toads for the short-term. Regeneration harvest with underburning removes overstory trees and ground cover, resulting in warmer and drier exposed soils. Intermediate harvest and burning would retain most of the larger overstory trees, leaving ground-level habitat more protected, with better daytime refugia sites for toads. Based on this species' ability to occupy a wide variety of habitats, western toad use could still occur, although at lower levels. As vegetation recovered within a few years, habitat would become increasingly suitable and use would be expected to increase. If adult western toads were present, individual mortality could occur during harvest or underburning from heat or consumed woody material, or by vehicles or machinery used for logging or roadwork.

Assessing the relatively small risk of potential effects to toads while using upland habitats, Alternative B has the most acres of proposed treatments, Alternative C has slightly less, and Alternative D has the least. Alternative B has the most miles of temporary roads, followed by Alternative D, and Alternative C has the least. Alternative C has the highest number of roads proposed for decommissioning within riparian habitats, followed by alternative B and D. Decommissioning roads within floodplains and riparian habitats would result in moderate benefits to reproduction habitats within localized areas. Decommissioned roads in riparian areas would improve as vegetation becomes established on these roads and riparian habitats improve. Table 3.7.17 summarizes the above information by alternative.

Table 3.7.17 Proposed Timber Harvest/Fuels Treatments, Temporary Road Construction, Road Decommissioning, and Riparian Restoration

Indicator	Alt A	Alt B	Alt C	Alt D
Total Acres Treated	0	1,293	1,284	1,171
Total Miles Temporary Road Construction (Miles Temporary Road Construction Within RHCAs)	0 (0.0)	15.1 (0.0)	10.5 (0.0)	10.7 (0.1)
Total Miles New Permanent Road Construction (Miles New Permanent Roads Within RHCAs)	0 (0.0)	0.6 (0.0)	1.1 (0.2)	0.6 (0.2)
New Bridge Construction	0	0	1	1
Total Miles of Decommissioned Roads (Miles of Decommissioned Roads Within Riparian Areas)	0 (0)	1.9 (1.1)	3.0 (2.0)	1.5 (1.1)
Stream Crossing (Fords) Obliteration and Restoration	0	2	3	3
Miles of Riparian Restoration	0	4.8	4.8	4.8
Total Acres Mine Site Reclamation	0	0.5	0.5	0.5

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for western toad is the American River watershed.

The "no action" alternative would have no cumulative effects on the toad or its habitat cumulative to past harvest, roading, human disturbance, recreation, minerals or other activities. With continuation of other ongoing BLM and NPNF restoration actions within the watershed, improved management of riparian and aquatic habitats resulting from PACFISH (1995) and federal listing of fish within the watershed, continued long term improving riparian and aquatic trends would be expected to occur; however, natural riparian recovery would be slow in dredge mined areas. The sensitive species determination for western toads would be "no impact."

Action alternatives would have localized direct and indirect cumulative effects on riparian, aquatic, and upland habitats which may be utilized by the western toad, in addition to those produced from past mining, roading, timber harvest, residential development, livestock grazing, recreation, public access, fire exclusion and other habitat impacts. The long-term outcome would be improved and restored riparian habitats.

Timber harvest and salvage logging, grazing, insect epidemics, fires, fire suppression, mining, and road construction and maintenance can cumulatively affect western toads through soil compaction, changes in vegetative cover, altering stream channels, or by changing the quantity and quality of water flowing into wet meadows. Past harvest practices that involved removing forest vegetation along streams and wetlands left these sites vulnerable to hydrologic and vegetative changes. Although fires aren't as common in this species' habitats, water quality and quantity varies after large fires upstream and could affect local toad populations. Fire suppression has created denser forests, which tend to burn hotter, and hotter fires tend to be more destructive. Whether these potential fire effects would extend outside the project or analysis area is uncertain. Livestock grazing is likely to continue on NPNF and BLM allotments and on private lands, and has past effects. BLM has fenced its riparian areas in Elk Creek and additional areas on private lands. Beaver dams also provide a flux of habitat availability; past beaver trapping may have affected habitat availability where beavers may not have recolonized.

For western toads, regeneration harvest with underburning removes overstory trees and ground cover, resulting in warmer and drier exposed soils. Regeneration harvests have been proposed for this project and various other projects in the American River drainage. Cumulatively, potential upland toad habitat could be impacted. Individual toads could be killed from the vegetative changes, prescribed fires, motor vehicles, and heavy machinery associated with these proposed actions.

Past, present, and future actions can affect western toad habitat in the project area as well as across American River drainage. Although individuals or localized populations can be affected, none of the proposed alternatives should affect populations of western toads at the project or watershed level.

The sensitive species determination for western toads would be "*may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species*" for alternatives B, C, and D.

Common Garter Snake

Existing Condition

Common Garter Snake inhabit virtually any type of wet or moist habitat throughout its range, but regional populations exhibit different preferences (Groves et al., 1997). This species is most common in wet meadows and along water courses, but it can be found far from water in open valleys and in deep coniferous forests (Nussbaum et al., 1983). This species preys chiefly on earthworms, frogs, toads, salamanders, and fishes, less regularly on slugs, leeches, small mammals and birds, but rarely on insects, spiders, and small snakes (Groves et al., 1997). It hibernates underground, or in or under surface cover, and at times, with other snake species. One common garter snake was documented within the project area

during the 2004 field season, the common garter snake is not commonly observed in the area, while the western terrestrial garter snake is fairly common (Craig Johnson, 2004 field notes).

Environmental Effects

The primary analysis criteria for the common garter snake are protection, enhancement, and maintenance of meadows, riparian areas, and aquatic habitats. The common garter snake typically is associated with riparian and aquatic habitats, but will also use terrestrial habitats such as coniferous forests; consequently upland treatments could have direct and indirect effects on common garter snakes and habitats.

Alternative A (No Action Alternative)
This "no action" alternative would have no immediate, direct negative or positive impacts on the common garter snake or its habitat. As local stands mature and decline with their associated fuel buildups, more severe localized risks would occur. Such risks may increase the chances of common garter snake mortality and habitat losses due to wildfires, particularly if such fires affected riparian and aquatic habitats. Successional advancement would improve some riparian habitats.

Alternatives B, C, and D
All action alternatives would have direct and indirect effects on the common garter snakes, particularly actions affecting riparian and aquatic habitats. Such actions include riparian restoration, decommissioning of roads, and obliteration and restoration of stream crossings (fords), road construction, and bridge construction. Short term negligible adverse affects would occur from soil and vegetation disturbance within riparian areas or adjacent to aquatic habitats. Long term benefits would occur to common garter snake habitats occurring in riparian areas and stream bottoms. No timber harvest or fuels treatments are proposed to occur in RHCAs, which would provide for the primary protection of primary habitats associated with wet meadows, riparian areas, streams, ponds, spring, and seeps.

Upland actions associated with the project would be expected to place common garter snake at some indirect risk for harm to individuals that may be present during treatments and loss of habitats. Indirect effects may occur from upland treatments that affect water quality or habitat for prey species.

Assessment of the relatively small risk of potential effects to common garter snakes utilizing riparian, aquatic, and upland habitats would be similar to what is described for the western toad above and is summarized in Table 3.7.17. All action alternatives identify restoration actions which would result in long term beneficial effects to riparian and aquatic habitat within the project area.

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for common garter snake is the American River watershed.

The "no action" alternative would have no measurable direct or indirect effects on the common garter snake or its preferred habitats. However, cumulative effects on the common garter snake or its habitat from past timber harvest, roading, human disturbance, recreation, mining or other activities would occur. With continuation of other ongoing BLM and NPNF restoration actions within the watershed, improved management of riparian and aquatic habitats resulting from PACFISH (1995) and federal listing of fish within the watershed, continued long term improving riparian and aquatic trends would be expected to occur. The sensitive species determination for the common garter snake would be "*no impact*" for Alternative A.

The action alternatives would have localized direct and indirect cumulative effects on riparian, aquatic, and upland habitats which may be utilized by the common garter snake, in addition to those produced from past mining, roading, timber harvest, residential development, livestock grazing, recreation, public access, fire exclusion and other habitat impacts. All action alternatives identify various riparian restoration actions, which will support upward trends for riparian and aquatic habitats. Cumulative effects

identified for the western toad would also be expected for the common garter snake and preferred habitats.

The sensitive species determination for common garter snake would be "*may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species*" for alternatives B, C, and D.

Idaho Giant Salamander

Existing Condition

Idaho giant salamander larvae usually inhabit clear, cold streams, but are also found in mountain lakes and ponds. Adults are found under rocks and logs in humid forests, near mountain streams, or on rocky shores of mountain lakes (Groves et al., 1997). The occurrence of Idaho giant salamander has been documented in Queen, Whitaker, and Telephone Creeks, American River and E. Fork American River in the general project area (Craig Johnson, 2004/2005/2006 field notes). Larvae feed on a wide variety of aquatic invertebrates as well as some small vertebrates (e.g., fishes, tadpoles, or other larval salamanders). Adults eat terrestrial invertebrates, small snakes, shrews, mice, and salamanders (Groves et al., 1997). The salamander hibernates/aestivates. They usually reach sexual maturity (in both larval and terrestrial forms) at sizes greater than 115 millimeters (snout to vent length) (Groves et al., 1997). Breeding occurs in spring and fall.

Environmental Effects

The primary analysis criteria for the Idaho giant salamander are protection, enhancement, and maintenance of riparian areas, and stream habitats. The Idaho giant salamander is primarily associated with the streams and riparian habitats. Management actions that affect riparian and stream habitats will have direct and indirect effects on Idaho giant salamanders. Indirect effects from upland actions can also affect water quality and occupied habitats used by Idaho giant salamanders.

Alternative A (No Action Alternative)
This "no action" alternative would have no immediate, direct negative or positive impacts on the Idaho giant salamander or its habitat. Existing riparian conditions and trends would be expected to continue as early and mid-age stands would advance to more mature timber stands along some stream reaches. Some dredge mined areas would continue a slow rate of recovery and succession advancement along some stream reaches. As some riparian stands mature and decline with their associated fuel-buildups, more severe localized fire risks may occur. Such risks may increase the chances of Idaho giant salamander mortality and habitat losses due to wildfires, particularly if such fires affected large percentages of a drainage and its associated riparian and aquatic habitats.

Alternatives B, C, and D
All action alternatives would have direct and indirect affects on the Idaho giant salamander, particularly actions affects affecting riparian and aquatic habitats. Such actions include riparian restoration, decommissioning of roads, restoration of stream crossings (fords), road construction, and bridge construction. Short term negligible adverse affects would occur from soil and vegetation disturbance within riparian areas or adjacent to aquatic habitats. Long term benefits would occur to Idaho giant salamander habitats in riparian areas and stream bottoms. No timber harvest or fuels treatments are proposed to occur in RHCAs, which would provide for the primary protection of primary habitats associated with riparian areas and streams.

Upland actions such as road construction, road decommissioning, timber harvest, fuels reduction actions, and post-harvest slash treatments would be expected to have minimal direct and minimal indirect effect on Idaho giant salamander habitat. However, action alternatives do treat the upland areas to varying degrees, which may place Idaho giant salamanders at some direct and indirect risk for harm to individuals that may be present during treatments and loss of habitats, particularly treatments, temporary roads and

new roads occurring within or near riparian habitats. Indirect effects may occur from upland treatments that affect water quality or provide habitat for Idaho giant salamander prey species.

Assessment of the relatively small risk of potential effects to Idaho giant salamanders utilizing riparian and stream habitats would be similar to what is described for the western toad above and is summarized in Table 3.7.12. All action alternatives identify restoration actions which would result in long term beneficial effects to riparian and aquatic habitat within the project area.

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for Idaho giant salamander is the American River watershed.

The "no action" alternative would have no measurable direct or indirect effects on the Idaho giant salamander or its preferred habitats. However, cumulative effects on the Idaho giant salamander or its habitat from past timber harvest, roading, human disturbance, livestock grazing, recreation, mining or other activities would occur. Long term improving riparian and aquatic trends would be expected to occur with continuation of other ongoing or planned BLM and NPNF restoration actions within the watershed. In addition, improvements are also the result of improved management of riparian and aquatic habitats resulting from PACFISH (1995) and management actions implemented for listed fish within the watershed. The sensitive species determination for Idaho giant salamander would be "*no impact*" for Alternative A.

The action alternatives would have localized direct and indirect cumulative effects on riparian, aquatic, and upland habitats which may be utilized by Idaho giant salamanders, in addition to those produced from past mining, roading, timber harvest, residential development, livestock grazing, recreation, public access, fire exclusion and other habitat impacts. All action alternatives identify various riparian restoration actions, which will support long term upward trends for riparian and aquatic habitats. Cumulative effects identified for the western toad (Section 3.7.4.6) would also be expected to be similar for the Idaho giant salamander and preferred habitats.

The sensitive species determination for the Idaho giant salamander would be "*may impact individuals or habitat, but will not likely result in a trend toward federal listing or reduced viability for the population or species*" for alternatives B, C, and D.

3.7.5 Indicator 3–Other Species of interest

Elk

Existing Condition

Historically, elk were likely somewhat widespread but sparsely populated in most areas but fairly common in the South Fork Clearwater River Subbasin's coniferous forests. Early in the twentieth century, when large wildfires created extensive forage areas, habitat conditions favored elk population increases. In recent decades, elk populations have stabilized and begun to decline because of forest successional advancement on winter ranges and greater hunting mortality (USDA-FS, 1998b). Elk habitat is categorized into summer and winter range. At the larger scale, winter range is considered a major habitat limiting factor for elk populations in the South Fork Clearwater River Subbasin. Winter habitat conditions relative to vegetation have become unbalanced due to domination by conifers within some winter range areas in the subbasin. For this assessment, elk winter range is defined as habitat that is available even in the harshest winters. Winter range is essentially absent in the project area of the American River watershed.

The analysis area is primarily used by elk as late spring, summer, fall, and early winter range. Localized areas within the American River watershed provide winter and spring ranges and may be used during winters with low snow depths. Elk are a wildlife indicator of a diverse array of habitat types and forest

successional stages. In some areas, unusually high densities of conifers, compounded by an accumulation of ladder fuel vegetation, have progressively shaded out and discouraged the growth of forage plants required for overall elk health and productivity.

The quality of summer elk habitat and whether the habitat is capable of sustaining or increasing elk populations is rated through the use of the *Guidelines for Evaluating and Managing Summer Elk Habitat in Northern Idaho* (EHE) model (Leege, 1984). When all habitat factors are in optimum abundance and distribution, habitat would be rated 100% of potential elk use. The percentage value refers only to habitat quality and not to actual elk use. The primary factors decreasing habitat quality are: 1) road density and roads open to vehicle use, 2) size and distribution of hiding and thermal cover, and 3) size and distribution of forage areas.

Environmental Effects

Direct disturbances from harvest actions, roading, watershed restoration actions and other similar activities will temporarily disturb or displace elk in all action alternatives, but these impacts would be limited in duration. Elk can avoid such disturbances by using unlogged and unroaded areas, and utilize topography and vegetation as visual barriers. Noxious weeds that could pioneer burned sites would negatively impact elk foraging areas by displacing desirable plants, but this would not be expected to be sufficiently extensive or widespread enough to be of major significance under any action alternative.

Noxious weeds can reduce available forage for elk and degrade long term habitat quality where infestations become severe. Road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to negatively impact elk or their habitats considerably in the long term, regardless of alternative.

EHE (Leege, 1984) was used to analyze units for potential elk use within a designated Elk Analysis Unit, (EAU) which included the Eastside Project area. In evaluating potential elk use, this habitat suitability index model factors in several variables affecting elk use including open roads, livestock densities, and other factors such as cover, forage, and security areas. Summary results for EHE are listed in Table 3.7.18.

During field reviews and harvest site inventories for the Eastside Project, a limited number of unauthorized and undocumented ATV trail segments created by unknown users were discovered. No formal inventory of the numbers and extent of unauthorized ATV trails in the analysis area currently exists and thus is uncertain. Unauthorized trail segments were incorporated into the roads/trails analysis portion of the elk modeling results listed if they were mapped and uses were deemed measurable.

Motorized travel prevention effectiveness of each road decommissioning action may vary slightly. Effectiveness of motorized travel restrictions on decommissioned roads will relate to the site-by-site conditions after decommissioning, relying specifically on road prism recontouring in combination with slash and/or existing vegetative barriers and camouflage or concealment of roadway entrances.

Alternative A (No Action Alternative)
Elk summer habitat effectiveness throughout the analysis area would experience no changes attributed to BLM management actions, some increases in cover would occur with forest successional development in some localized areas. Early seral advancement to mid-age and mature stands would result in a decrease in suitable forage areas, while elk security and cover would increase. As deadfall from fuel buildups continued, the attractiveness of some of the lodgepole dominant stands in the area may decline in value due to perceived travel impairments and predator escapement difficulties. This alternative would have the greatest fuel buildup, risks for more severe fires and, consequently, the post-fire conditions which would result in early seral habitats and improved forage conditions. Whether these effects would extend outside the project or analysis area is uncertain.

There would be no short-term changes to summer elk habitat under this alternative, and road decommissioning would not occur. Summer elk habitat potential would be maintained as depicted by the existing condition, at least short-term. As a result of fire suppression, succession will continue. Open patch sizes will continue to decrease as ingrowth fills and matures in old openings; conifers will encroach in grasslands. This process decreases the nutritional value and availability of transitional and summer forage. If wildfires were to occur in the area, forage areas could be replenished, but existing cover would decrease. As the mountain pine beetle epidemic continues, areas that currently provide cover will become too open to serve that function. As numerous dead trees fall to the ground, debris in certain areas may become too deep for elk to move through. Downed logs, shading from snags, and lack of seed sources may delay the regeneration of new trees relative to harvested areas.

Alternatives B, C, and D

Alternatives B, C, and D would slightly improve some elk habitat conditions long term in the Eastside Project EAU, due mostly to modest reductions in open motorized road and trail access and improved forage production. Moderate levels of harvest, followed predominantly with prescribed fire to remove logging slash, would help stimulate regeneration of nutritious forage plants important to elk nutrition. However, overall a slight reduction in overall EHE would occur with implementation of the action alternatives, primarily attributed to size and distribution of forage and cover areas.

Overall, Alternative C would impact EHE the least, compared to the other action alternative because it decommissions more road miles. This is due to reductions in motorized access levels on roadways resulting from road decommissioning.

Table 3.7.18 shows the new EHE numbers, which were calculated as a measure of the effects of each action alternative on summer elk habitat.

Temporary road construction across FS lands would occur in the American River EAU (Alternatives B and C) and Queen Creek EAU (Alternatives B and D). The temporary roads in American River EAU were included in the selected FS selective alternative (see Table 3.7.19). Alternative B has the highest amount of proposed temporary roads crossing FS lands, including 1.89 miles in the American River EAU (Number 58122) and 0.26 mile in the Queen Creek EAU (Number 58131), see Table 3.7.19 for a summary of existing EHE and long term EHE. Alternative C has 1.89 miles of temporary road in FS American River EAU. Alternative D has 0.26 mile of temporary road construction in FS Queen Creek EAU.

By removing dead material and conducting some burns, browse species could be rejuvenated and resprouting would occur.

Table 3.7.18 Percent Elk Habitat Effectiveness (EHE) for the Eastside Project EAU and Alternatives

Elk Analysis Unit	Alt A (Existing)	Alt B	Alt C	Alt D
Eastside Township EAU (Long Term)	40	37	37	36
Eastside Township EAU (Short Term) Project Implementation	40	32[1]	32[1]	31[1]

[1] Prediction of short term EHE that would occur with all temporary roads constructed and timber harvest and fuel reduction related activity occurring at the same time. All timber harvest related roads are temporary and would be decommissioned and obliterated after timber harvest and fuel treatments are completed.

As vegetative treatments are implemented in the project area, human-elk interactions are likely to increase. To minimize this impact, existing access restrictions will be maintained within the analysis area. Temporary roads would be closed (when not being used for project implementation) to public motorized vehicle use, reducing potential human impacts. In the long-term, road densities would decrease as roads are decommissioned. Weed treatments that reduce weed competition within elk forage areas would be beneficial to elk, although weed treatment is not a component of this project. Moist sites, such as wet

meadows, ponds, seeps, and springs, are important to elk and would be protected by RHCA buffers as part of project implementation.

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for elk is the American River watershed and NPNF EAUs 58121, 58122, 58131, and 58161; and the BLM Eastside Project EAU.

The "no action" alternative would add cumulatively to fuel loading effects caused by past fire exclusion and the current mountain pine beetle epidemic, but overall net effects on elk or their habitat would be relatively minor. Allowing continued fuel buildups in the analysis area would have little effect initially, but eventual negative impact on elk habitat conditions (jack-strawed stands, movement barriers) would be cumulative to previous roading, public vehicular travel in the area, harvest activities, and other human-induced disturbances and activities on elk habitat security. Other recent and foreseeable harvests on nearby private, and the American and Crooked River Project, and BLM lands would also help create additional forage resources for elk.

Moderate reductions in fuel buildups in the project area would reduce the potential for movement barriers (jack-strawed stands). However, in untreated areas the potential for jack-strawed stands to create movement barriers would be cumulative to previous roading, public vehicular travel in the area, harvest activities, and other human-induced disturbances and activities on elk habitat security. Other recent and foreseeable harvests on nearby private, NPNF lands (American and Crooked River Project) and BLM lands would also help create additional forage resources for elk, but would also add to security weaknesses and cover losses. Overall cumulative effects would be similar to Alternative A.

Past fires, fire suppression, and timber harvest across the analysis area have resulted in a complex matrix of forested interior habitat, edge, ecotones, and openings in various stages of succession. Past timber harvest converted hiding and thermal cover into seedling stands, some of which have progressed to sapling hiding cover. Past timber harvest also narrowed or severed forested connections. Tree harvest has removed hiding and screening cover along open and closed roads, and human population and access have dramatically increased over historical conditions. The Eastside Project EAU includes a large percentage of private lands, which are more roaded, have higher levels of timber harvest, and more home development than EAUs occurring on adjacent NPNF lands. EHE is slightly downward within the Eastside Project EAU from BLM action alternatives; however, future private land logging and roading would be expected to result in some additional declines to EHE within this EAU. Numerous recreational opportunities across the project and watershed analysis area, including big game hunting, can cause displacement or mortality of elk.

The BLM EAU is located along the eastside of the Elk City township and includes BLM and private lands only (see Table 3.7.18 above). The FS American and Crooked River Project (USDA-FS, 2005a) analysis included EHE assessment for four EAUs within the American River watershed, three of which border the Elk City township on the east side. These FS EAUs do not include any BLM or private lands within the Elk City township. Table 3.7.19 identifies the EAU and EHE analysis for the American and Crooked River Project selected alternative. It would result in improvements in all EAUs in the long term. However, short term logging related and human interactions would be expected to reduce EHE during the duration of the project.

Table 3.7.19 Forest Service Percent Elk Habitat Effectiveness by EAU for American and Crooked River Project FEIS Selected Alternative

FS Elk Analysis Unit and Number	Forest Plan Objective (%)	Existing EHE	Selected Alternative Long Term EHE[1]
Marten Meadows–58121	75	84	92
American River–58122[2]	50	72	81

Queen Creek–58131[2]	50	77	80
Kirks Fork–58161[2]	75	83	88

[1] Nez Perce National Forest (NPNF) selected alternative for American and Crooked River Project FEIS (USDA-FS, 2005a).
[2] FS EAU adjacent to BLM Eastside Project and east side of Elk City township, these EAUs do not include BLM or private lands within Elk City township.

Shiras Moose

Existing Condition

Shiras moose are widely distributed in suitable habitat in Idaho and are relatively common in the South Fork Clearwater Subbasin, including the Elk City township and Eastside Project area. Moose populations have greatly expanded across Idaho since the 1960s, and most populations are currently stable or increasing (USDA-FS, 1998b). Good quality winter range habitat is characterized by mature to old growth grand fir, with an understory of Pacific yew. Riparian habitats and mesic meadows along American River have been adversely impacted by dredge mining, roads, and human development. Dredge ponds created by historic mining are commonly used by moose for forage areas and summer relief from heat and insects.

Based on local research, favored moose foraging areas include lakes, creeks, mesic meadows, 5–40 year old timber harvest units, and burned forest (Pierce and Peek, 1984). The most limiting habitat feature for moose in the South Fork subbasin is the availability of high-quality winter range (USDA-FS, 1998a). This winter moose habitat is important to moose for both cover and forage. Moose habitat in the American River ERU is now 306 percent of historic levels (USDA-FS, 1998b). This can be attributable to increases in more shade tolerant tree species, like subalpine fir and grand fir, due to fire suppression and forest succession (USDA-FS, 1998a:83). The American River ERU contains an abundance of high quality moose winter habitat (approximately 21,391 acres) (USDA-FS, 1998b).

Maintaining high quality moose habitat in quantities that are well beyond the historic levels would not be practical, especially for a species which is increasing and is a relative habitat generalist (USDA-FS, 1998b). In addition, attempting to maintain such conditions would likely be unsustainable over the longer term, given increasing fuel loadings and the known fire disturbance patterns in the analysis area. Fire hazard will increase as more stands in the area transition from low or moderate hazard to high. The American River watershed has not been identified as a high priority area to manage for moose conservation (USDA-FS, 2005a).

Environmental Effects

Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact moose or their habitats considerably regardless of alternative.

Primary analysis criteria for moose would include acres of mature and old growth grand fir stands with Pacific yew understory identified for harvest. No stands meeting this criterion are identified for harvest. Actions that directly or indirectly affect riparian habitats and mesic meadows in the analysis area would affect moose habitat quality.

Alternative A (No Action Alternative)
Overall, the existing condition would not change under this alternative. The “no action” alternative would not harvest important moose winter habitats. The road decommissioning and riparian restoration actions associated with this project would not take place. The “no action” alternative would have uncertain indirect effects of encouraging continued fuel loading throughout the areas, which may indirectly increase future fire-loss risks of some stands of moose winter habitat. Whether these effects would extend outside the project or analysis area is uncertain. Continued fire suppression activities would result in a decline in younger stands and openings used by moose during summer. Conifer-shrub and mountain shrub cover

types would decline in amount and distribution, as would the size of open patches as ingrowth fills and matures in old openings. Mature and old growth forests with a Pacific yew understory would remain intact barring a wildfire. Considering current moose habitat prevalence and moose populations in the analysis area, this would not likely be considered a major negative impact.

Alternatives B, C, and D
No harvest of important moose winter habitat would occur. Indirect effects to important moose winter range from wildland fire would be negligible in the American River watershed because of the amount of treatment acres relative to the location of important moose winter range.

Alternatives B, C, and D would modestly improve habitat security compared to Alternative A by reducing motorized access in portions of the analysis area. Alternative C would improve habitat security to the highest level and positive effects would occur primarily along some segments of American River that would not have motorized vehicle access. Temporary roads would be closed (when not being used for project implementation) to public motorized vehicle use, reducing potential human impacts.

All action alternatives identify various riparian restoration actions, which will support long term upward trends for riparian and aquatic habitats. Refer to the previous Table 3.7.17 for a summary of riparian restoration actions for each Alternative which would prove beneficial for moose.

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for shiras moose is the American River watershed.

The "no action" alternative would have no major cumulative effects on moose or their important winter habitats. This action, along with past and present fire exclusion, along with other habitat intrusions such as roading, harvesting, public recreation activities and other impacts on the land would further modify habitat outside its historic norm, but would not be likely to affect moose considerably.

Past timber harvest has resulted in the loss of medium and large trees as well as some grand fir/Pacific yew moose winter range. Active fire suppression since the early 1900s has allowed succession to continue, and this has resulted in an increase in the amount of moose winter range available in the area in recent time. The long-term effect of fire suppression could increase the likelihood of stand-replacing fire, which in turn could result in the loss of Pacific yew, a fire-intolerant species.

Road construction has resulted in increased access into the project area and reduced security for moose. Human disturbance, as it relates to wildlife security and human-induced mortality, is the past, present, and reasonably foreseeable action with the greatest effect on moose in the planning area (USDA-FS, 2005a). All action alternatives would decommission roads and continue current access restrictions for public motorized vehicle use.

The Eastside Project would not treat any important moose winter range; therefore, there would be no cumulative impact to this habitat feature.

Modifications to moose summer habitat would be less impactive to individuals and populations, as summer habitat is not limiting in the project area and because present and future actions would tend to modify rather than remove summer habitat. At the watershed level, past, present, and reasonably foreseeable future actions would have negligible effects.

Black-backed Woodpecker

Existing Condition

Black-backed woodpeckers inhabit boreal forests throughout North America, including Idaho. Suitable habitats may be found in lodgepole pine, ponderosa pine, Douglas-fir, and mixed conifer forests, especially those experiencing insect infestations. Optimal habitat is provided by sites experiencing destructive insect infestations, such as bark beetles or recent (less than 5 year old) burned-over forests.

Black-backed woodpeckers evolved with and have become dependent on natural landscape disturbances, particularly fire but also areas experiencing insect infestations. They are also relatively nomadic, displaying "irruptive dispersal" in response to habitat changes, and will move to large areas where fire-killed dead and/or dying trees are infected with bark and wood-boring beetles. As a result, the species displays extensive dispersal capabilities. The most expansive mountain pine beetle outbreak documented within the Northern Region of the Forest Service occurred on the Nez Perce National Forest where nearly 117,000 acres were identified as infested in 2003 alone (USDA-FS, 2004d:54). Similarly, the project area and surrounding drainages are currently predominantly infested with mountain pine beetle, and with pockets of other insect damage. Areas impacted by the mountain pine beetle infestation within and around the project area now total at least 250,000 acres conservatively. These sites provide the specialized habitat conditions required for nesting and feeding by this bird. In addition, recent wildfires have occurred adjacent to the American River drainage (Slims Fire on the Selway-American River divide to the north). Pockets of crown fires or areas with stand-replacing fires have created high quality habitat for this species for the next few years.

After stand-replacing fires, forests consist almost entirely of standing dead snags. Starting immediately after the fire, these snags are colonized by wood-boring beetles, which attract woodpeckers. Black-backed woodpeckers seem to depend on one- to six-year-old burns, and their numbers may peak two to three years after fires (Hejl and McFadzen, 1999; Murphy and Lenhausen, 1998). Black-backed woodpeckers will also forage in stands undergoing bark beetle outbreaks, but density estimates in these stands are substantially lower than in post-fire forests (Powell, 2000). Black-backed woodpeckers move to stands and trees following active beetles, and abandon sites in which the trees have died. Home range sizes are relatively small, averaging about 300 acres per bird (range: 175–810 acres) (Dixon and Saab, 2000). Goggans et al. (1988) state that black-backed woodpeckers' home range size may be related to the proportion of the range that is unlogged; the largest home range in their study had the smallest proportion of unlogged habitat.

In the study conducted by Goggans et al. (1988), all nests were located in lodgepole pine trees, and live as well as dead trees were used for nests. Smaller trees were utilized; the mean size of nest trees was 11 inches dbh, and mean stem size of nesting stands was eight inches dbh. Bull et al. (1986) found black-backed woodpecker nests in both ponderosa pines (67 percent) and lodgepole pines (27 percent). Mean dbh of nest trees was 15 inches, and 60 percent of these trees were dead. These researchers noted that black-backed woodpecker selection of smaller trees is unusual, as most woodpecker species nest in larger dead trees.

Until the recently expanded mountain pine beetle epidemic, it was acknowledged that as a whole, suitable habitat for black-backed woodpeckers had likely declined more for this bird than for any other wildlife species. In the American River watershed, black-backed woodpecker habitat was only 88 percent of historic levels (USDA-FS, 1998b). This can be attributable to decreases in large patches of fire-killed trees due to fire suppression (USDA-FS, 1998a:84). However, the very wide extent and magnitude of the mountain pine beetle epidemic has substantially changed these circumstances.

Based on the extent and progression of the current mountain pine beetle epidemic in the American River drainage and surrounding areas, extent of the beetle epidemic has created many thousands of new acres of suitable black-backed woodpecker habitat. In addition, lethal severity fires are a probable outcome throughout much of the American River watershed in the years ahead.

For this analysis, black-backed woodpecker foraging and nesting habitat was defined as lodgepole pine or mixed xeric conifer forest with a lodgepole pine component with pole and larger sized trees (trees greater than 5 inches dbh) of any canopy closure (10–100 percent). Table 3.7.20 shows the acres and percent of habitat for the American River watershed.

Table 3.7.20 Estimated Acres of Black-Backed Woodpecker Habitat

Watershed	Habitat Acres (% Watershed)
American River	19,014 (32%)

By assuming a home range size of 600 acres per pair, an index was developed to compare the effects of each alternative. Under the existing condition, 19,014 acres of habitat could support about 32 black-backed woodpecker pairs. It is important to realize that this number is simply an analytical index and in no way attempts to measure actual densities or numbers of black-backed woodpeckers on the landscape. Black-backed woodpecker home ranges can vary in size according to the amount of logged habitat and the continuity or disconnectedness of that habitat. It is also not known how much home range overlap might exist within or between black-backed woodpecker pairs.

Environmental Effects

Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact black-backed woodpeckers or their habitats considerably (regardless of alternative). The removal of dead, dying, and green trees would remove foraging and nesting sites, and would constitute habitat losses. The net effects of harvest on black-backed woodpeckers would be relatively minor within the context of each alternative and landscape acres under beetle attack. Based on available information, the analysis criteria for black-backed woodpecker will be the relative amounts of lodgepole pine retained after harvest that will likely remain in place or available to subsequently burn and become highly suitable for use.

Alternative A (No Action Alternative)
The "no action" alternative would have no direct effect on black-backed woodpecker or its habitat. This alternative would leave stands unharvested. As forest succession and fire suppression occur in overstocked stands, trees become more susceptible to attack from insects and disease. This increases the amount of foraging and nesting resources available to black-backed woodpeckers. As the insect and disease outbreak advances, standing and down dead material would increase, which in turn increases the risk of stand-replacing fires. If a fire event were to occur, wood-boring beetle populations would spike causing a concurrent spike in black-backed woodpeckers for one to six years post burn. Without a fire event, the insect outbreak would eventually peak and subside. Grand fir and other more shade tolerant species that currently exist in the understory of stands with dead and dying trees would continue to grow, perhaps eventually causing the long-term loss of the early seral tree species black-backed woodpeckers prefer (e.g., lodgepole pine and ponderosa pine). The risk of losing early seral species does not seem as high as the risk of stand-replacing fires in the American River watershed. Under the "no action" alternative, the existing level of patchiness in the watershed would persist until a stand-replacing fire or other management action(s) take place.

Alternatives B, C, and D
Treatments that include green and dead tree harvest to improve forest health and reduce the incidence of insects and disease would reduce habitat for black-backed woodpeckers. Not only would the habitat they are using be modified, the patchiness of the remaining habitat would increase. The changes in habitat acres are outlined in Table 3.7.21 by alternative.

Table 3.7.21 Estimated Acres of Black-Backed Woodpecker Habitat Modified by Action Alternative within American River Watershed

American River	Alt A	Alt B	Alt C	Alt D	NPNF[1]
Acres (%) Habitat Treated	0	984 (5.2%)	975 (5.1%)	866 (4.5%)	518 (2.7%)

[1]Nez Perce National Forest (NPNF) selected alternative for American and Crooked River Project FEIS (USDA-FS, 2005a).

While Alternative B results in greatest loss of future foraging and nesting habitat opportunities, the loss would still be relatively minor and inconsequential, similar to other alternatives. The relative amounts of dead and dying lodgepole pine in stands that would remain unharvested in the American River watershed dwarfs the harvested acres many fold.

Alternative D would modify the fewest acres (866 acres) of black-backed woodpecker habitat of the existing habitat in American River, and alternative B would modify the greatest acreage (984 acres), all action alternatives would modify approximately 5 percent of existing habitat within the American River watershed. Using an analytical index, under alternatives B, C, and D, enough foraging and nesting habitat would remain in the project area to support 30 pairs of black-backed woodpeckers in the American River drainage.

Scientific literature shows that the amount of logged versus unlogged habitat on the landscape, both pre- and post-fire, affects black-backed woodpecker distribution and home range size. Approximately 15 percent of the American River drainage has been harvested, with the majority occurring in the last 50 years, the project area does exhibit patchiness. Additional green and dead tree harvest from any of the action alternatives will add to the patchiness of the landscape.

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis for blackbacked woodpecker will focus on the American River watershed.

The “no action” alternative would in effect, have positive cumulative effects on black-backed woodpecker habitat availability. Absence of fuel reduction and lodgepole pine harvest, would add cumulatively to overall risks of eventual fire spread, but potential maximization retention of habitat creation for black-backed woodpeckers occur in the American River watershed. Ultimately, this alternative would serve the local habitat needs of black-backed woodpeckers best and the impacts would be positive.

Action alternatives would result in habitat losses. Such losses add moderately to cumulative losses of existing and potential future black-backed woodpecker habitat related to previous harvests, roading, and post-disturbance harvest projects as well as reasonably foreseeable harvests on private and nearby Nez Perce National Forest lands in the analysis area. While losses of existing and future foraging and nesting habitat opportunities would result from this project, the loss would be relatively minor and inconsequential in the American River drainage. The relative acres proposed for mechanical harvest are only a very small portion of the total acres that are dead and dying. These acres are likely to burn by wildfires and become high quality habitat in the future, therefore the relative amount of anticipated black-backed woodpecker habitat predicted to be lost to harvest is relatively minor within the analysis area and relatively inconsequential. The mountain pine beetle epidemic has created many thousands of acres of highly suitable black-backed woodpecker habitat, making habitat losses to both harvest and reduced fire incidence relatively minor.

Activities that reduce the potential for wildfire and insect outbreaks reduce habitat for black-backed woodpeckers, which in turn affect black-backed population levels. Projects within the upper South Fork Clearwater drainages all target fuel loading and bug-infested trees in some capacity. Ongoing activities such as post and pole gathering, firewood cutting, road maintenance, and fire suppression also affect habitats that could be utilized by black-backed woodpeckers. Past timber harvest activities have created a patchy landscape across the watershed, which has likely resulted in larger black-backed woodpecker home ranges than would be the case in unlogged habitats. Larger home ranges affect the energy reserves of animals, as they must travel greater distances for their daily needs. Many past timber activities left few snags on the landscape that could be utilized for black-backed foraging, nesting, or drumming sites. At the project and watershed level, black-backed woodpecker populations could decline as a result of past, present, and reasonably foreseeable future actions.

Implementation of the FS American and Crooked River Project selected Alternative D would modify an additional 518 acres (2.7%) of black-backed woodpecker habitat. The Eastside Project and FS American and Crooked River Project cumulatively would modify 7.2 to 7.9 percent of black-backed woodpecker habitat within the American River watershed, refer to Table 3.7.21 above.

The South Fork Landscape Assessment (USDA-FS, 1998a) states that, "When pre-burn harvest is used, approximately 50 percent of the trees should be retained for burning with preference given to larger size classes." The planned harvest of up to approximately 1,300 acres in the Eastside Project would remove less than 0.5 percent of the total landscape affected by the current mountain pine beetles infestation within the South Fork Clearwater River subbasin and on the Nez Perce National Forest. Planned BLM and FS harvests would impact about 4.3 percent of the American River watershed, leaving conservatively more than 80 percent of the landscape (accounting for harvest-related reduced fire intensities) potentially available to be influenced by fires.

Across the range of the species, especially the Interior Columbia River Basin, moderate or strong declines in unburned habitats used by black-backed woodpeckers have occurred. The natural pattern of beetle outbreaks has been altered through silvicultural and fire management practices. Silvicultural practices directed at maximizing wood production by harvesting trees before they are susceptible to bark beetle attacks and salvage logging of beetle-infested, fire-killed, and wind-killed trees reduced the occurrence of beetles in some areas. Fire management policies have lengthened natural fire regimes and allowed more frequent occurrences of beetles. However, the effects of most of these past actions and events are imbedded in the existing condition described above. Impacts of the Eastside Project and other past, present, and reasonably foreseeable future actions in and around the American River watershed appear negligible. With a management emphasis on returning fire (both natural and prescribed) to the landscape, prospects for this species appear brighter.

Neotropical Migratory Birds

Neotropical migratory birds use all the habitats within the project area during the breeding season. In their Idaho Bird Conservation Plan, Idaho Partners in Flight (2000) identified several high priority species that use lodgepole pine habitats. Idaho Partners in Flight did not identify any high priority species that use lodgepole pine forests as their primary breeding habitat, but this is likely an artifact of the data collected. Those species that are thought or known to occur in the project area and are identified as high priority species by Idaho Partners in Flight are listed in Table 3.7.22 by primary breeding habitat.

Table 3.7.22 Idaho Partners in Flight High Priority Species Potentially Occurring in the Project and Analysis Area

Habitat Type	Species
High-elevation Mixed Conifer	Three-toed woodpecker (moderate conservation priority), olive-sided flycatcher, Hammond's flycatcher
Lodgepole Pine	Ruffed grouse, black-backed woodpecker, varied thrush
Low-elevation Mixed Conifer	Sharp-shinned hawk, northern goshawk, black-backed woodpecker, brown creeper, varied thrush, Townsend's warbler, western tanager
Ponderosa Pine	Flammulated owl, white-headed woodpecker
Mountain Brush	Lazuli bunting (moderate conservation priority)
Grassland	Western meadowlark
Non-Riverine Wetlands (Marshes, Lakes, Ponds)	Cinnamon teal, redhead, sandhille crane, killdeer, American avocet
Riparian	Rufous hummingbird, willow flycatcher, black-billed magpie, American dipper, yellow warbler, MacGillivray's warbler

Neotropical migrant songbirds utilize coniferous forest habitats of the U.S. during the summer breeding season, but migrate to southern latitudes to spend winters as far south as Mexico and South America. Tropical deforestation and other environmental effects related to wintering grounds are thought to be largely responsible for declines in some Neotropical migrant species that summer in forests of the Eastern U.S.

Fragmentation of nesting habitat is also theorized to increase rates of migrant bird nest predation and brood parasitism by other species. Small, isolated forest patches, particularly in forests of the eastern U.S. are considered at greatest risk. In contrast, natural fire regimes and topographic diversity in the western U.S. combined in the past to produce a temporally dynamic, naturally fragmented landscape compared with the previously extensive and relatively homogenous eastern deciduous forests. Timber harvest and fire suppression activity have nevertheless altered the natural landscape of western forests (Dobkin, 1994).

Despite these changes, Neotropical migrant bird populations in the western U.S. are recognized as faring better than eastern North American populations. A comprehensive review of Breeding Bird Survey data from 1966–85 found that Western Neotropical migrants as a group were not declining overall. However, the review found evidence of widespread declines among 19 songbird species of native grassland and shrub steppe habitats (Dobkin, 1994). None of these habitats are represented within the Eastside Project analysis area.

A three-year study by the USDA Forest Service's Northern Region Landbird Monitoring Program (Hutto and Young, 1999:69), concluded that some landbird species are relatively restricted in their habitat distribution to only one or two naturally occurring cover types that are themselves restricted in spatial content, or at least less extensive than they were historically. Of the potential cover types in the Eastside Project area, providing adequate amounts of the following were considered important to maintaining neotropical migrant bird population diversity and viability in the long term:

1. Post fire standing dead forests;
2. Relative uncut older forest; and
3. Riparian environments

Within the Eastside Project area, riparian areas (RHCAs) would receive protection from harvest through the application of PACFISH standards designed for fish habitat protection (PACFISH). An abundance of uncut standing forest acreage will be retained after the project (regardless of alternative), as potential future post-fire standing dead forest.

Environmental Effects

Noxious weeds, road decommissioning, watershed restoration actions, and post-harvest slash treatments using fire are not expected to impact Neotropical migratory birds or their habitats considerably, regardless of alternative. The removal of dead, dying, and green trees would remove foraging and nesting sites and would constitute habitat losses. The net effects of harvest on migratory birds would be relatively minor within the context of each alternative and landscape acres under beetle attack.

Alternative A (No Action Alternative)
Overall, this alternative would leave bird habitats across the project area to continue with relatively natural processes. Areas with heavy tree mortality and blowdown would provide structural diversity, downfall trees, and a few long-standing snags. As beetle-killed trees fall to the ground, downed logs and shading from snags could delay regeneration in those stands with particularly heavy mortality. The probability of more severe wildfire would increase, particularly in areas with heavy fuel loads and in adjacent stands. Mature mixed conifer, subalpine fir, and grand fir forests could potentially be lost in fire event, as could areas of old growth. Live vegetation that provides cover, foraging, and nesting habitat could be reduced across the project area. Post-fire, there would be an initial shift in species composition

to invader species and those adapted to early successional communities. Within time, there would be a gradual return of those species adapted to mid-seral, mature, and late successional forests. Whether these effects would extend outside the project or analysis area is uncertain.

Watershed improvement projects would not be implemented under this alternative. Riparian forest and shrub environments are important for a variety of bird species, and the current lack of large woody debris and streamside shade/shrub could be diminishing the habitat quality of these areas for birds. As succession continues, large woody debris would be expected to fall into streams and riparian areas and stream shading should increase.

Alternatives B, C, and D

All action alternatives would alter migratory bird habitat through the direct removal of nesting and/or foraging habitat (trees) by various levels of timber harvest. Timber harvest would create openings and edges that could be used by a variety of bird species. Prescribed fire, natural regeneration and/or seed planting, and other silvicultural prescriptions could accelerate regeneration of canopy cover in harvest units. By leaving large, wind-firm live trees and snags, and pockets of down wood, feeding and nesting habitats for songbirds could be maintained. By reducing fuel loads and creating openings across the landscape, the risk of stand-replacing fire would diminish locally.

Of the harvest treatments in the Eastside Project, approximately 80% would be considered relatively intense regeneration harvests. The remaining harvests would be variations of partial-cut or thinning aimed at removing lodgepole and other components but favoring retention and perpetuation of fire-adapted species. Each harvest type will change habitat resulting in habitat reductions or habitat enhancements, depending on the bird species considered. Some Neotropical migrants will be harmed to some measure, while others will benefit. Harvested units that remove virtually all canopy and tree boles typically leave no residual nesting habitat for most species, but often create openings and herbaceous ground cover used by aerial insect foraging species. Impacts of partial cut harvesting on Neotropical migratory birds in conifer forests of the Northern Rockies in one study (Young and Hutto, 2002), found that 5 bird species (brown creeper, winter wren, golden-crowned kinglet, varied thrush, and Townsend's warbler), were more abundant in uncut forest stands in at least one year, and 15 species were more abundant in partially cut stands. Many of the bird species that were more abundant in the partial-cut stands, such as the hairy woodpecker, mountain chickadee, yellow-rumped warbler, and western tanager, are open-forest species that might be expected to be more common in thinned conifer forests than anywhere else. In the body of the referenced study, concern was expressed that brown-headed cowbirds are much more likely to occur in partially cut than in uncut forests and the presence of this nest parasite may create unsuitable environments for other nesting birds.

Few studies have examined habitat and landscape factors affecting the distribution of Brown-headed cowbirds, a nest-parasitic native bird. Using data from a region-wide monitoring program conducted across the USDA Forest Service's Northern Region (including the Nez Perce National Forest), Young and Hutto (1999) concluded that the presence of clearcuts does not draw cowbirds into forested regions. The density of potential host species (cattle or other livestock) was one of the most important local-scale correlates of cowbird presence. In this study, cowbirds were so strongly associated with proximity of agricultural areas that the authors concluded that many areas of the forested mountains are probably still safe from parasitism pressure.

Watershed improvement projects that improve overall water quality would benefit many Neotropical and other migratory birds. No timber harvest or salvage is planned in RHCAs, so these habitats would remain available to birds. Similarly, seeps, springs, and wet areas would be buffered with no timber harvest, leaving these areas intact for songbirds.

Timber removal would result in the potential loss of nesting and foraging habitat currently being used by a variety of Neotropical and other migratory bird species. Given the status of the mountain pine beetle epidemic in the project area, many nesting and foraging opportunities would continue to exist. Individual

birds or local populations could be impacted by timber cutting should harvest occur during the breeding season. Indirect effects would be the temporary displacement of individuals or potential losses of nests and/or young of some birds in those areas where concentrated mechanical and/or human activities are occurring in order to implement the prescribed treatment and for road construction or decommissioning. This displacement is expected to last as long as the disturbance, after which affected individuals would resume use of the area(s) affected. These effects would not be of sufficient magnitude to risk loss of any individual bird species in the local landscape because harvested acres would be only a very small percentage of the forested area within the analysis area.

Snag retention would meet or exceed guidelines, and no old growth stands would be harvested.

Any existing old growth would not experience direct impacts from harvest as presented in the action alternatives. Some species that utilize old growth for nesting would utilize mature or large tree stands, and would experience a slight loss of nesting habitat from action alternatives. Indirect reductions in fuels and intermediate aged stands at moderate levels would occur. Unharvested stands with lodgepole pine that is in the process of dying would be relatively poor nesting habitat for some Neotropical migrant birds, because of declining live canopy cover. A review of ground and shrub-level nesting birds from the USDA Forest Service's Northern Region Songbird Monitoring Program (Hutto, 1995), was conducted by the Forest Service on a project that included forest stand treatments adjacent to the Eastside Project (USDA-FS, 2005a). Prescription fire applied to reduce post-harvest slash, if applied during the spring nesting period, would potentially impact nests of only 2 species (MacGillivray's warbler and Dark-eyed junco) of the approximately 35 bird species documented to inhabit the lodgepole pine and mixed-conifer cover types in the project area (USDA-FS, 2005a). Both species inhabit a wide variety of forest cover types, and monitoring of spring burns on the Forest to date has not found evidence of such losses. In the long term, thinning and harvest treatments will tend to create more nesting habitat conditions suitable for these birds. It is recognized that treatments would also occur in areas not dominated by lodgepole pine.

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for neo-tropical migrants is the American River watershed.

Past and present actions have impacted or altered migratory bird habitat in the project area and surrounding watersheds. These actions include grazing, dredging, mining, firewood cutting, timber harvest, fire suppression, road construction and maintenance, winter trail grooming, dispersed and developed recreation, administrative facilities maintenance, and home site construction. Timber harvest has added successional diversity across an otherwise rather homogeneous landscape that has grown out of 60 years of fire suppression. Patch sizes are smaller and snags, down wood, and legacy trees are fewer than in a fire-impacted landscape. All of these past and present effects have contributed to the current species distribution and population sizes of Neotropical and other migratory birds.

Action alternatives, in combination with past, present, and reasonably foreseeable projects would also affect bird species by potentially removing important foraging and nesting habitat and through the creation of early successional and/or thinned areas that might benefit certain bird species. The removal of dead, dying, and green trees would remove foraging and nesting sites and would constitute habitat losses, but the extent of the impacts will be limited in context of each alternative due to limited areas involved. Woodpecker populations and secondary cavity-nesters in particular are likely to be affected by the removal of dead and dying trees and fuel reduction projects. Harvests that occur during the nesting period would increase the likelihood of direct mortality to nestlings and could disturb mating and nesting behaviors.

The action alternatives, in combination with past, present and reasonably foreseeable future actions including fire exclusion in the overall landscape, will cumulatively add some fragmentation effects to the forested landscape but the net impacts to bird species would be relatively minor, given historical impacts of fire regimes, overall insect-driven disturbance, and tree death throughout the analysis area. At the

project and watershed level, the cumulative effects of the proposed project may affect individuals or local populations of some bird species.

3.7.6 Wildlife Habitat Associations and Guilds

Common to All Alternatives

Cumulative effects analyses for wildlife species and habitats are summarized for habitat fragmentation/connectivity, snags and large down wood, and four generalized species habitat guilds based on predominant habitat associations or dependency relationships, (i.e., riparian/aquatic dependent, fire/early seral dependent, late seral/old-growth associated, and security dependent). Some species may align with more than one guild. Cumulative effects take into account the Eastside Project as well as past, present, and potentially foreseeable future actions (see complete listing referenced in Table 3.0.1).

Table 3.7.23 Wildlife Habitat Associations and Guilds

Habitat Associations and Guilds	Wildlife Species–Dependency Associations
Habitat Fragmentation and Connectivity	All species
Snags and Large Down Wood	black-backed woodpecker, Williamson's sapsucker
Riparian/Aquatic Dependent	western toad, common garter snake, Idaho giant salamander, bald eagle
Fire/Early Seral Dependent	lynx, wolf, bald eagle, black-backed woodpecker, olive-sided flycatcher
Late Seral/Old-Growth Associated	northern goshawk, Williamson's sapsucker, fisher, Shiras moose, Neotropical migrant birds
Security Dependent	wolverine, elk, fisher

Collectively, all cumulative impacts would be scattered across the entire project area and the American River watershed, which is located within a much larger landscape. Past harvesting and fire effects patterns have impacted habitats with overall cumulative habitat fragmentation, changes in patch size and dynamics, increased roading and related human disturbance impacts, increased edge effects, and reductions in old growth habitat abundance as illustrated and referenced in the South Fork Clearwater River Landscape Assessment (USDA-FS, 1998a). Within this larger perspective for the entire watershed, the cumulative effects, when combined with Alternatives A, B, C, or D, would not be expected to yield adverse effects on any species or habitats that would threaten the population viability of any species discussed in Section 3.7 (Wildlife).

Habitat Fragmentation and Connectivity

Fragmentation and connectivity of wildlife habitats can be viewed as positive and negative. Habitats have historically been fragmented by wildfire, insect and disease and other disturbance processes. These can be viewed as positive influences on the landscape, providing and maintaining a diversity of wildlife habitats. However, fragmentation of habitats having long fire intervals and large patch sizes may negatively influence the wildlife species preferring large patches of undisturbed habitats.

Habitat connectivity can have positive and negative considerations. Connectivity is important for some wildlife species to move on the landscape. However, habitats that have not been connected due to fire history, natural barriers, etc. that are allowed to become connected (through fire exclusion for example) may allow wildlife, plants, insects and disease to interact in negative ways. Invasive wildlife species and noxious weeds increase their ranges by using these artificial connections on the landscape. These connections may influence how insects and disease interact with and affect habitats.

Native wildlife species have adapted to a landscape with a high degree of fragmentation, abundant edge and a variety of patch sizes, the result of natural processes and topography. This situation within the upper South Fork Clearwater River subbasin and American River drainage landscapes has not been appreciably altered by any past actions on the landscape except for perhaps high volume road systems and fire exclusion or in heavily developed areas. Highway 14 parallels the South Fork Clearwater River and lower American River, and other roads and trail open for motorized use affect wildlife habitat use within the analysis area. Other than these high volume roads, fire exclusion has created the greatest effects by allowing development of dense multi-canopied forests that have created conditions not preferred by species such as goshawks and flammulated owls. Effects of fragmentation on wildlife dispersal or movement between various habitat elements (water, forage, winter/summer range, breeding areas) have not affected the viability of any wildlife species within the American River analysis area (USDA-FS, 2005a).

Snags and Large Down Wood

Snags, broken-topped live trees, downed logs, and other woody material are required by a wide variety of species for nesting, denning, roosting, perching, breeding, and cover. The number, species, size, and distribution of available snags strongly affect snag-dependent wildlife (Bull et al., 1997). Although smaller creatures can use many sizes of dead trees, larger birds and mammals require larger snags and down logs. In the American River area, large western larch, ponderosa pine, and Douglas-fir snags are most valuable.

Downed trees and other woody material are also important for many species (Bull, 2002). Downed logs and stumps provide resting and denning for species hunting below the snow in winter (Buskirk and Ruggiero, 1994) and are used as travel cover. Pine marten and lynx dens are associated with down logs. Amphibians and reptiles use large woody debris for shelter and breeding sites (Bull et al., 1997). Down wood also provides habitat for insects and other invertebrates that form an important forage base for larger species. Large diameter logs provide long-term habitat structures.

The current mountain pine beetle epidemic has killed up to 50–60% of the lodgepole pine trees in portions of the American River watershed. The mountain pine beetle generally kills trees six inches in diameter at breast height and larger and prefers lodgepole pine trees. At epidemic levels, the beetle may affect smaller trees and other tree species. This is evident in the American River drainage.

There are abundant small to medium sized lodgepole pine snags in the American River drainage. Currently 15% of the area is lodgepole pine dominated habitats in the American River watershed. Additionally, 25–40% of the area is mixed conifer habitats with lodgepole pine as a component (USDA-FS, 2005a). Most of these areas have been affected by the mountain pine beetle. Surrounding watersheds have also been affected by the epidemic. Lodgepole pine snags are not preferred by many wildlife species, possibly because of small diameter and in many cases in American River lodgepole pine trees form a subdominant tree layer under larger diameter and taller grand-fir, Douglas-fir, ponderosa pine, and western larch, all of which are preferred snag species over lodgepole pine.

Riparian and Aquatic Associated Species

The stream channel in the American River watershed are predominately low to moderate gradient B and C channel types, with higher gradient channels in the mountain uplands. The American River watershed has a large amount of mid to upper elevation alluvial valleys, and these features are spread more evenly throughout the watershed than is typical of the subbasin. The lower to mid reaches of the larger streams are composed predominately of C channel types.

The riparian plant communities within the analysis area are comprised of early seral to late seral plant communities. The riparian vegetation includes overstory trees of grand fir, Engelmann spruce, lodgepole pine, subalpine fir, and Douglas-fir. Common understory shrubs include alder, Drummond's willow, red-

osier dogwood. Common herbaceous plants include arrowleaf groundsel, twisted stalk, blue joint, mountain brome, redtop, reed canary grass, water sedge, small-fruited bulrush. Typical riparian plant communities include conifer dominated overstory such as grand fir and Engelmann spruce, with understory shrubs, sedges/grasses, and forbs. Large sedge meadows are found in the lower Elk Creek drainage, and stringer sedge meadows, and shrub/sedge complexes also occur along lower gradient streams.

Most of the larger streams and riparian areas have been impacted to varying degrees, primarily by dredge mining, roads, timber harvest, livestock grazing, and home construction. These disturbed riparian habitats have also been infested by nonnative vegetation. Dredge mining has left some stream reaches lacking in trees and shrubs, and natural re-vegetation/succession has been curtailed and recovery has been slow.

Riparian habitats provide an important habitat or critical habitat component for most wildlife species. These areas provide important riparian/aquatic habitats for dependent species such as amphibians. Riparian habitat reserves also provide important old growth or potential old growth stands. Riparian corridors also provide connectivity and travel corridors for a variety of wildlife.

Fire/Early Seral and Late Seral/Old-Growth Associated Species

In the American River watershed approximately 15% has had historic timber harvest activity, the FS (USDA-FS, 2005a) documented that 83 percent of historical was done during the 1950s–1980s, with the remaining 17 percent being done during the 1990s–current time. The effects have impacted late seral/old growth species and security dependent species the most; however many intermediate-aged stands have since moved into late-seral or old growth conditions as well. Some species such as early seral associates, have in fact, benefited substantially from the harvests. Other species guilds were impacted moderately.

The fire history of the American River watershed added further to past impacts. Historical fire-related impacts in both drainages occurred before the 1950's when most harvest impacts began. Fire impacts in the American River watershed added over 59,000 acres of disturbance since 1878, with highest impact years being 1889 (36 percent of all acres), 1910 (18 percent of all acres), and 1919 (41 percent of all acres). Cumulatively, these impacts resulted in greatest negative effects for late seral/old growth associated and security-dependent species, with moderate or lesser effects on ponderosa pine dependent, aquatic. Fire/early seral–dependent species subsequently benefited from these harvest and fire disturbances.

The project area and proposed Eastside Project treatments occur in VRU 6, which comprises 36,340 acres and 62 percent of the American River watershed. Table 3.7.24 summarizes natural/historic disturbance regimes by size class for this VRU and existing conditions.

Table 3.7.24 VRU 6 Natural/Historic and Existing Conditions in the American River Drainage

Size Class	Natural/Historic Disturbance Regimes[1]	Available Size Class Data Used For Analysis	Alt A Current Acres (%)
Non-Forest	5–10%	Non-Forest & Shrub Dominated	3,005 (8.6%)
Seedling/Sapling (<5 inch dbh)	10–30%	Seedling/Sapling (<5 inch dbh)	10 (<0.5%)
Pole (5–9 inch dbh) and	30–45%	Small Tree (5–9.9 inch dbh)	4,178 (12%)
Small Tree (9–14 inch dbh)		Medium Trees (10–14.9 inch dbh)	11,988 (34.4%)
Medium Tree 14–21 inch dbh	20–40%	Large (15+ inch dbh)	15,659 (44.9%)

Size Class	Natural/Historic Disturbance Regimes[1]	Available Size Class Data Used For Analysis	Alt A Current Acres (%)
Large Tree >21 inch dbh	5–20%		

[1]Source–*South Fork Clearwater River Landscape Assessment Volume 1*–page 96 (USDA-FS, 1998a)

The FS completed a cumulative effects analysis of large tree patch statistics and changes in large tree stand retention for the American and Crooked River Project (USDA-FS, 2005a). It includes the American River watershed and was done roughly on summary of decadal intervals (1948, 1970, 1990, 2004). Large tree stands were identified through aerial photo interpretation techniques using approximations of 10–15 trees per acre in the 18–21 inch size classes, so this assessment was of moderate accuracy. Tracking cumulative changes by individual project became impossible since most project development impacts spanned time intervals up to 10 years and multiple project impacts sometimes overlapped one another. A summary of cumulative changes in patch size/shape statistics changes over time are listed below in Table 3.7.25.

Table 3.7.25 Average Patch Size and Shape of Large Trees[1]

Year	Average Patch Size	Patch Shape (1.00=perfect circle)
1948	219.09	1.97
1970	168.54	1.97
1990	160.78	2.08
2004	158.38	2.11

[1]Source: USDA-FS, 2005a

Patch shape definition equals the perimeter to area ratio. A Number higher than 1.00 indicate increased edge effects and fragmentation. As shown by the above table, as the patch size of large trees decreases, edge increases.

Security Dependent Species

Cumulative effects of past incremental road development in the analysis area include variable progressive increases in wildlife effects such as direct habitat loss, disturbance, displacement, vehicular-induced and human-induced direct and indirect mortalities, increased habitat fragmentation, noxious weed spread, and other similar effects. Existing and planned road decommissioning and access restrictions have mitigated some negative effects over time. The analysis of progressive road-density related effects on wildlife through time are displayed by elk summer habitat analysis conducted for the Eastside Project EAU (see previous Table 3.7.18). The Eastside Project EAU includes BLM and private lands and the existing EHE is 40%. The primary impact on EHE results from existing roads open to motorized use, specifically primary and secondary roads that go through areas with no hiding or security cover for elk. The actions alternatives would result in a long term 36% to 37% EHE. Adjacent EAUs on NPNF lands do not include private or BLM lands. They have existing EHE ranges of 77% to 84%. After implementation of the preferred alternative for the American and Crooked River Project (USDA-FS, 2005a), the long term EHE for the NPNF EAUs would range from 80% to 92% (see Table 3.7.19).

In most areas 60 to 80 percent of the total roads had been developed by the mid-1980s. At this time, principally due to concerns over EHE, road closure and access restriction programs had begun to be implemented to reduce impacts on elk behavior. Although these mitigations have reduced vehicular and human disturbances, vulnerability to hunting, and similar impacts on other wildlife, some impacts on

habitats and species still remain in place. Alternative A would not decommission any roads, thus existing cumulative impacts would remain.

Alternative A (No Action Alternative)
Habitat Fragmentation and Connectivity–The mountain pine beetle would continue affecting wildlife habitats, especially at the American River watershed scale and the South Fork Clearwater River Sub-basin scale. Canopy gaps in mixed conifer habitat would create areas where shrubs, forbs, and grasses would respond to available sunlight and moisture. Following this response, tree regeneration (primarily shade tolerant species such as grand fir and Douglas-fir) would occur. Areas dominated by lodgepole pine would have larger openings, but the predicted cycle of forage development followed by tree regeneration would be the same.

Snags and Large Down Wood–No new activities are proposed with this alternative. Many snags would be available for wildlife use. Snags used for nesting would remain at existing levels. Down wood would be abundant, providing high quality habitat for pine marten and fisher in areas of mixed conifer habitats. Abundant down large wood would favor small mammal populations. Small mammals are important prey species for forest carnivores.

Snag habitat would continue to be affected by natural events such as wind and fire. Insects and disease would continue functioning in the area. Refer to Section 3.3 (Vegetation) for more information on insects and disease. Wildfire would provide post-fire snag habitats for species like the black-backed woodpecker, but also eliminates live tree habitats important to many wildlife species, particularly old growth associated species. The size of such an event would depend on fire suppression effectiveness and weather conditions. Whether these effects would extend outside the project or analysis area is uncertain.

In the absence of windstorms or wildland fire, many areas dominated by dead and dying trees would gradually deteriorate, with few trees or snags standing after 10–50 years. In some of the mixed conifer areas large western larch, ponderosa pine, Douglas-fir, and grand fir would provide green trees to provide long-term snag habitat. In mixed conifer areas containing western larch and ponderosa pine, shading from down logs, standing snags, and live canopy cover would be a disadvantage to natural regeneration of these preferred species. Grand fir and lodgepole pine would regenerate.

Access management affects snag habitat availability due to firewood cutting, often within 200 feet along open roads. Although there is abundant firewood gathering opportunity in American River for lodgepole pine, many people prefer Douglas-fir and western larch snags for firewood. This alternative does not change current access management.

As forest succession and fire suppression occur in overstocked stands, trees become more susceptible to attack from insects and disease. This increases the amount of resources available to wildlife species. As the insect and disease outbreak advances, standing and down dead material would increase which in turn increases the risk of stand-replacing fires. If a fire event were to occur, wood-boring beetle populations would spike possibly causing a coincident spike in some wildlife species. Without a fire event, the insect outbreak would eventually peak and subside. Grand fir and other more shade tolerant species that currently exist in the understory of stands with dead and dying trees would continue to grow, perhaps eventually causing the long-term loss of the early seral tree species (e.g., lodgepole pine, ponderosa pine, and western larch). The risk of losing early-seral tree species does not seem as high as the risk of stand-replacing fires in the American River watershed. Under the “no action” alternative, the existing level of patchiness in the watershed would persist until a stand-replacing fire or other management action(s) take place.

Riparian/Aquatic Dependent–This alternative would likely have no measurable cumulative impacts on habitats or species. Existing conditions and trends would be expected to continue for riparian habitats. Some dredge mined areas would continue a slow rate of recovery and successional advancement along some stream reaches. As some riparian stands mature and decline with their associated fuel-buildups,

more severe localized fire risks may occur. Such risks may increase the chances of mortality to riparian dependent species, particularly species that are not so mobile (e.g., salamanders, frogs, western toad) and habitat losses due to wildfires, particularly if such fires affected large percentages of a drainage, and associated riparian and aquatic habitats. Whether these effects would extend outside the project or analysis area is uncertain.

Fire/Early Seral Dependent–This alternative would allow cumulative fuel-loading to occur unabated. Cumulative effects would initially be harmful to some species because fire would be discouraged initially, but eventually the accumulations and continuity of fuels may encourage larger acreages to burn and regenerate which would result in outcomes beneficial for most fire/early seral species to mixed degrees. Whether these effects would extend outside the project or analysis area is uncertain. Some of these species also require interspersions of live cover with early seral habitat, so benefits to some species would be limited. Due to the magnitude and landscape acreages affected by the mountain pine beetle infestations, past and future harvests in the analysis area and on BLM and private lands in the area would likely have limited influence on overall effects to most of these species.

Late Seral/Old-Growth Associated–This alternative would initially add no direct impacts on late seral or old growth habitats initially protecting habitat integrity, but would allow highest levels of cumulative fuel-loading to occur. Cumulative effects would include uncertain future risks for fire losses of late seral and old growth habitats in patterns and patch sizes at scales that may be outside historical norms. The effects may potentially be negative for some species in some places. Whether these effects would extend outside the project or analysis area is uncertain.

Security Dependent–This alternative would have no measurable cumulative impacts on critical habitats for species requiring remote, undeveloped areas, but would allow moderately high open road densities, access, and human intrusion effects in some portions of the analysis area. Current risk levels of wildlife disturbance, displacement and potential mortality would remain unchanged in developed areas.

Alternatives B, C, and D

Habitat Fragmentation and Connectivity–Most of the habitats in the American River watershed would respond similarly to what is described under Alternative A above. In parts of the American River watershed, openings are currently being created as lodgepole pine trees succumb to the mountain pine beetle. The primary differences between habitat treatment and no habitat treatment are in terms of the timing of when openings would be created and the amount of vertical and horizontal habitat structure. Treatments would cause openings sooner than allowing the openings to occur through natural attrition of the dead lodgepole. The long-term result is similar, openings in forest canopy from loss of lodgepole pine would occur under all alternatives, including the no action alternative. Fuels reduction activities would alter the amount of horizontal and vertical habitat structure or habitat complexity in treated areas verses untreated areas.

Fragmentation of habitats used by small bodied, relatively immobile, and relatively small home range species may be affected by the proposed actions in treatment areas. Affects to mobile, wide-ranging species would be less affected. Species using complex vertical and horizontal habitat structure would experience simplification of habitat in treated areas. This “simplification” would be proportional to the total acre treated, with Alternatives B treating the most acreage, Alternative C treating slightly less, and Alternative D treating the least.

All action alternatives identify road decommissioning and riparian restoration actions which would indirectly and directly result in small levels of reduction in habitat fragmentation and improve connectivity. Such actions would allow for less potential for disturbance in localized areas with a reduction in motorized vehicle use and reduction in “open” road densities. Riparian area restoration would allow for long term improvements to riparian corridors which are utilized for travel and connectivity between suitable habitats for a large number of wildlife species.

Snags and Large Down Wood–Most of the habitats in American River watershed would respond similarly to what is described under Alternative A above. In parts of the American River watershed, openings are currently being created as lodgepole pine trees succumb to the mountain pine beetle. The primary differences between habitat treatment and no habitat treatment are in terms of the timing of when openings would be created and the amount of vertical and horizontal habitat structure. Treatments would cause openings sooner than allowing the openings to occur through natural attrition of the dead lodgepole. The long-term result is similar, openings in forest canopy from loss of lodgepole pine would occur under all alternatives, including the no action alternative. Fuels reduction activities would alter the amount of horizontal and vertical habitat structure or habitat complexity in treated areas verses untreated areas.

Treatments that include green and dead tree harvest to improve forest health, reduce the incidence of insects and disease, or reduced fuel buildup would reduce habitat for many snag dependent species. Not only would the habitat they are using be modified, it would also increase the patchiness of the remaining habitat.

Numbers of snags are expected to decrease with the action alternatives as snags would be lost as hazard trees and through damage by logging operations. Many snags felled during harvest activities for safety reasons are often ones in an advanced state of decay. Felling these snags can also provide down woody material and subsequent nesting, resting, cover, and foraging areas for a variety of wildlife species. Some snags will be created from the burning of harvesting slash where fuel loads are concentrated. Snags can also be created during harvest activities by trees being damaged or the tops snapping off. However, more snags are generally lost than created during harvest operations when compared to fire. It is important that sufficient amounts and size classes of snags are left in clumps or as individuals to meet the needs of snag dependent wildlife species and to add diversity to the landscape.

Public firewood gathering and reduction of snags potentially used for roosting can be expected to occur along roads. However, this is not expected to result in the loss of species viability for snag dependent species since snags would still be present in unmanaged stands away from roads. In addition, with the obliteration of existing roads, the impacts of snag losses along roads would be lessened.

Alternative D would modify the fewest acres of snag habitat and alternative B would modify the greatest acreage. Alternative C would modify slightly less than Alternative B, and is very similar. Standards for snag retention would be met or exceeded by implementing the snag management protocol, which is being incorporated into the silvicultural prescriptions.

Riparian/Aquatic Dependent–Action alternatives would protect moist riparian-zone habitats used for feeding, resting, and/or reproduction, but watershed restoration actions would initially add modest levels of sediment to streams impacted by past activities in the drainages, elevating impacts related to sediment and water quality. The effects would be relatively minimal in terms of impacts to aquatic wildlife species and their habitats.

Fire/Early Seral Dependent–Action alternatives, along with past and planned future harvests, would remove relatively moderate acreage amounts of habitat components (standing dead trees) deemed important to feeding and nesting for at least one species. For black-backed woodpecker, the overall effects would be minimal given the overall acreage now dead or dying. Action alternatives would have the initial effect of potentially reducing local fire intensity risks where fuels are removed, resulting in uncertain levels of both positive and negative effects to various species of this guild. Overall, habitat quality would improve for some early seral dependent species such as the olive-sided flycatcher under all action alternatives.

Implementation of the action alternatives would create early seral habitat, with Alternative B creating the most seedling/sapling and small tree stands (1,074 acres), followed by Alternative C (1,049 acres), and Alternative D (965 acres). Stand treatments are primarily occurring in mid-age stands, followed to a lesser extent in large tree stands (mature stands).

Late Seral/Old-Growth Associated–Action alternatives would protect all existing old growth stands. Future risks of late seral and old growth habitat losses to fire would remain except possibly within or near harvested sites.

The majority of stands treated under all action alternatives are mid-aged stands. Approximately 15 percent of the mid-aged stands are dominant lodgepole pine stands within the American River watershed, and are primarily dead or dying trees. These lodgepole pine stands do not provide late seral or old growth habitat.

Security Dependent–All action alternatives identify a limited amount of roads proposed for decommissioning. Alternative C would have the highest net amount of roads proposed for decommissioning at 1.9 miles, followed by Alternative B (1.3 miles), and Alternative D (0.9 mile).

New permanent road construction is proposed under action alternatives B, C and D. Relocation of two segments of road out of the riparian area (American River subdivision road), would result in approximately 0.6 mile of new road in a toeslope area, while 0.53 mile of riparian road would be decommissioned under Alternatives B and C. A new road totaling 0.6 mile and a vehicle bridge across American River would be constructed under alternatives C and D. This road would provide additional access from the north for residents living along American River in a subdivision.

Although temporary road construction would occur in order to access some harvest units, these temporary roads would be decommissioned and would not contribute to long-term motorized access and security reduction. Temporary roads would be closed (when not being used for project implementation) to public motorized vehicle use, reducing potential human impacts. Short term disturbance and displacement to wildlife would occur during project implementation and associated use of temporary roads. Alternative B has the highest amount of proposed temporary roads (15.1 miles), followed by Alternative D (10.7 miles), and Alternative C has the least amount (10.5 miles).

All action alternatives identify the conversion of roads to ATV trails, level of motorized use would decrease slightly on these primitive roads. However, such would still be open to ATV use. Alternative D identifies 2.6 mile of road would be converted to ATV trails, followed by Alternative B and C, which would be similar (1.3 miles).

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for habitat guilds and associations is the American River watershed.

Habitat Fragmentation and Connectivity–The cumulative effects of proposed actions under all action alternatives would not be beyond the scope of what is currently occurring as a result of the mountain pine beetle epidemic. The epidemic has affected large areas in the in the South Fork Clearwater Sub-basin and approximately 9,000 acres (15%) in the American River watershed. Proposed Eastside Project alternatives would reduce fuels on 2.0 to 2.2 percent of American River watershed, approximately 61% to 62% percent of alternative treatment stands have a dominant cover type of lodgepole pine and have already been affected by the mountain pine beetle. Cumulatively, the FS Crooked and American River project would reduce fuels on an additional 2.0 percent of the American River watershed. Due to the relative proportion of proposed treatments compared to the amount of habitat modified by the mountain pine beetle, the long-term habitat modifications resulting from the epidemic are not appreciably different than the long-term habitat modifications in action alternatives.

The FS American and Crooked River Project selected alternative identifies that 8.41 miles of road would be decommissioned within the American River watershed. The BLM Eastside Project action alternatives identify a net total (minus new permanent roads) of 0.9 to 1.9 miles of road would be decommissioned. The BLM and Framing Our Community are cooperatively proposing to decommission approximately 1.0 mile of BLM road in the Buffalo Gulch watershed, a tributary drainage in the Lower American River.

Late Seral/Old-Growth Associated–Action alternatives would protect all existing old growth stands. Future risks of late seral and old growth habitat losses to fire would remain except possibly within or near harvested sites.

The majority of stands treated under all action alternatives are mid-aged stands. Approximately 15 percent of the mid-aged stands are dominant lodgepole pine stands within the American River watershed, and are primarily dead or dying trees. These lodgepole pine stands do not provide late seral or old growth habitat.

Security Dependent–All action alternatives identify a limited amount of roads proposed for decommissioning. Alternative C would have the highest net amount of roads proposed for decommissioning at 1.9 miles, followed by Alternative B (1.3 miles), and Alternative D (0.9 mile).

New permanent road construction is proposed under action alternatives B, C and D. Relocation of two segments of road out of the riparian area (American River subdivision road), would result in approximately 0.6 mile of new road in a toeslope area, while 0.53 mile of riparian road would be decommissioned under Alternatives B and C. A new road totaling 0.6 mile and a vehicle bridge across American River would be constructed under alternatives C and D. This road would provide additional access from the north for residents living along American River in a subdivision.

Although temporary road construction would occur in order to access some harvest units, these temporary roads would be decommissioned and would not contribute to long-term motorized access and security reduction. Temporary roads would be closed (when not being used for project implementation) to public motorized vehicle use, reducing potential human impacts. Short term disturbance and displacement to wildlife would occur during project implementation and associated use of temporary roads. Alternative B has the highest amount of proposed temporary roads (15.1 miles), followed by Alternative D (10.7 miles), and Alternative C has the least amount (10.5 miles).

All action alternatives identify the conversion of roads to ATV trails, level of motorized use would decrease slightly on these primitive roads. However, such would still be open to ATV use. Alternative D identifies 2.6 mile of road would be converted to ATV trails, followed by Alternative B and C, which would be similar (1.3 miles).

Cumulative Effects (includes foreseeable future actions)

The cumulative effects analysis area for habitat guilds and associations is the American River watershed.

Habitat Fragmentation and Connectivity–The cumulative effects of proposed actions under all action alternatives would not be beyond the scope of what is currently occurring as a result of the mountain pine beetle epidemic. The epidemic has affected large areas in the in the South Fork Clearwater Sub-basin and approximately 9,000 acres (15%) in the American River watershed. Proposed Eastside Project alternatives would reduce fuels on 2.0 to 2.2 percent of American River watershed, approximately 61% to 62% percent of alternative treatment stands have a dominant cover type of lodgepole pine and have already been affected by the mountain pine beetle. Cumulatively, the FS Crooked and American River project would reduce fuels on an additional 2.0 percent of the American River watershed. Due to the relative proportion of proposed treatments compared to the amount of habitat modified by the mountain pine beetle, the long-term habitat modifications resulting from the epidemic are not appreciably different than the long-term habitat modifications in action alternatives.

The FS American and Crooked River Project selected alternative identifies that 8.41 miles of road would be decommissioned within the American River watershed. The BLM Eastside Project action alternatives identify a net total (minus new permanent roads) of 0.9 to 1.9 miles of road would be decommissioned. The BLM and Framing Our Community are cooperatively proposing to decommission approximately 1.0 mile of BLM road in the Buffalo Gulch watershed, a tributary drainage in the Lower American River.

At the landscape level, inventoried NPNF roadless areas and wilderness areas remain available and function as habitat linkages/corridors at American River drainage and subbasin scales. Highway 14 would continue to alter habitat use along the South Fork Clearwater River. Action alternatives do not alter current use of these highways nor do they alter wildlife movements or habitat use to a degree that would alter existing mortality risk associated with these highways.

Snags and Large Down Wood–Throughout the West, densities of large-diameter snags (>21 inch dbh) have been reduced in roaded areas with a history of timber sales (Hann et al., 1997; Hessburg et al., 1999; Quigley et al., 1996). Fire suppression efforts, salvage of insect-infested trees, firewood harvest, and harvest of dead and dying lodgepole have reduced the habitat potential for species relying on dead and downed wood.

Action alternatives continue the cycle of salvaging dead and dying lodgepole in response to insect activities in the American River drainage. The action alternatives would provide for long-term snag retention. Relative to the American River watershed, the activities proposed in the Eastside Project would likely be undetectable.

Some actions would have minor or negligible effects on snags and downed wood habitat. These include precommercial thinning, tree planting, Christmas tree harvesting, noxious weed treatment, and soil restoration efforts. Road maintenance and the construction and maintenance of trails would cause some hazard trees to be felled and fallen trees to be cleared from travel ways. These effects would be cumulative to those discussed above and the effects of most of these past actions and events are described as part of the existing conditions described previously.

Snags would continually be lost during harvest activities for safety reasons, as well as firewood cutting. Snags are also constantly being lost and created resulting from natural wildland fires and other natural disturbances. Some of these snags fall and provide much needed ground structure and habitat. With fire suppression and succession, the density of snags may have increased, but the size of the snags has decreased, which may not be beneficial to many wildlife species that depend on or prefer large-diameter snags and logs.

Approximately 15 percent of the American River watershed has been harvested, including regeneration cuts or clear-cuts, with little provision for maintenance of soil wood or snags to recruit soil wood. Minor amounts of extensive snag patches are present on the landscape, except for small-diameter snags associated with recent lodgepole pine mortality. The current small dead trees benefit small woodpecker species and may provide some foraging opportunities, but are considered short-term because many are expected to fall in five years.

Increased fuel loads from fire suppression and the current mountain pine beetle epidemic increase the chance of stand-replacing fires, which could remove acres of already existing snags across the landscape. Fires would also create additional snags. Other projects in or near the project area may also alter the amount and distribution of snags within the American River drainage and adjacent watersheds.

The mountain pine beetle epidemic is creating many acres of snag habitat. However, the aforementioned projects will remove a majority of the high-risk trees and create areas practically devoid of snags or down wood within a given area, especially when the new units are adjacent to old units.

Activities that reduce the potential for wildfire and insect outbreaks reduce habitat for many snag dependent species, which in turn affects population levels. Projects within and adjacent to American River watershed all target fuel loading and bug-infested trees in some capacity. Other ongoing activities such as post and pole gathering, firewood cutting, road maintenance, and fire suppression also affect habitats that could be utilized by wildlife species. Past timber harvest activities have created a patchy landscape across the watershed, which has likely resulted in larger wildlife home ranges than would be the case in unlogged habitats. Larger home ranges affect the energy reserves of wildlife species as they must travel greater distances for their daily needs. Many past timber activities left few snags on the

landscape that could be utilized for foraging, nesting/resting, or drumming sites. At the project level, snag dependent wildlife populations could decline as a result of past, present, and reasonably foreseeable future actions.

The natural pattern of beetle outbreaks has been altered through silvicultural and fire management practices. Silvicultural practices directed at maximizing wood production by harvesting trees before they are susceptible to bark beetle attacks and salvage logging of beetle-infested, fire-killed, and wind-killed trees reduced the occurrence of beetles in some areas. Fire management policies have lengthened fire return intervals and allowed more frequent occurrences of beetles. The effects of most of these past actions and events are reflected in the existing condition described in this document. At the level of any given wildlife species, impacts of the Eastside Project proposal and other past, present, and reasonably foreseeable future actions in and around these watersheds appear negligible.

Riparian/Aquatic Dependent–The "no action" alternative would have no cumulative effects on riparian/aquatic dependent species or its habitat cumulative to past harvest, roading, human disturbance, recreation, minerals or other activities. With continuation of other ongoing BLM and NPNF restoration actions within the watershed, improved management of riparian and aquatic habitats resulting from PACFISH (1995) and federal listing of fish within the watershed, continued long term improving riparian and aquatic trends would be expected to occur.

Action alternatives would have localized direct and indirect cumulative beneficial effects on riparian and aquatic habitats which may be utilized by dependent species, in addition to those produced from past mining, roading, timber harvest, residential development, livestock grazing, recreation, public access, fire exclusion and other habitat impacts.

Timber harvest and salvage logging, grazing, insect epidemics, fires, fire suppression, mining, and road construction and maintenance can cumulatively affect riparian/aquatic habitats and dependent species through soil compaction, changes in vegetative cover, altering stream channels, or by changing the quantity and quality of water flowing into wet meadows. Past harvest practices that involved removing forest vegetation along streams and wetlands left these sites vulnerable to hydrologic and vegetative changes. Although historical fires often burned riparian habitats at lower severity, advanced succession and increased fuel loading would increase risk for more severe fires within riparian habitats, which may affect dependent species habitats, water quality and quantity. Fire suppression has created denser forests, which tend to burn hotter, and hotter fires tend to be more destructive. Livestock grazing is likely to continue on NPNF and BLM allotments and on private lands.

Fire/Early Seral Dependent–The "no action" alternative would in effect, have positive cumulative effects on post-fire and early seral dependent species habitat availability. Absence of fuel reduction and principally lodgepole pine harvest, would add cumulatively to overall risks of eventual fire spread, but potential maximization retention of habitat creation for wildlife such as black-backed woodpeckers would occur in the drainage.

Action alternative treatments would cause openings sooner than allowing the openings to occur through natural attrition of the dead lodgepole. The long-term result is similar, openings in forest canopy from loss of lodgepole pine would occur under all alternatives, including the no action alternative. Fuels reduction activities would alter the amount of horizontal and vertical habitat structure or habitat complexity in treated areas verses untreated areas.

Action alternatives would result in post-fire habitat losses; however, they would create early seral habitats. Such losses add moderately to cumulative losses of existing and potential future black-backed woodpecker habitat related to previous harvests, roading, and post-disturbance harvest projects as well as reasonably foreseeable harvests on private and nearby NPNF lands in the analysis area. While losses of existing and future post-fire habitat opportunities would result from this project, the loss would be relatively minor and inconsequential in the American River drainage. The action alternative treatment

acres proposed for mechanical harvest are only a very small portion of the total acres that are dead and dying. These acres potentially could burn by wildfires and become high quality habitat in the future, therefore the relative amount of anticipated post-fire habitat predicted to be lost to harvest is relatively minor within the analysis area and relatively inconsequential. The mountain pine beetle epidemic has created openings in the forest canopy; created early seral habitat, created more snags, and has occurred on thousands of acres.

Activities that reduce the potential for wildfire and insect outbreaks reduce habitat for post-fire or early seral dependent species, which in turn affect population levels for early seral habitat dependent species. Projects within the upper South Fork Clearwater drainages all target fuel loading and bug-infested trees in some capacity. Past timber harvest activities have created a patchy landscape across the watershed, which has likely resulted in greater early seral habitat, which has improved forage for elk, deer, and moose.

Past, present, and foreseeable future fuel treatments and timber harvest on BLM lands, private lands, and NPNF lands have created or would continue to create early seral habitat in the American River watershed. The NPNF American and Crooked River project is a large fuels project proposal which is adjacent to the Eastside Project area, implementation of this project would provide additional early seral habitats. Forest successional advancement would reduce the value of early seral habitats to dependent species with growth of trees from early seral to mature stands, and associated increased canopy cover.

Late Seral/Old-Growth Associated–Cumulative impacts would be scattered across the entire project area and the American River watershed. Past harvesting and fire effects patterns have impacted habitats with overall cumulative habitat fragmentation, changes in patch size and dynamics, increased roading and related human disturbance impacts, increased edge effects, and reductions in old growth habitat abundance as illustrated and referenced by Map 12 of the South Fork Clearwater River Landscape Assessment (USDA-FS, 1998a). In the American River watershed, most of the nearly 6,000 acres of historical harvest (83 percent) was done during the 1950s–80s with the remaining 17 percent being done during the 1990s–current time. The effects have impacted late seral/old growth species and security dependent species the most; however many intermediate-aged stands have since moved into late-seral or old growth conditions as well.

Past timber harvest, wildfire, fire suppression, and mining activity have altered habitat characteristics in the project area by reducing the amount and distribution of large and medium trees, snags, and down wood, and by creating numerous, small patches across the landscape.

Timber harvest and road construction have reduced the amount and continuity of mature and old growth habitat across the analysis area. In addition, past actions frequently targeted medium and large trees and valuable ponderosa pine and western larch snags. These actions have left fewer appropriate stands, and trees within stands, that could be used by species that require mature or old growth forest conditions. Past harvest left few snags or legacy trees, and little down wood. As these older harvest units have begun to mature, they are devoid of the structures that could be utilized by species that require old growth conditions.

No alternatives fragment old growth with harvest or roadways within any existing old growth, thus short-term habitat integrity is protected in all alternatives. Nesting and denning habitat components provided by old growth will remain protected from harvest related activities in all alternatives. Some clusters of planned project harvest units, in conjunction with the interruption of fuels created by previous harvest units, may impart some measure of fire risk reduction to old growth patches. If old growth habitats in the American River watershed are partially lost to stand replacing fires in the near future, old growth conditions would still remain well distributed across the Forest Service lands in the subbasin in the remaining watersheds and habitat for old growth associated species, as well as other wildlife species, would be managed to maintain viable populations of wildlife species (USDA-FS, 2005a).

Security Dependent–Roads are a major factor cumulatively influencing wildlife habitat and use patterns, particularly for species preferring remoteness or are hunted/trapped. Without roads, human use of the American River watershed would be very limited. Wildlife habitats and wildlife use patterns would be dictated by natural processes (weather, fire, insects and disease). Human disturbance to wildlife species would likely be similar to that of large wilderness areas.

Road decommissioning would not occur under Alternative A, therefore cumulative effects of roads in American River would continue. Under all action alternatives, a limited amount of road decommissioning is proposed.

Research focusing on the influence of open roads on wildlife species in the 1970's and 1980's revealed the effects of roads on big game species (Leege, 1984). In the 1980s and 1990s, road construction was mitigated by implementing road restrictions. The focus recently has been to decommission roads, thus reversing the cumulative effects of human access into wildlife habitats. This action alternatives decommissions a limited amount of roads within the American River watershed.

Cumulative effects of past incremental road development in the analysis area include variable progressive increases in wildlife effects such as direct habitat loss; disturbance; displacement; vehicle-induced mortality; human hunting and trapping mortality; habitat fragmentation; edge effects; and noxious weed spread.

3.7.7 Irreversible, Irretrievable Effects (All Terrestrial Species)

None of the alternatives described and analyzed would implement actions or activities that would result in an irreversible or irretrievable commitment of resources harmful to populations of any resident or migratory wildlife species. In addition, no alternative would result in irreversible or irretrievable commitment of species or habitat resources that foreclose the formulation or implementation of reasonable and prudent alternatives that would violate Endangered Species Act Section 7 (a) (2) leading to jeopardy. None of the alternatives would threaten species subpopulation viability at the local level.

3.8 Roads

3.8.1 Introduction

3.8.1.1 Scope of the Analysis

The focus of this analysis is the transportation system, which consists of both the road and trail systems, within the Eastside Project area. Several proposed temporary roads on the NPNF are included in this project. Originally, the NPNF included temporary roads that BLM needs for the Eastside Project, in their American and Crooked River Project. The NPNF FEIS for their project was appealed and the roads that BLM needs were dropped from the American and Crooked River Project. This information was a factor in the formulation of alternative D. An additional temporary road across the NPNF that was not included in the American and Crooked River Project is included in the Eastside Project. The NPNF is now a Cooperating Agency in the Eastside Project and will determine whether to authorize BLM to construct and use roads across their land based on this analysis.

BLM needs to use three roads across private land to access treatment areas in the Eastside Project. The current state of the transportation system is presented, followed by discussions of the changes resulting from the three action alternatives.

Several indicators are used for roads to track the effects on the transportation system including; ***Road Decommissioning, Road Conversion, Miles of Road (Permanent and Temporary), and Bridges.*** The indicator for trails, ***Miles of trails,*** includes both summer trails and winter snowmobile trails.

3.8.1.2 Regulatory Framework

North Idaho Timber Management FEIS
The North Idaho Timber Management FEIS Appendix 2-4 (USDI-BLM, 1981b) contains guidance related to roads. The primary goal is to provide an adequate and useable road system while protecting the environment. Specific guidelines to road planning and road design include:

- Cooperating with other land owners. Plans would be made to serve tributary areas of drainages or ownership blocks so that only the minimum amount of road necessary to meet management objectives would be planned.
- Temporary or permanent closures will be considered for all dead end roads or roads with an expected use period of 5 years or less.

Nez Perce Forest Plan as Amended
A stable and cost efficient transportation system will have been provided through construction, reconstruction, maintenance, or transportation system management (USDA FS, 1987a – II-1, Goal 12).

PACFISH standards and guidelines have been incorporated into the Eastside Project. See Fisheries Section 3.6 for details.

3.8.1.3 Management Factors

There are several factors that were considered in the development of the road and access alternatives.

- Minimize new road construction and major reconstruction for timber harvest purposes within RHCAs.
- Minimize the amount of permanent road for timber harvest; use temporary roads as much as possible.
- Place roads on mid- and upper-slopes as much as possible to reduce the amount of project produced sediment entering reaches of the American River watershed.
- Avoid live water crossings.

- Avoid crossing multiple small parcels of privately owned property.
- Minimze the amount of monies invested in permanent road upgrade.
- Relocate permanent roads along the American River away from the river where possible.
- Decommission roads not needed for administrative purposes.
- Close live water fords.

Permanent Road Construction: Permanent construction is a major activity involving the use of heavy equipment. There can be movement of earth to substantial depth to clear, align and cut and fill a new roadway and includes preparing a sub base, and surfacing the road. It can include significant drainage work including ditching, and the installation of live water crossings. Some new permanent roads will be open for public use only on a seasonal basis during and after the project is complete. Seasonal closure will be accomplished through installment of gates at each end of the new road.

Temporary Road Construction: Temporary construction is an activity involving the use of heavy equipment. There will be the movement of earth to clear, align and cut and fill a new roadway and includes preparing temporary running surface wide enough for the safe passage of trucks and equipment. It includes drainage work (sufficient enough to carry water off the running surface and can include the installation of relief culverts). Temporary roads would be constructed where needed for access to treatment areas. All temporary roads would be decommissioned no later than three years after initial construction. Refer to Chapter 2 for information regarding design measures for reducing the effects of temporary road construction.

Road Decommissioning, Conversion to Other Use: The physical process, or method, of decommissioning (referred to as management activity/ decommissioning level in Appendix J) depends on the condition of the road template, the magnitude of the side slope on which the road is located, the proximity of the road to streams, and cost. This process can range from simply abandoning the road to removing the road template completely, including removal of drainage structures and re-contouring the landscape. In general, the preferred method is to remove the road template and recontour the landscape. This method is most effective in removing the road as a source of sediment and restoring the natural hydrologic function of the watershed. It is, however, the most costly method. If the road is located on relatively flat terrain, is not close to a stream, and is substantially overgrown with vegetation, abandonment may be a better option.

In addition to the two decommissioning methods just discussed, there is a category used in Appendix J to describe an intermediate level of decommissioning. This category, called **Varied** (for varied treatments), can include removal of drainage structures, decompaction of the roadbed, and can include limited amounts of re-contouring. Seed and fertilizer would be applied to reestablish vegetative cover.

Unauthorized use of decommissioned roads was a concern expressed during public scoping. Decommissioned roads will generally be camouflaged so they are no longer recognizable as a road. This will make unauthorized uses less likely. For roads already overgrown with substantial vegetation, unauthorized use is not generally a problem.

Roads proposed for conversion to another use would include a change in the road prism and a corresponding change in the type of use. This conversion is proposed primarily for watershed restoration for fisheries, although other wildlife species will benefit (see Section 3.7 Wildlife). The running surface of converted roads would be reduced to an approximate width of 55 inches. This would be accomplished through limited amounts of re-contouring, installing barriers (usually large boulders) along road shoulders, decompaction of the roadbed, or a combination of all three. On altered roadbeds, seed and fertilizer would be applied to reestablish vegetative cover. The road use change is of primary interest to most road users. The following table summarizes the length of road proposed for decommissioning, as well as the effect of the decommissioning on travel access, for each alternative.

Ford Closure: This will be accomplished through obliteration of the current fords. The work will involve deep ripping of the approaches, mulching, seeding or planting of native vegetation (including shrubs), placement of large woody debris, and large boulders to prohibit vehicle use. Table 3.8.3 illustrates the number of ford closures by action alternative.

Ford Hardening: The approaches to the ford would be reconstructed (re-contoured) and stabilized. The road crossing would be "hardened" with the placement of concrete planks or suitable substrate that would be secured to bottom and streambanks so that vehicle use or high flows would prevent movement or scouring of the instream "hardened" ford crossing.

Minor Reconstruction/Maintenance: It involves grading and shaping of the roadway and minor drainage work (such as adding waterbars and replacing or adding a few culverts, generally not on live streams). The roadwork proposed with the action alternatives would be to prepare a road for timber hauling.

3.8.1.4 Analysis Methods

Information and analysis came from two sources. First is the area within the BLM project area and second is the incorporation of the Inventoried Roadless Areas (IRA), and Areas with Possible Unroaded Characteristics from the American and Crooked River FEIS (USDA-FS, 2005a) for certain roads that were covered in that analysis.

The BLM roads information used in the development of the action alternatives was obtained from the Cottonwood Field Office Transportation System database and from field survey data not previously stored in this database. All of the roads proposed for decommissioning were identified through analysis conducted as part of this project. The roads were determined to not be needed for future management of BLM system lands within the analysis areas. Issues raised internally, through public scoping, and in discussions with the NPNF were considered in the development of the alternatives. Spatial data is displayed using maps generated with Argos software.

3.8.2 Indicators - Road Decommissioning, Road Conversion, Miles of Road (Permanent and Temporary), and Bridges

Existing Condition

The BLM lands in the east portion of the Elk City township have had very little active management applied to them in the last 50 years. None of the primary access routes are owned or maintained by the BLM. Except for the area near the Alamance Mine, there are no secondary roads on BLM into any of the fuels/vegetation proposed treatment units. Appendix A, Map 15 displays the current road system.

Primary maintained roads are of two types. First are NPNF roads that bisect (road 1809 central portion of project) or are near BLM land (road 1809A east of project and 9812 north of project). Secondly are county roads that border (road 443 in central portion of project) or are near BLM land (road 1818 south of project).

Roads going through the private subdivisions are maintained by the private landowners. These road cross BLM prior to entering private property. The BLM presently has no permanent or temporary easements on these roads across private land.

The roads across BLM land within the project are all historic roads that evolved through necessity or tradition. Most are serpentine roads along streams, primarily the American River that originated for access to mining sites. The use of these roads has evolved into the primary ingress route to the American River Subdivision and east end of the Coppernoll subdivision, as well as recreational uses on the upper and lower ends of the project area. Most of these roads fall into RHCAs where riparian-dependent resources receive primary emphasis (see Section 3.4 Watershed).

There are approximately 10.3 miles of inventoried road in the Eastside Project area. Jurisdictions of these road miles vary. The following two tables summarize the current state of the road system within the Eastside Project.

Table 3.8.1 Current Road Miles by Owner

Owner	Length of Road (Miles) by Type		Percent of Total
	Primary Road, Regular Maintenance	No Regular Maintenance	
BLM		5.86	56.8%
Forest Service	1.58		15.3%
Idaho County	1.45		14.1%
Private		1.42	13.8%

Table 3.8.2 Current RHCA Road Miles by Owner

Owner	Length of Road (Miles) by Type		Percent of Total
	Primary Road, Regular Maintenance	No Regular Maintenance	
BLM		5.53	73.7%
Forest Service	1.24		16.5%
Idaho County	0.39		5.2%
Private		0.34	4.5%

There are existing private and NPNF roads that are outside of the project area that may be utilized. The private roads will be used either through existing permanent easements or through temporary easements. The use of Forest Service roads will require a road maintenance agreement. Additional roads that are needed for access but are not within the project area include:

- 7.67 miles of NPNF roads 1809, 1809a, 9812, 9812F, and 9812F1
- 2.65 mile of private roads on Bennett Forest Industries property (existing permanent easement)
- 0.29 miles of private road on Leslie Lynn property (temporary easement to be acquired).

Environmental Effects

Alternative A (No Action Alternative)
With Alternative A, the road system, in the Eastside Project area would remain unchanged. Parts of the American River road would continue to be chronic sediment sources. The portion north of the American River Subdivision viewed as an escape route would continue to deteriorate. Current fords would continue to impact sedimentation and fisheries in the American River.

Alternatives B, C, and D

Road Decommissioning, Conversion to Other Use

All roads proposed for decommissioning are identified as not required for future management needs. These roads were selected for decommissioning primarily because of the resulting benefit to watershed health by returning the landscape to a more natural state. These actions have direct and indirect effects to Watershed, Fisheries and Wildlife and are discussed in those sections. Table 3.8.3 show the amount of road decommissioning and conversion by alternative. Alternative C has the largest number of miles, followed by Alternatives B and D. All but 0.11 miles of roads proposed in any alternative for decommissioning are within the RHCAs, primarily along the American River. All of the roads converted

from highway vehicles to ATV are within the American River RHCA. This table also illustrates the effects on restricted public access and the differences of decreased highway vehicle miles.

Refer to Appendix J for a list of the roads proposed for and the method of decommissioning by alternative. Refer to Appendix A, Maps 2, 5, and 8, for graphic displays of the roads proposed for decommissioning by Alternative.

A summary of the costs associated with the proposed road decommissioning is presented in Section 3.13 (Socio-Economic). Table 3.8.3 show the amount of road decommissioning and conversion by alternative.

Stream Ford Closures
There are currently three live water crossings in the project area with active fords. Two of these are on the American River, and the other is on Kirks Fork at the confluence with American River. Closure of some or all of these fords is proposed in all action alternatives for watershed restoration purposes. These closures will stop a chronic sediment source into the American River system. These actions have direct and indirect effects to Watershed, and Fisheries and are discussed in those sections. Table 3.8.3 shows the number of fords closed or hardened by alternative.

Table 3.8.3 Road Decommissioning or Conversion

Item	Alt B	Alt C	Alt D
Decommissioned Miles	1.92	2.98	1.50
Conversion to ATV Trail Miles	1.62	1.62	2.39
Decreased Highway Vehicle Miles[1]	2.12[2]	2.62[3]	2.48[4]
Reduction of RHCA Road Miles	2.55	3.70	3.57
Ford Closures	2	3	3
Ford Hardening	1		

[1] 0.85 miles of road are substantially vegetated, and not open to vehicles.
[2] There are 0.57 miles of new permanent in this alternative.
[3] There are 1.13 miles of new permanent in this alternative.
[4] There are 0.56 miles of new permanent in this alternative.

Road Construction and Bridge Construction

The following actions have direct and indirect effects to Watershed, Fisheries and Wildlife and are discussed in those sections.

Permanent Road Construction
Some permanent road construction is proposed in all action alternatives for watershed restoration purposes. These new roads will provide landowner access while decommissioning existing roads or converting them to another use (ATV trails). Therefore, permanent road construction is related to decommissioning or conversion to another use and is reflected in Table 3.8.3 above.

Alternatives C and D were developed in part to address concerns about the loss of fire escape routes due to suggested alterations in the current road system for restoration objectives. Residents view 1.1 miles of road 2541 along the American River north of the American River subdivision to the intersection with Idaho County road 443 as an escape route. This would require the construction of 0.56 miles of road and a bridge spanning the American River.

Alternative D was developed in part to address concerns about the relocation of part of the main ingress route for the American River subdivision. Residents view 0.5 miles of road 2541 along the American River south of the American River subdivision to the intersection with forest service 1809 as the best section of road along the river, questioning restoration objectives, and fear that the new road would be not maintained.

Some new permanent roads will be open for public use only on a seasonal basis during and after the project is complete. Seasonal closure will be accomplished through installment of gates at each end of the new road. This closure would apply to the road in alternatives C and D that originates on the 2541 road and proceeds 0.46 miles west to intersect with Idaho County road 443.

Table 3.8.4 illustrates the miles of new permanent road by action alternative. Refer to Appendix J for a list of the roads proposed, and design or decommissioning features by alternative.

Temporary Road Construction
Alternatives C and D were developed in part to address concerns over the amount of temporary road in the proposed action. Alternatives B and C would construct 1.89 miles of temporary road across NPNF land with unroaded characteristics. These roads would exist for 1-3 years. Following decommissioning a corridor through the trees would remain for several years until new trees grow up on the site. Alternative D includes a temporary road constructed in the Middle American River RHCA. Approximately 0.06 miles would exist for 1-3 years within the RHCA. Table 3.8.4 illustrates the miles of temporary road by alternative. Refer to Appendix J for a list of the roads proposed, and design or decommissioning features by alternative.

Minor Reconstruction/Maintenance
Field surveys were conducted to determine the condition of the roads in the project area and the maintenance needs required to prepare the roads for access to the treatment areas. As stated earlier in this section, there are very few secondary roads on BLM land; private secondary roads have been recently used, and the primary roads are maintained by other entities. Therefore, only minor reconstruction or maintenance is needed.

Except for a few short segments of existing road in the Alamance Mine area, all of the work would be done on roads across private lands outside of the project area, and is the same for all Alternatives. These are:

- 2.65 mile of existing private roads on Bennett Forest Industries property (existing permanent easement).
- 0.29 miles of existing private road on Leslie Lynn property (temporary easement to be obtained).

Table 3.8.4 Road and Bridge Construction

Item	Alt B	Alt C	Alt D
Permanent Road Construction (Miles)	0.57	1.13	0.56
Bridge Construction ATV	2	2	2
Bridge Construction Highway Vehicles	0	1	1
Minor Reconstruction (Miles)	3.70	3.70	3.70
Temporary Road Construction on BLM (Miles)	12.97	8.43	10.28
Temporary Road Construction on Private (Miles)	0.19	0.19	0.19
Temporary Road Construction on NPNF (Miles)	2.15[1]	1.89[1]	0.26

[1] Includes 1.89 miles that was included in the FEIS for the American and Crooked River Project

3.8.3 Indicator–Miles of Trails

Existing Condition

Historically, trails in the area were primarily developed for access to mining claims, private lands, fire suppression activities and access to adjacent NPNF land for Forest Service administrative uses. Most trails were built to accommodate pack and saddle stock, and were the primary access routes in the American River drainage.

Currently, the majority of the trail system is utilized for recreational purposes. There are approximately 2.7 miles of system trails within the Eastside Project area; however there is no current budget for maintenance of these trails. These trails are primarily used by ATV(s), motorbikes, hikers, and pack/saddle stock. The following table displays the system trails in the Eastside Project area, their length, and current restrictions.

Table 3.8.5 System Trails on BLM land

Trail Number	Trail Name	Length (Miles)	Current Management Restrictions
T2524	Kirks Fork	.52	No Restrictions
T2523	Box Sing	.39	No Restrictions
T-01	Telephone Creek	.76	No Restrictions
T2517	East Fork American River	1.81	No Restrictions
T25	Lower American River	1.83	No Restrictions

There is an increasing demand from user groups for motorized trail opportunities. A concern raised during scoping was that decommissioning road 2541 north from the American River subdivision to Idaho County road 443 was less preferable than conversion of this road to and ATV trail.

There are several undesignated trails being used by ATV and two wheel motorized vehicles. There is an unauthorized ATV bridge spanning the American River in the southern portion of the project on BLM land. This would be replaced as part of the project.

There is a winter trail system that crosses BLM land that is not administered by the BLM. This winter trail system includes portions of the road system to provide a network of groomed snowmobile trails. This system is groomed regularly between December and April under a cooperative agreement between Idaho Department of Parks and Recreation, Idaho County and the Nez Perce Forest. The Eastside Project includes 1.1 miles of this groomed system is (Road 443–American River-Selway Falls).

Environmental Effects

Alternative A (No Action Alternative)
The miles of trails available to the public would not change under this alternative. However, the public's ability to use the trail system may eventually be restricted due to limited BLM funds available to maintain the trails.

As dead and dying trees fall across the system trails, maintenance costs will likely increase due to the increase in the number of trees down per mile. Even with annual maintenance occurring, the trail users will likely need to be prepared to cut trees in order to use the trail system.

Wildfire occurrence would increase the cost of trail maintenance. Trail damage from fire normally results in holes in the trail tread due to tree roots burning out; increased erosion due to the lack of vegetation resulting in the need for more erosion control structures; and an increase the number of down trees over the trail. Signs and erosion control devices would need to be replaced due to fire damage.

Alternatives B, C, and D
The miles of trails available to the public would change under all action alternatives. There would be a net increase in designated trails open to motorized Off Highway Vehicles (OHV). The miles of increase by alternative are, 1.62 for Alternatives B and C, and 2.39 miles for alternative D. This increase would come primarily as the result of reducing the running width of roads currently open to highway vehicles. In alternative D there is approximately 0.5 miles of new designated trail that would result by improving an undesignated, currently used trail around the ford on the American River on the north end of the project.

Road 443 provides access in all alternatives. If winter hauling occurs on Road 443, it would need to be restricted for snowmobiling during timber hauling for safety purposes. This would result in a short-term reduction in the number of miles of snowmobile trail available for use, 1.1 miles for Alternatives B and C, and 0.2 miles for Alternative D.

3.8.4 Inventoried Roadless Areas, and Areas with Unroaded Characteristics

Adoption from American and Crooked FEIS

This section incorporates portions of the American and Crooked River FEIS (USDA FS 2005) regarding IRAs and Areas with Possible Unroaded Characteristics. The analysis of Areas with Possible Unroaded Characteristics pertains to two temporary roads that approach the Elk City township line from the north.

3.8.4.1 Inventoried Roadless Areas

Existing Condition

One IRA lies east of the project area on the NPNF and is described in the 1987 Nez Perce National Forest Plan Final Environmental Impact Statement (USDA-FS 1987a). This closest point of the West Meadow Creek Roadless Area is separated from the Eastside Project by 0.6 miles of NPNF land.

3.8.4.2 Environmental Consequences All Alternatives

Direct Effects
The proposed action does not enter or occur in the adjacent inventoried roadless areas. There are no direct effects to inventoried roadless areas.

Indirect Effects
The values in the roadless area most at risk are those associated with apparent naturalness, remoteness, solitude, and semi-primitive recreation. The sights and sounds of logging could diminish each of these for the period of logging and for some time after logging.

However, it is important to put this into proper perspective. First, there are not trails that lead people into the portion of the roadless area where impacts would be seen or felt. None of the roadless area is immediately adjacent to the project area. Therefore the project is out of sight and inaudible and would have little impact on remoteness. Finally, the view from the area is not currently pristine or near natural appearing due to past harvest activity, road building, and past mining activities. None of the action alternatives would diminish the natural appearing nature of the IRA.

There would be minimal impacts of smoke from burning on air quality (see Section 3.2). Wildlife and TES species would be little impacted (see Section 3.7 Wildlife); additional or new motorized access is not an issue. Non-motorized primitive or semi-primitive recreation is not compromised by the project. The project does not create new access into the roadless area or change the recreation experience.

3.8.4.3 Unroaded Analysis

Introduction

In addition to an analysis of the impacts of the project on Inventoried Roadless Areas (IRAs) as described above, this analysis describes the impacts of the project on unroaded lands. This analysis pertains to NPNF lands that are adjacent to the Eastside Project, and that would be directly affected by the construction of temporary roads through them. The original analysis was done as part of the American and Crooked River FEIS, is incorporated by reference here, and has been supplemented with additional information.

For the purposes of this analysis, the Forest Service considered all areas without the presence of classified roads and outside existing inventoried roadless areas as unroaded lands. Map 2A in the American and Crooked River FEIS and Map 15 of this EIS provide a view of the unroaded areas.

This unroaded analysis will consider the unique values of the unroaded area in the context of five important resource values:

Natural Integrity is the extent to which long-term ecological processes are intact and operating.

Apparent Naturalness means the environment looks natural to most people.

Remoteness is the perceived condition of being secluded, inaccessible, and out of the way, and **Solitude** is a personal, subjective value defined as the isolation from the sights sounds, and presence of others and the development of man.

Special Features are unique geological, biological, ecological, and cultural or scenic features, and **Special Places** are those areas that cause one to visit for pleasure or their livelihood.

Manageability and Boundaries consider the ability of the NPNF to manage a roadless area to meet the minimum size criteria (5,000 acres) for wilderness. Additionally, the ability to allow fire to play a more natural role without threatening residential areas or communities and the ability to manage for non-motorized access from access points or private property were also considered in this category.

Existing Condition

The unroaded lands that would be affected by the Eastside Project are easiest to describe and evaluate if they are viewed as geographic areas. Below is a description of each unroaded area.

American-2 is west of the West Meadow Creek Inventoried Roadless Area (IRA) 1845C. This unroaded area has been subdivided along the subwatershed boundaries to better explain the affects to important subwatersheds. This unroaded area is comprised of 5,684 acres.

American-2a (AM-2a) (see Map 15) is west of the West Meadow Creek IRA 1845C and is comprised of 4,969 acres within the East Fork American River watershed. The southwestern most portion of this unroaded area lies within the Elk City community protection area (Wildland urban interface) where the management emphasis is protection of life and property from potentially catastrophic effects of wildfire.

Natural integrity is relatively high in this area, although the mixed conifer stands are stocked higher with trees and have less shrub and open grass lands than might be expected under a more natural fire frequency. Non-native plants and invasives are uncommon in the area. This area is not used by livestock. There is a high degree of Natural Integrity in this area. The watershed has high importance for anadromous fish habitat.

Apparent Naturalness is high except on the one and one half mile southwestern boundary along the Elk City township line that separates the National Forest lands from the BLM and private lands within the township that have been altered from their natural appearance. An unclassified motorized trail that is maintained by users follows the ridge and portions of the proposed temporary road location. AM-2a also contains one quarter mile of Trail 852 which is a motorized trail.

Remoteness and Solitude are increased as you get farther from the Elk City township, along the southwestern portion of the area. As indicated above, within the one and one half miles of the Elk City township line the feeling of solitude has been compromised.

Special features and special places are not present from the standpoint of geological resources. However, from a biological standpoint the East Fork of the American River as a high fish habitat value and contributes to the anadromous fish productivity. The area is not unique from the standpoint of known cultural or historic resources.

Manageability and Boundaries The unroaded area by itself is 4,969 acres adjacent to the 107,512 acre West Meadow Creek IRA. The proximity to roads and past harvest units could make the area difficult to manage for wilderness within the one and one half miles along the Elk City township, which comprises the southwestern boundary. Otherwise there are no boundary issues with this area.

American-2d (AM-2d) (see Map 15) consists of 306 acres on the western lobe of AM-2a, and encompasses a small portion of Flint Creek. Three separate watersheds converge near this unroaded area. The area has relatively high levels of past development in the form of roads and timber harvest. It is close to the major road system that provides access to the area. The southwestern most portion of this unroaded area lies within the Elk City township line and the community protection consideration (Wildland-urban interface) where the management emphasis is protection of life and property from potentially catastrophic effects of wildfire.

Natural integrity has been modified by past timber harvest and roads. The viewshed is comprised of highly modified landscapes. The mixed conifer stands are stocked higher with trees and have less shrub and open grass lands than might be expected under a more natural fire frequency. Non-native plants and invasives are uncommon in the area but may occur along the southern border of the area where previous disturbance has occurred. This area is not used by livestock.

Apparent Naturalness depends on scale. Although small portions of the unroaded area might seem natural, the proximity to Forest roads nearby logging, and development within the Elk City township has decreased apparent naturalness. The unclassified motorized trail originating in AM-2a continues to follow the ridge and/or proposed temporary road location until it junctions with Forest Road 9812.

Remoteness and Solitude are decreased due to the proximity of roads and development within the Elk City township.

Special features and special places are not present from the standpoint of geological, biological, or ecological reasons. The area is relatively common and like much of the forested area in north-central Idaho. The area is not unique from the standpoint of known cultural or historic resources.

Manageability and Boundaries: The unroaded area is 306 acres and is separated from the West Meadow Creek IRA 1845C by the 4,969-acre AM-2a unroaded area. The community protection emphasis, proximity to roads, past harvest units, the Elk City township boundary, and development would make the area difficult to manage for wilderness. The complex topographic features involved with the confluence of the three separate watersheds make boundary management more complex.

American-2e (AM-2e) (see Map 15) consists of 236 acres on the western lobe of AM-2a, and encompasses a small portion of the American River. The area has relatively high levels of past development in the form of roads and timber harvest. It is close to the major road system that provides access to the area. All but a tiny sliver of the unroaded area lies within the Elk City community protection area (Wildland-urban interface) where the management emphasis is protection of life and property from potentially catastrophic effects of wildfire.

Natural integrity has been modified by past timber harvest and roads. The viewshed is comprised of highly modified landscapes. The lodgepole pine stands are uniformly fully stocked with trees and have less open grass lands interspersed with the lodgepole pine than might be expected under a more natural fire frequency. Non-native plants and invasives are uncommon in the area but may occur along the southern border of the area where previous disturbance has occurred. This area is not used by livestock.

Apparent Naturalness depends on scale. Although small portions of the unroaded area might seem natural, the proximity to Forest roads nearby logging, and development within the Elk City township has decreased apparent naturalness.

Remoteness and Solitude is decreased due to the proximity of roads and development within the Elk City township.

Special features and special places are not present from the standpoint of geological, biological, or ecological reasons. The area is relatively common and like much of the forested area in north-central Idaho. The area is not unique from the standpoint of known cultural or historic resources.

Manageability and Boundaries: The unroaded area is 236 acres and is separated from the West Meadow Creek IRA 1845C by unroaded are AM-2d and AM-2a. The community protection emphasis, proximity of roads, past harvest units, the Elk City township boundary, and development would make the area difficult to manage for wilderness. The complex topographic features involved with the confluence of the three separate watersheds make boundary management more complex.

Environmental Consequences

Direct and Indirect Effects

All roads constructed by this project are temporary roads that will be obliterated upon completion of this action.

Alternative A (No Action Alternative)
Alternative A would not impact the unroaded lands described in this section, since no temporary road building would occur.

Alternatives B and C
AM-2a: This area has unroaded characteristics that are highly intact accept as noted previously in the western end. The temporary road is on the extreme western boundary and is part of an approximately one mile long temporary road off the 9812F1 road. Only 0.1 mile of this temporary road would be within this unroaded area. These alternatives would only affect the unroaded character (Natural integrity, Apparent Naturalness, Remoteness and Solitude) of this area along the extreme west boundary of this 4,969 acre area. The presence of the classified and unclassified motorized trails has already reduced the Apparent Naturalness of this area. This impact will recover in time as the approximately 0.4 acres directly effected by the temporary road corridor revegetates following decommissioning. The decommissioning of the temporary road may reduce the ability for future motorized use of the unclassified trail. Fish habitat, which is a special feature of this unroaded area, will not be impacted by the proposed action in the East Fork of the American River.

AM-2d: Approximately one mile of temporary road will be constructed from the 9812F1 road but only 0.56 mile is within AM-2d. This area has not retained high unroaded characteristics due to past activities in the area and is within the community protection area for the Ericson Ridge Subdivision within the Elk City township. There will be additional impacts to the unroaded characteristics due to the proposed action, but this is somewhat reduced due to previous disturbances in the area. Additionally the proposed activities are consistent with the community protection within the Elk City township. There will be additional temporary impacts to the unroaded characteristics (Natural integrity, Apparent Naturalness, Remoteness and Solitude) due to this activity. This impact will recover in time as the approximately 1.7 acres directly effected by the temporary road corridor revegetates following decommissioning.

AM-2e: Approximately one mile of temporary road will be constructed from 9812F, and one mile of temporary road will be constructed from 9812F1, with 1.23 mile within AM-2e. This area has not retained high unroaded characteristics due to past activities in the area and is within the community protection area for the Ericson Ridge Subdivision within the Elk City township. There will be additional temporary impacts to the unroaded characteristics (Natural integrity, Apparent Naturalness, Remoteness and Solitude) due to this activity. This impact will recover in time as the approximately 3.6 acres directly effected by the temporary road corridor revegetates following decommissioning.

Alternative D

Alternative D, would not impact the unroaded lands described in this section, since no temporary road building would occur on Forest Service land in these areas.

Cumulative effects

There are no cumulative effects to potential roadless areas. The NPNF does not include these areas in the current draft for potential roadless area designation in the analysis for the new Forest Plan.