

**Blue Ledge Mine Project
Rogue River-Siskiyou National Forest**

**TERRESTRIAL WILDLIFE
BIOLOGICAL EVALUATION**

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INTRODUCTION

The purpose of this evaluation is to determine and document the possible effects that the proposed activity and alternatives would have on any Endangered, Threatened, Proposed, or Sensitive wildlife species (FSM 2672.4). A second objective of this evaluation is to ensure these species receive full consideration in the decision-making process, to maintain species viability and meet defined recovery goals. The Biological Evaluation process (FSM 2672.43) provides a description of office analysis/field work done, and mitigation activities necessary to ensure proposed management actions will not likely jeopardize the continued viability of:

- A. Species listed or proposed to be listed as endangered (E) or threatened (T) by the USDI Fish and Wildlife Service.
- B. Species listed as sensitive (S) by the USDA Forest Service Regions 6 and Region 5 (USDA FS 2008, FSM 2670.44).

The Biological Evaluation is a 5-step process. Each Proposed, Endangered, Threatened, and Sensitive species (PETS) potentially occurring in the proposed Blue Ledge Mine Project Area was evaluated based on these steps, (evaluation of impacts on a given species may be complete at the end of step #1 or may extend through step #5).

Section 7 of the Endangered Species Act (ESA) also directs each Federal agency to insure that any action authorized, funded or carried out by such agency is not likely to jeopardize the continued existence of any Threatened or Endangered species or result in the destruction or adverse modification of their critical habitat. The ESA also directs each Federal agency to confer or consult with the appropriate Secretary on any action, which is likely to jeopardize or affect the continued existence of any species or its critical habitat.

Proposed Action

The purpose of the Blue Ledge Mine Project is to remove waste rock tailing piles from the Blue Ledge Mine site on private land within the administrative boundary of the Siskiyou Mountains Ranger District. These mine tailing are actively eroding into Joe Creek, which has severely degraded the downstream water quality within Joe Creek and downstream portions of Elliott Creek. This degraded water quality condition has had substantial impacts on aquatic habitat within Joe Creek, and to a lesser extent Elliott Creek. Recent surveys have confirmed that Joe Creek does not support any self-sustaining populations of fish. Furthermore, aquatic macroinvertebrate communities downstream from the Blue Ledge Mine site are severely degraded.

Description of the Proposed Action

The purpose of the Blue Ledge Mine project is to remove waste rock piles from the mine site. This action would consist of the following primary elements:

- Construct access roads as needed to complete the removal action. Generally, an

- access road would be needed to some portion of each of the four waste rock areas.
- Excavate waste rock with dozers, excavators, and draglines. The specific method varies depending on the slopes and characteristics of the waste rock area.
 - Construct an upland repository and prepare it for waste rock placement.
 - Place the excavated waste rock in an upland repository. There are two sites being considered, both of which are located up the 1060-400 spur (one on USFS land, one on the private land which has the mine site located on it). The total extent of the two proposed repository sites is approximately 3.5 acres in size.
 - Install ET cover including native revegetation, run-on diversion, grading and drainage on the repository to isolate the waste rock from the environment and inhibit leaching of acidity and metals. This design would effectively isolate the waste rock from the environment without the need for leachate collection and treatment.
 - Place and stabilize reclamation fill and plant selected native vegetation on portions of the former waste rock areas.
 - Install sedimentation basins and bioswales to control transport of contaminants from runoff, seeps, and erosion.
 - Close eight adits with bat gates to allow access by wildlife, prevent human access, and minimize physical hazards from the mine openings.

Description of the Affected Area

The Blue Ledge Mine Proposed Project is located in the upper reaches of Joe Creek, a tributary of the Elliott Creek watershed on the Oregon/ California border. The site is a patented claim from the early 20th century, located in very steep terrain in upper Joe Creek. The area consists of very steep, northerly facing slopes that range from 30-90 percent with inclusions of very steep bedrock and scree/talus slopes. The vegetation is largely Douglas fir and white fir dominated with some Mountain Hemlock and sugar and ponderosa pines scattered throughout the project area. An understory/brush layer is present, consisting of chinquapin, canyon live oak, and manzanita. The entire private inholding was logged in the early 1990s; the existing stands are primarily young regeneration stands less than 30 years old with some small pockets of larger trees less than one acre. The project area does not qualify as suitable spotted owl habitat, only some small areas of dispersal habitat at best. The tailing/waste piles themselves are largely bereft of vegetation due to the soil toxicity, only some small islands of Douglas fir and hemlock are present on the waste piles. Adjacent to the private property on Federal lands there are several thousands of acres of late-successional habitat dominated by large Douglas fir and white fir stands. The two proposed repository sites are existing landings previously used for timber harvest activities.

SUMMARY OF EFFECTS

The potential effects of the Blue Ledge Project (including the associated activities with repository site, new roads and road reconstruction) on Proposed, Endangered, Threatened and Sensitive (PETS) species occurring on the Siskiyou Mountains Ranger District were

analyzed (Table 1). One federally-listed species occurs on the District: northern spotted owl.

- **Northern Spotted Owl.** May Affect, Not Likely to Adversely Affect (NLAA). The project is considered NLAA for northern spotted owl, because of disturbance and the maintenance of dispersal habitat.

A Limited Operating Period prevents harassment of potentially nesting spotted owls on adjacent Federal land to the operating areas.

- **Critical Habitat.** May Affect, Not Likely to Adversely Affect (NLAA). A small portion of the project (staging area/repository on an existing landing on Federal land) is located within northern spotted owl Critical Habitat (1993 designation CHU CA-15, 2008 designation CHU CA-15).
- **Marbled Murrelet.** The project is outside of the known range of the marbled murrelet and this species will not be discussed further.
- **Sensitive Species:**

Habitat does not exist within the Analysis Area or the project area is outside of the known range for the following Forest Service Sensitive species. These species are not discussed further within this Wildlife Biological Evaluation.

No Impact (NI). The project is considered NI on the following Region 5 and 6 Sensitive species: peregrine falcon, bald eagle, harlequin duck, willow flycatcher, Lewis' woodpecker, Northwestern pond turtle, foothill yellow-legged frog, insular blue butterfly, Mardon skipper, Coronis fritillary, great gray owl, Siskiyou short-horned grasshopper, Franklin's bumblebee, and the Coronis Fritillary. There is No Impact because these species are associated with habitats that will be unaffected by the project.

This project is outside the known range for, northern waterthrush, California wolverine, Sierra Nevada red fox, Swainson's Hawk, Greater Sandhill Crane, cascades frog, southern torrent salamander, Oregon spotted frog, Lahontan Lake tui chub, Siskiyou Hesperian, pristine springsnail, Crater Lake tightcoil, traveling sideband, Siskiyou Hesperian, scale lanx, Klamath rim pebblesnail, Great Basin rams-horn, hoary elfin, Pacific walker, robust walker, highcap lanx, western ridged mussel, mountain yellow-legged frog, northern leopard frog, California spotted owl, California slender salamander, green sideband, evening fieldslug, and Tehama chaparral snail.

May Impact. The project is considered May Impact Individuals or Habitat, but is not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species (MIIH) for the following species: White-headed woodpecker, northern goshawk, Townsend's big-eared bat, American marten, Pacific fisher, Pacific

pallid bat, fringed myotis, Siskiyou Mountains salamander, black salamander, Chace sideband, Oregon shoulderband snail, blue gray tailed dropper, and Johnson's hairstreak. Habitat and known localities are known or suspected for most of these species within or adjacent to the project area.

Impacts to these species are considered unlikely, immeasurable, and/or minor. Populations of these species are likely tolerant of potential small scale loss of individuals without compromising short and long term viability.

Table 1: Project effect determinations for special status wildlife species in the Blue Ledge Project Analysis Area. Highlighted cells indicate specific mitigation measures are called for.

Wildlife Species	Pre-Field Review¹ Sighting/Habitat	Field Reconnaissance² Sighting/Habitat	Determination of Effects
Proposed, Endangered, or Threatened Species; Critical Habitat.			
marbled murrelet	No	No	No Impact ⁴
marbled murrelet CRITICAL HABITAT	No	No	No Effect
northern spotted owl	Habitat	Habitat	May Affect, NLAA ³
northern spotted owl CRITICAL HABITAT	No	No	No Effect
Forest Service Region 6 Sensitive Species			
American peregrine falcon	No	No	No Impact
bald eagle	No	No	No Impact
harlequin duck	No	No	No Impact
Lewis' woodpecker	Habitat	Habitat	No Impact
White-headed woodpecker	Habitat	No	May Impact
Northern waterthrush	No	No	No Impact ⁴
California wolverine	No	No	No Impact ⁴
Pacific fisher	Habitat	Habitat	May Impact
Pacific pallid bat	Habitat	Habitat	Beneficial Impact
Townsend's big-eared bat	Habitat	Habitat	Beneficial Impact
fringed myotis	Habitat	Habitat	Beneficial Impact
northwestern pond turtle	No	No	No Impact
Oregon spotted frog	No	No	No Impact ⁴
foothill yellow-legged frog	Habitat	Habitat	Beneficial Impact
Siskiyou mountains salamander	Habitat	Habitat	May Impact
California slender salamander	Habitat	Habitat	No Impact ⁴
black salamander	Habitat	Habitat	May Impact
Siskiyou short-horned grasshopper	No	No	No Impact
Coronis fritillary	Habitat	Habitat	No Impact
Mardon Skipper	Habitat	Habitat	No Impact
insular blue butterfly	No	No	No Impact ⁴
hoary elfin	No	No	No Impact ⁴
Johnson's hairstreak	Habitat	Habitat	May Impact

Franklin's bumblebee	No	No	No Impact
Siskiyou Hesperian	No	No	No Impact ⁴
Pristine springsnail	No	No	No Impact ⁴
Crater Lake tightcoil	No	No	No Impact ⁴
Pacific walker	Habitat	No	No Impact ⁴
robust walker	Habitat	No	No Impact ⁴
Traveling sideband	Habitat	Habitat	No Impact ⁴
green sideband	No	No	No Impact ⁴
Chace Sideband	Habitat	Habitat	May Impact
scale lanx	No	No	No Impact ⁴
highcap lanx	Habitat	Habitat	No Impact ⁴
Oregon shoulderband snail	No	No	No Impact ⁴
Klamath rim pebblesnail	No	No	No Impact ⁴
Evening fieldslug	No	No	No Impact ⁴
Western ridged mussel	Habitat	No	No Impact ⁴
Forest Service Region 5 sensitive Species			
Swainson's Hawk	No	No	No Impact
Greater Sandhill Crane	No	No	No Impact ⁴
Cascade frog	No	No	No Impact ⁴
Southern Torrent Salamander	No	No	No Impact ⁴
Siskiyou Mountains salamander	Habitat	Habitat	May Impact
Blue-gray tailedropper	Habitat	Habitat	May Impact
Tehama Chaparral Snail	No	No	
Northern goshawk	Habitat/present	Habitat	May Impact
Willow flycatcher	No	No	No Impact
American marten	No	No	No Impact
Lahontan Lake Tui chub	No	No	No Impact ⁴
Great Gray Owl	Habitat	No	No Impact
California Spotted owl	No	No	No Impact ⁴
Northern leopard frog	No	No	No Impact ⁴
Mountain yellow-legged frog	No	No	No Impact
Sierra Nevada Red Fox	No	No	No Impact ⁴
California Wolverine	No	No	No Impact ⁴
Townsend's Big-eared Bat	Habitat	No	Beneficial Effect

¹ Maps, photographs, databases, and other information were examined to determine the presence of individuals or habitat.

² Individuals or habitat were observed during field reconnaissance specifically for this project.

³ NLAA = Not Likely to Adversely Affect.

⁴ Outside of known range.

ANALYSIS OF EFFECTS

Proposed, Endangered, or Threatened Species

Northern Spotted Owl (*Strix occidentalis caurina*)

Status: Federal – Threatened; State of Oregon - Threatened

A detailed account of the taxonomy, ecology, and reproductive characteristics of the spotted owl is found in the 1987 and 1990 U.S. Fish and Wildlife Service Status Reviews (USDI FWS 1987, 1989, 1990a); the Inter-Agency Scientific Committee (ISC) Report (Thomas et al. 1990); and the final rule designating the spotted owl as a threatened species (USDI Fish and Wildlife Service 1990b). Demographic analysis completed in 1999 indicates that the northern spotted owl population (range wide) was declining by approximately 4 percent per year through that year, although reproducing age females appear not to exhibit a negative trend (Forsman and Anthony 1999, Franklin et al. 1999). The NWFP was expected to limit the extent of this trend by protecting all spotted owl sites within LSRs and by providing spotted owl dispersal habitat through the matrix and AMA.

Conservation of the species was also to be provided by allowing currently unsuitable habitat to develop within the LSRs. Active management designed to advance forest conditions in LSRs includes density management, precommercial thinning, and fertilization. As habitat develops within the LSRs, spotted owl populations are expected to stabilize across its range. The range expansion of barred owl into spotted owl territories is a complicating factor. The ultimate outcome of barred owl/spotted owl interactions is uncertain. Outside the LSR system, spotted owl sites known as of January 1994 have been designated as Known Spotted Owl Activity Centers and are also managed as LSR.

A report summarizing the meta-analysis of demography of the spotted owls throughout its range was released in September of 2004 (Anthony et al. 2004). The report showed a decline of approximately 3.7 percent across the range of the owl and showed significant declines of populations in some areas, in particular Washington State and northern Oregon. Only four study areas within the range of the spotted owl did not show evidence of spotted owl declines. In southern Oregon, three study areas did not show declines and appeared to have relatively stable or increasing populations based on the 95 percent confidence intervals. More recently Anthony (2006) found that the spotted owl population in the south Cascades demographic study area continues to be stationary.

The Service also conducted a status review in 2004 of the spotted owl across its range, in a document known as the 2004 Sustainable Ecosystem Institute Report, or 2004 SEI, which summarized the biology, ecology, habitat associations and trends, as well as current and potential threats to the species (Courtney et al. 2004). The three major operational threats they identified were timber harvest, large-scale stand replacement wildfire, and barred owls. Potential threats included effects associated with West Nile Virus, and Sudden Oak Death.

Courtney et al. (2004) found that habitat loss, the primary reason for listing of the spotted owl, had declined significantly across the range. However, there was also some concern as to the potential lag effects to spotted owl populations from past timber harvest. The greatest amount of habitat loss due to timber harvest had occurred in the Oregon Klamath and west Cascade provinces.

In a review of the spotted owl draft recovery plan (DRP), Courtney et al. (2008) opined that the threat from wildfire was underestimated in the DRP for the dry forest provinces, and is inadequately addressed. They said that this threat is likely to increase given both current forest conditions, and future climatic change. Courtney et.al (2008) also discussed what they thought was an underestimate of the threat of habitat loss from fire and the harvest or ‘salvage’ of large and very large trees. The DRP threat assessment assumed that there would be no major loss of habitat currently conserved under the Northwest Forest Plan (NWFP). However they thought that this assumption may be incorrect because neither of the options proposed in the DRP either reference nor require continuation of the Late Successional Reserves under the NWFP, which contain much of the remaining NRF owl habitat. They found it difficult to determine the degree to which the DRP Options reduced protection of habitat and stated that conservation of habitat remained essential to spotted owl conservation and recovery. Courtney et. al. (2008) recommended reducing surface fuels, increasing the height to live crowns, decreasing crown densities, and favoring large fire tolerant trees in dry forest types such as southern and eastern Oregon and Washington. Specific to the SW Oregon Klamath Province, they recommended that all large and old trees, either living or dead, are important wherever they occur, and suggested landscape designs that promote the increased abundance of large trees of fire tolerant species using ecologically sound landscape design criteria. Courtney et al. (2008) also suggested that existing plantations are one major source of risk of high severity fires and that the fire tolerance of existing plantations can be increased by manipulating species composition, reducing density, promoting spatial heterogeneity in forest structure (avoiding large areas of homogeneous plantations), treating surface fuels, and favoring the development of large, fire tolerant trees. They suggested that this could be accomplished through large scale thinning operations (that include treatment of activity fuels and increasing spatial variability) in plantations outside of owl habitat (where plantations are generally concentrated), or using a larger regional landscape strategy that prioritizes the risk of high severity fire outside of owl habitat. Courtney et. al. (2008) recommended that the establishment of new plantations should not be favored, but rather activities in dry forest settings that improve overall fire tolerance of the landscape and decrease the likelihood that a few large fires will destroy a significant number of owl territories. The subsequent final Recovery Plan included these recommendations in a large part for SW Oregon forests (FWS 2008).

There have been recent large fires in SW Oregon, in particular the Biscuit and the Timbered Rock fires, which reduced spotted owl NRF habitat within the Klamath province. There is uncertainty as to how spotted owls respond to fire in southwest Oregon and research was conducted in the 2004 Timbered Rock Fire area in an attempt to answer that question.

Of the 15 spotted owl activity centers affected by the Timbered Rock Fire, initially, 11 of those centers continued to occupy their historic activity centers immediately after the fire even though their habitat was subjected to varying degrees of fire severity. However, a severe decline of occupied owl centers from the fire area was seen from 2004 to 2006. Survival and productivity also decreased greatly in owls from within the fire area. (Clark 2007).

Barred owls have increased in southwest Oregon but not to the extent of other areas within the range of the spotted owl. In the South Cascades demographic study area, there has been an increase of barred owls and they occupy up to 20 percent of historic or known spotted owl sites within that study area. However, there are far less barred owls known for southwest Oregon than other areas in the northern portion of the range and the spotted owl survival is stable in that study area as well as in the Klamath demographic study area (Anthony et al. 2004, 2005, and 2006). In the Ashland watershed, barred owl detections are known from four locations.

The other new threats of Sudden Oak Death and West Nile virus are thought to be potential stressors to the northern spotted owl population. Sudden Oak Death or *Phytophthora* canker disease kills or injures many species of trees and shrubs, and may affect habitat components important to spotted owls and their prey. However, SOD is only known for the coastal region of NW California and SW Oregon.

West Nile virus infects birds, although as of April, 2005, no wild spotted owl infections have been documented; West Nile virus has been detected in Jackson County. It is unknown when and to what extent this threat may become a risk for the spotted owl.

The new information provided above and summarized by Courtney et al. (2004 and 2008) and the final Spotted Owl Recovery Plan (FWS 2008) does not alter our analysis or change our effects determinations for the proposed action in this BA. The concerns for spotted owls related to a population decline and the increase in barred owls are less in southwest Oregon than in other areas within the range of the spotted owl because the population in South Cascades is stable and the barred owl population is not as robust as in the northern portions of the range of the spotted owl (Courtney et al. 2004, 2008, Anthony 2005 and 2006).

Effects of the Proposed Action

The Blue Ledge Project Area is within the Southwest Oregon Mixed Conifer-Hardwood Forest (SOMC-H Forest) habitat type where northern spotted owl is known to breed and forage (O'Neil et al. 2001). Structural conditions in the project area are largely of young forested stands with some small inclusions of remnant larger trees, the entire private inholding was harvested for timber in 1992 that do not qualify as nesting, roosting, foraging (NRF) for spotted owl. There are four known historic sites within 1.3 miles of the project area.

The proposed action will treat and maintain up to approximately 3 acres of spotted owl dispersal habitat due to the construction of up to 0.6 miles of road, reconstruction of up to 1.5 miles of existing road, and some small amount of clearing at existing landing to be used as staging areas and repository sites. The proposed action could remove up to 4 acres of vegetation from the road prisms of both existing roads and new roads within the project area. The majority of this vegetation is non-habitat for spotted owls; however up to one acre of dispersal habitat could be removed from within the project area and up to ¼ acre from within designated spotted owl CHU which would result in the maintenance of dispersal within the affected stand.

The Blue Ledge Project is determined to be “May Affect, Not Likely to Adversely Affect” for the northern spotted owl. There may be some small amount of NRF/dispersal habitat affected on the private inholding, up to one acre of dispersal habitat could potentially be removed from within road prisms during operations; owls potentially dispersing across the inholding should continue to be able to do so post-project. Northern spotted owls already using the area would most likely continue doing so and their ability to disperse across, into, and throughout the Elliott Creek drainage is not likely to be impeded.

Spotted Owl Designated Critical Habitat Units. A small portion of the project area (staging area and potential repository site) is located within the 1992 designated Critical Habitat Unit CA-15 and within the 2008 designated Critical Habitat Unit 15. 1992 CHU CA-15 currently has approximately 8,559 acres of NRF and 4660 acres of dispersal habitat in that portion of the CHU that is on lands administered by the ROR-SISNF. The 2008 designated CH unit currently has 78,997 acres of NRF and 41,721 acres of dispersal across all lands in Oregon and California. The proposed action would remove a small number, <5 trees that are less than 20 inches DBH, (approximately ¼ acre) from the edge of the existing landing in order to level the site for use. The proposed action is not likely to have any adverse effects to CHU conditions or remove any primary constituent element of CH.

Late-Successional Reserves. A small portion of the project area (staging area and potential repository site) is located within LSR RC- 354. This LSR currently has approximately 8,576 acres of NRF and 4,647 acres of dispersal within the ROR-SISNF portion of the LSR. The proposed action would remove a small number, <5 trees less than 20 inches DBH, (approximately ¼ acre) from the edge of the existing landing in order to level the site for use. The proposed action is not likely to have any adverse effects to LSR conditions to continue provide for clusters of breeding spotted owls.

Disturbance

The proposed actions analyzed in this BA have the potential to disturb one known spotted owl nest site, spotted owl pair activity center site #168. The site is located within one mile northeast of the private land mine property. The site was first discovered in 1990, a territorial male was found at the site. No surveys were conducted at the site until 1993, in that year and for the next two years (1994, 1995) a pair was confirmed at the site. There have been no systematic surveys in area since that time. It is assumed that the site is still occupied.

All activities with the potential to disturb northern spotted owls will implement mandatory Project Design Criteria. Mandatory PDCs will ensure sites are protected during the critical breeding period or protocol surveys ensure the sites are not active, have non-nesting adults, or young have fledged. Spotted owls generally fledge in May or

June (3 to 5 weeks after hatching). The young are fed by both parents until August or September (Forsman et al. 2002). Seasonal protection of nesting owls during the critical breeding period is designed to allow juveniles to fledge undisturbed. Once fledged, we assume that owls, if bothered by the noise and activity, could fly away from the disturbance. Applying the PDC ensures potentially disturbing activities within the disturbance distance of a documented or generated owl site will avoid adverse effects.

PDC avoid the disturbance which could affect individual adult spotted owls or young such that their normal behavior, survival, or reproduction might be compromised. However, seasonal protection allows nesting adults and their young the opportunity to find other habitat once young have fledged from their nest site. The FS will implement mandatory PDC and, when possible, recommended PDCs to avoid adverse effects from disturbance.

Northern Spotted Owl Project Design Criteria for Disturbance

For the project area or portions thereof within specified distances of known nest or spotted owl activity centers, work activities which produce noise and are above ambient levels will not occur during the period March 1 through June 30 (USDI 2006). This measure decreases the likelihood of proposed activities impairing reproduction or substantially altering animal behavior. Owl site #166, located just east of the project area will require a seasonal restriction for blasting. No other restrictions should be required as the site is outside all other disturbance distances unless surveys show that the birds have moved closed to the project area. One other owl site, site #148, is also within one mile of the project; however this site west of the project area is on the other side of a large ridge and will not require any restrictions to the project.

To protect northern spotted owls from disturbance; the following Project Design Criteria (PDC) from the USDI Fish and Wildlife Service formal consultation on timber harvest, meadow restoration and quarry activities proposed by the Rogue River–Siskiyou National Forest (TAILS #: 13420-2009-F-0146). In addition, surveys should be conducted at the site in order to establish current occupancy and breeding status during project operations.

Project Design Criteria for the protection of northern spotted.	
Disturbance	Any of the following Mandatory PDCs may be waived in a particular year if nesting or reproductive success surveys conducted according to the FWS-endorsed survey guidelines reveal that spotted owls are non-nesting or that no young are present that year. Waivers are valid only until March 1 of the following year. Previously known sites/activity centers are assumed occupied unless protocol surveys indicate otherwise.
Disturbance	1) Work activities (such as tree felling, yarding, road construction, hauling on roads not generally used by the public, prescribed fire, muffled blasting) that produce loud noises above ambient levels, or produce thick smoke that would enter the stand, will not occur within specified distances (shown below) of any nest site or activity center of known pairs and resident singles between 1 March and 30 June (or until two weeks after the fledging period) – unless protocol surveys have determined the activity center to be not occupied, non-nesting, or failed in their nesting attempt. The restricted zone is 1.0 mile for any unmuffled blasting. This distance may be shortened if significant topographical breaks or blast blankets (or other devices) muffle sound traveling between the blast and nest sites. March 1 – June 30 is considered the critical early nesting period; the action agency biologist has the option to

	extend the restricted season during the year of harvest, based on site-specific knowledge (such as a late or recycle nesting attempt). The boundary of the prescribed area may be modified by the action agency biologist using topographic features or other site-specific information. The restricted area is calculated as a radius from the assumed nest site (point).
Disturbance	2) Broadcast burning will not take place within 0.25 mile of known active northern spotted owl nests between 1 March and 30 June (or until two weeks after the fledging period) unless smoke will not drift into the nest stand.
Disturbance	3) If an active spotted owl nest or activity center is located within or <i>adjacent</i> to a project area, delay the project activity until September 30th or until an action agency biologist determines that young are not present. For a given situation, the "adjacent" distance is determined by the action agency biologist. If any project activity is so close to a known or suspected owl site that the disturbance would flush a nesting spotted owl, curtail the project activity until September 30. The field biologist has the discretion to conduct surveys and determine fledging activity.

Mandatory Restriction Distances to Avoid Disturbance to Spotted Owl Sites.

Activity	Documented Owl Site
Heavy Equipment (including non-blasting quarry operations)	105 feet
Chain saws	195 feet
Impact pile driver, jackhammer, rock drill	195 feet
Small helicopter or plane	360 feet
Type 1 or Type 2 helicopter	0.25 mile
Blasting; 2 lbs of explosive or less	360 feet
Blasting; more than 2 lbs of explosives	1 mile

Indirect Effects for the Proposed Action

Primary prey species of spotted owls are small mammals that include northern flying squirrels (*Glaucomys sabrinus*) and dusky-footed (*Neotoma fuscipes*) and bushy-tailed (*N. cinerea*) woodrats, followed by tree voles (*Arborimus* and *Clethrionomys*) and mice (*Peromyscus* spp.). While flying squirrels tend to increase in abundance in older forests, they can also be common in younger stands. Dusky-footed wood rats tend to be more abundant in younger and drier forest stands and bushy-tailed woodrats are often associated with cliffs, rock outcrops, and talus, but they also occupy hollow trees and logs. The proposed action could reduce to a small extent, vegetation that provides habitat for spotted owl prey species. The project area does have vegetation that does provide for prey species, however it is unlikely that spotted owls use this site since it is largely not suitable foraging habitat for owls. Vegetation altering activities by the proposed action is unlikely to have a significant effect to spotted owl prey or to spotted owl foraging behavior.

The proposed action could also increase the potential for disturbance, potentially limit movement and cause direct mortality to spotted owl prey species.

Bury and others (1977) found greater small mammal species richness (1.25 times greater) and abundance (500 percent more individuals) at control sites than OHV sites. Similarly, Luckenbach and Bury (1983) found 1.5 times more small mammal species, 5.1 times more individuals, and 2.2 times more biomass in control plots than in OHV-impacted plots; the number of desert kangaroo rats recorded in OHV plots was 53 percent lower than the number in control plots. Luckenbach and Bury (1983) found that overall animal activity—as measured by track frequencies—was greater in control areas than it was in OHV-use areas.

Roads and trails can act as barriers to small mammals. For example, Swihart and Slade (1984) report that prairie voles (*Microtus ochrogaster*) and cotton rats (*Sigmodon hispidus*) were strongly inhibited from crossing a route less than 3 m (3.3 yd) wide and composed of two dirt tracks created by the passing of 10 to 20 vehicles per day. Oxley and others (1974) evaluated small mammal responses to roads and routes ranging from 4-lane paved highways to country gravel roads in forested systems of southeastern Canada and found that they were not willing to cross roads or other routes with a total clearance (the distance between forest margins, including road surfaces and immediately adjacent strips of vegetation kept very short via spraying and/or mowing) of 30 m (32.8 yd) or greater; road surface apparently was unimportant. Likewise in Germany, forest mice (*Apodemus flavicollis*) did not cross roads 6 m (6.6 yd) wide, and very few mice returned to the side of the road from which they were captured after being translocated to the opposite side within the same habitat type (Mader, 1984).

New roads could cause small mammals to avoid areas near the roads and limit movement of small mammals across them due to increased activity on these roads, thereby potentially affecting prey availability for spotted owls. However, no new roads or road reconstruction are located within the nest patch or core area of a spotted owl, consequently the effect to spotted owls is not likely to be significant, as spotted owls typically forage within the core area during the breeding season.

Indirect effects to prey species of the proposed action is expected to be minor.

Cumulative Effects

Cumulative effects include the effects of foreseeable future State, local, or private activities that are reasonably certain to occur within the action area. There is little habitat on private land for spotted owls in the Analysis Area and no State lands, however much of the Federal land in the area is LSR and suitable habitat for spotted owls. Cumulative effects include the effects of loss of habitat associated with past timber sale activities. Private land in the area are still subject to timber harvest actions, however there are no current plans ROR-SISNF to impact any suitable habitat for spotted owls on federal lands in the area.

Sensitive Species

Pacific Fisher (*Martes Pennanti*)

The Pacific fisher was petitioned for listing by the Center for Biological Diversity and

several other environmental organizations in November 2000. After a 12-month review, the U.S. Fish and Wildlife Service found Pacific fisher to be a distinct population segment (DPS) and gave a “warranted but precluded” decision to the petition, designating the West Coast DPS a Federal Candidate species (USDI Fish and Wildlife Service 2004). Other rankings include: U.S.D.A Forest Service, Region 6 – Sensitive, Region 5 - Sensitive; U.S.D.I. Bureau of Land Management, Oregon – Sensitive, California - Sensitive; Oregon State Sensitive – Critical species.

Fisher habitat is commonly described as widespread, continuous-canopy forest at relatively low elevations (Powell, 1981). Its occurrence is closely associated with low to mid elevation forests with a coniferous component, large snags or decadent live trees and logs for denning and resting, and complex physical structure near the forest floor to support adequate prey populations (Aubrey and Lewis 2003). The fisher is one of the most habitat-specialized mammals in western North America (Buskirk and Powell 1994). Specialization appears to be tied primarily to denning and resting habitats, because the varied diet of fishers suggests they forage in a variety of habitats.

Several studies have shown that fishers appear to be highly selective of resting structures. In southwest Oregon, Aubry and Raley (2006) reported that the average diameter of live trees used by females for resting was slightly greater than those used by males: 88 cm dbh versus 64 cm dbh, and that fishers selected rest sites with canopy closure greater than 80%.

In the southern Oregon Cascades, Aubry and Raley (2006) located and typed different resting structures: live trees, logs and cull piles, snags, mistletoe brooms and rodent nests. Trees must be old enough to have suffered the type of stresses that initiate cavities, and must be subjected to the ecological processes that form cavities of sufficient size for use by fisher (Zielinski et al. 2004). Both conifers and hardwoods provide rest structures for fisher provided they are large enough and produce cavities sufficient to accommodate them. Large trees also provide platform-type resting structures such as mistletoe, clumped branches which support rodent nests, or rust brooms which can support the weight of fishers. Once these large trees die and fall, they are also the type of log that fishers have been known to use as rest sites.

As with resting structures, both conifers and hardwoods provide habitat for fisher dens. In southwest Oregon, Aubry and Raley (2006) located 13 natal and 18 maternal dens. For natal dens, fishers used both live trees and snags with openings that accessed hollows created by heartwood decay.

The most commonly used tree species for resting and denning were incense cedar, true fir, and western white pine. Douglas-fir, Incense cedar and true firs were used as maternal dens. Structures used for maternal dens were more variable than those used for natal dens, and included cavities in the bole or butt of large live trees and snags, and large hollow logs (Aubry and Raley (2006). Natal den trees need to be fairly large to accommodate a cavity large enough for an adult female fisher and kits (Aubry and Raley 2006). In the south Cascades of Oregon, the average dbh and height of live trees used for

natal dens was 92 cm and 40 m respectively. The average dbh and height of snags was 89 cm and 26 m respectively (Aubry and Raley 2006).

Fishers appear to be a generalist predator and opportunistic in their foraging strategies, which is reflected in their diverse diet (Aubry and Raley 2006, Zielinski and Duncan 2004, Aubry et al. 2002, Zielinski et al. 1999, Powell 1993). There is some indication of seasonal variation in the fisher's diet (Zielinski et al. 1999) which is likely linked to seasonal abundance of prey and forage species. While fishers require structures provided by older aged or residual stands for denning and resting, they appear to use a wider variety of stands for foraging. Weir and Harestad (2003) found that fishers exhibited selectivity for stands and patches with high volumes of CWD and specific closures of high and low shrub layers. Fishers avoided stands with >80% closure of the low shrub layer. Jones and Garton (1994) found that fishers did not use non-forested sites while resting or hunting, but they did use pole-sapling forests for hunting significantly more than for resting.

Powell (1993) reported the primary prey of fishers throughout most of their range is snowshoe hare (*Lepus americanus*) and porcupines (*Erethizon dorsatum*). In southwest Oregon Aubry and Raley (2006) found mammals, birds, insects and plants in the diet of fisher. Their results suggested that female fishers were capturing smaller-bodied prey more frequently than larger-bodied prey, and males were capturing larger-bodied prey more frequently. Aubry and Raley (2006) also found evidence that males, but not females were preying upon porcupines. These findings suggest that fishers, at least in the western states, are a generalist predator.

In the western United States, fisher populations are known to occur in western Montana, the Idaho panhandle, the southern Sierra Nevada of California, the Klamath and Siskiyou mountains of northwestern California and extreme southwestern Oregon, and the southern Cascade Range of southwestern Oregon.

The U.S. Fish and Wildlife Service has determined that fishers in the Cascade Mountains and all areas west, to the coast in Oregon and Washington; and in California, the North Coast from Mendocino County north to Oregon, east across the Klamath Mountains, across the southern Cascade Mountains and south through the Sierra Nevada Mountains as the West Coast Distinct Population Segment (USDI Fish and Wildlife Service 2004).

Currently, there are two documented populations in southern Oregon which appear to be genetically isolated from each other (Wisely et al. 2004). This is considered to be due to the presence of potentially strong ecological and anthropogenic barriers including the white oak savanna habitat of the Rogue Valley and Interstate 5 (Aubry et al. 2004). Based on DNA analyses, individuals in the southern Oregon Cascades appear to be descendents of animals re-introduced from British Columbia and Minnesota during the late 1970s and early 1980s by the Oregon Department of Fish and Wildlife (Aubry et al. 2004). Animals in the eastern Siskiyou Mountains of Oregon are genetically related to individuals in the northwestern California population, which is indigenous (Aubry et al.

2005, Farber and Franklin 2005).

Fisher home range sizes exhibit substantial variation throughout their range and within habitat types, although male home ranges are generally larger than those of females. Home range size for fishers is likely related to availability of resources including abundance and diversity of prey and suitable habitats for den and rest sites. Male home range sizes may be influenced by availability of females. Mean home range sizes of males in the southern Cascades of Oregon was 147 km² during the breeding season and 62 km² during the non-breeding season compared to female home ranges of 25 km² (Aubry and Raley 2006).

Suitable habitat for fisher exists in the Blue Ledge Project Analysis Area and there is a known population of fisher and several verified records of fisher in the Applegate watershed. There is a 2003 record of a fisher approximately 2 miles northeast of the project area in the Dutch Creek watershed (Aubry and Raley 2009).

Effects of the Proposed Action

Small amounts of habitat for fishers may exist in the Blue Ledge Project Analysis Area; however habitat within the project area is likely only used as forage habitat as it lacks structural characteristics for denning and denning by fisher. The proposed action may result in the loss of some small amount of the large tree component, and up to 3 acre of young forested habitat, there could be some small effects to prey species and reduced opportunities for rest sites. However, due to the low canopy and young vegetation it is unlikely that fisher use this private inholding to any great extent. Proposed activities should also not preclude the ability to fisher to disperse throughout the area as the affected area is small in size (< 20 acres).

The Blue Ledge Project is considered a “**May Impact Individuals and or Habitat but not likely to cause a trend to federal listing or a loss of viability.**” project for Pacific fisher.

Cumulative Effects

Cumulative effects include the effects of foreseeable future State, local, or private activities that are reasonably certain to occur within the action area. There is little habitat on private land for fisher in the Analysis Area and no State lands, however much of the Federal land in the area is LSR and suitable habitat for fisher. Cumulative effects include the effects of loss of habitat associated with past timber sale activities. Private land in the area are still subject to timber harvest actions, however there are no current plans to impact any suitable habitat for fisher on federal lands in the area.

Northern Goshawk

The goshawk is listed as a Forest Service Sensitive species in Region 5 due to the loss of mature conifer forest habitat in the western United States.

Northern goshawks are uncommon raptors distributed widely throughout forested habitats. In the Forest Service Pacific Southwest Region, goshawks regularly occupy conifer and mixed conifer-hardwood forest habitats of the Sierra Nevada, Cascade, Inyo-White, Klamath, Siskiyou, and Warner Mountains, and the North Coast Ranges.

Goshawks inhabit a wide variety of forest habitats, including true fir (red fir, white fir, subalpine fir), mixed conifer, lodgepole pine, ponderosa pine, Jeffrey pine, montane riparian deciduous forest, and Douglas-fir. They are occasionally found nesting in coast redwood and mixed hardwood forest. Goshawk nest sites tend to be associated with patches of relatively larger, denser forest than the surrounding landscape; however home ranges often consist of a wide range of forest age classes and conditions. Numerous habitat studies and modeling efforts have found nest sites to be associated with similar factors including proximity to water or meadow habitat, forest openings, level terrain or 'benches' of gentle slope, northerly aspects, and patches of larger, denser trees, but these factors vary widely..

Results of radio telemetry studies on goshawks in California, and elsewhere in the west, suggest that foraging goshawks avoid dense young forest stands and brush, and concentrate their foraging in more open, mature stands, forest openings, and meadows. Goshawks feed mostly on birds with prey caught in air, on ground or in vegetation, using fast, searching flight or rapid dash from a perch. Goshawks are sensitive to noise disturbances during nesting and often exhibit defensive territoriality behavior around nest sites when disturbed (CDFG 1990).

Goshawks on the Siskiyou Mountains Ranger District have been found nesting in mature stands of mixed conifer forest on moderately steep terrain (Clayton personal observation). Habitat for goshawks occurs in the action area as true fir, ponderosa pine, and mixed conifer forest. On the District most known goshawk sites have been located during NSO surveys, as goshawks often respond aggressively to NSO broadcast calls.

There is a known goshawk historic site immediately northeast of the project area that was first detected by owl surveyors in the early 1990s. Surveys have been conducted intermittently since the 1990s to present. Surveys were most recently conducted in 2009 with no goshawks detected.

Effects of the Proposed Action

There is a known historic goshawk site within one mile of the project area; this site was discovered in the early 1990s during spotted owl surveys. It is unknown if the site is currently occupied, one survey was conducted in 2009, no goshawks were detected.

No goshawk habitat will be impacted by the proposed action; there will no effect to goshawks by the proposed action from habitat alteration.

Surveys for occupancy and breeding status are recommended for the project area. If the nest site or nearby habitat is determined to be occupied as a result of surveys, no burning

or use of heavy equipment will occur within ¼ mile of the nest site between 3/1 and 8/31. If protocol surveys are conducted and the site is found to be unoccupied, proposed actions may proceed without seasonal restrictions. The forest's determination for effects to goshawk is **“May Impact Individuals and or Habitat but not likely to cause a trend to federal listing or a loss of viability.”**

Cumulative Effects

Timber harvest on private lands has resulted in a reduction in the amount of suitable goshawk habitat within the action area, and in the surrounding landscape. Non-federal lands in the area are still subject to timber harvest which could further reduce habitat for goshawk. Restoration activities on federal lands in the area (CHU/LSR) are unlikely to have an effect on goshawk

Great gray Owl

The great gray owl (GGO) is listed as Region 5 Forest Service Sensitive due to loss of mature conifer forest habitat in the western United States. FEMAT (USDA Forest Service 1993) analyzed that management under the Northwest Forest Plan, including establishment of LSRs, gave the GGO an 83% chance of remaining well distributed throughout the northwest.

The GGO is the largest North American owl. Dependant on meadows for foraging, it also requires old growth red fir, mixed conifer, or lodgepole pine for nesting (CDFG 1990). Most commonly seen in wet meadows of the Sierra Nevada and the Cascades, it has also been recorded in low numbers in northwestern California and the Warner Mountains (McCaskie et al. 1988). Great gray owls rely on old hawk and raven stick nests or natural depressions on broken-topped snags or stumps for nest sites. In the southern parts of their range (i.e. California), GGOs nest in relatively xeric, montane evergreen, or deciduous forests up to 9,200 feet in elevation (USDA Forest Service 1994b). Winter (1986 *in* USDA Forest Service, 1994b) and Reid (1989 *in* USDA Forest Service 1994b) concluded that access to suitable hunting meadows restricts population densities in California since owls rarely forage in forest habitat. Great gray owl home ranges are often relatively small, depending on food supply, and may be between 1 and 4 miles² (USDA Forest Service 1994b, Hayward and Verner 1994a).

Great gray owl prey species consist mainly of small mammals, especially rodents. Voles and pocket gophers are primary prey species with shrews, moles, mice and flying squirrels also consumed (Hayward and Verner 1994a).

Population trends for GGOs are uncertain due to limited long term survey data (Hayward and Verner 1994) and difficulty in detection. More recent surveys (2000-2005) in the Applegate Valley in southwestern Oregon have found GGOs in less typical type habitat (oak woodlands, cut-over stands).

Several authors cite foraging habitat throughout the GGO's range as large, relatively open, grassy habitat including bogs, selective and clear-cut logged areas, and natural meadows (Nero 1980, Mikkola 1983, Winter 1986). Based on the literature, we would

expect GGOs to be using mid- and high elevation true fir and mixed conifer forest habitats adjacent to natural meadows and in the cut-over areas within the Project area.

Reconnaissance of the project area found potential great gray owl habitat in areas around Slaughterhouse Flat which is within 1.5 miles of the project area and one owl was observed in the late 1990s in this area (B.Mumblo, Pers. Comm.). No GGO habitat occurs within or immediately adjacent to the project area.

Effects of the Proposed Action

The project does not propose any action within habitat for the GGO; therefore there will be **No Impact** to GGOs.

Willow Flycatcher

This species is listed as Sensitive in Forest Service Region 5. The listing is due to the general loss and degradation of riparian shrub habitats throughout its range, cowbird nest parasitism and livestock grazing (CDFG 1990).

The willow flycatcher is a rare to locally uncommon, summer resident in wet meadow and montane riparian habitats at 2000-8000 feet in the Sierra Nevada and Cascade Range. It most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows (CDFG 1990).

This species has been captured at the MAPS (Monitoring Avian Productivity and Survivorship) banding station in large willow thickets at Siead Valley along the Klamath River over the past ten years (Cuenca pers. comm.). This mist-netting station is 10 miles from the project. Both migrating adults and juveniles have been captured, indicating the species does nest in the Klamath Mountains. Willow flycatchers have been observed on the lower Scott River and in the Marble Mountain Wilderness. The proposed project area contains no habitat for willow flycatchers.

Effects of the Proposed Action

The proposed project does not propose any action within habitat for the willow flycatcher; therefore there will be **No Impact** to the willow flycatcher.

Lewis' Woodpecker

Lewis' woodpeckers are migratory in southwestern Oregon, with sporadically large populations in the winter and scattered breeding pairs in the summer reported. Gilligan et al. (1994) reports that they are common breeders in summer in Jackson and Josephine Counties but in the last 10 years they have not been documented (N. Barrett 2008, pers. com.) and there are few recent breeding records (Janes et al. 2002). This species is closely tied to the ponderosa pine/oak savannah habitats of eastern and southwest Oregon.

Nests are often in the large Ponderosa Pine snags or mature oaks while the birds forage on insects and acorn meat. In winter they store acorn meat in crevices in trees and power poles. Because this woodpecker does not usually excavate its own cavity, they have a close tie to older snags within the forest that are likely to contain cavities and have crevices for food storage.

The population of Lewis' woodpeckers has fallen dramatically across Oregon as pine – oak woodlands are lost (Gilligan et al. 1994). A contributing factor in the decline has been the spread of the European Starling, which aggressively out-competes this species for available cavities. Habitat loss is due to a wide variety of concerns that include urbanization of valley floors, fire suppression and encroachment of conifer forests, timber harvest of pine components in the oak forests, etc. There is a historic site known for the district at Maple Dell Gap, approximately eight miles from the project area.

Effects of the Proposed Action

There is no suitable habitat for this species in the project area; **no effect** to the woodpecker is expected from the proposed action.

White-Headed Woodpecker

White-headed woodpeckers (WHW) have been confirmed breeding on Mount Ashland, Dead Indian Plateau, and along the California border into Josephine County. Primarily a Ponderosa Pine habitat breeder on the East side of the Cascades, they locally breed in the Shasta fir zone in Jackson County (Marshall 2003) and in mixed conifer forest (Clayton personal observation). This species is not migratory and can be found on the forest year round (Janes et al. 2002). Thinned stands with large remnant trees area suitable habitat, as well as old growth forests.

On the Rogue River –Siskiyou National Forest any dry, open forest stand with large trees may serve as suitable foraging breeding habitat for the species, though breeding is probably limited to Ponderosa pine and true fir stands.

Known breeding sites on the forest include the meadow complexes on the south side of Mt. Ashland and a Shasta Fir shelterwood (approximately. 6 trees/ac.) east of Howard Prairie. One Mt. Ashland nest was in a 5 foot tall stump within a campground. White-headed woodpeckers have been observed on the district at Ward's Fork Gap, Monogram Lakes/Wrangle Gap area approximately ten miles from the project area.

Effects of the Proposed Action

There is likely some small amount of suitable habitat within the project area and in adjacent areas in the form of large trees suitable for foraging and nesting structure. However, due to the small number of large trees in the project area and the low potential for removal, it is unlikely that WHW would significantly be affected by the project. The Forest's determinations is **“May Impact Individuals and or Habitat but not likely to cause a trend to federal listing or a loss of viability”**.

Cumulative Effects

Timber harvest on public and private lands has likely resulted in a reduction in the amount of suitable habitat within the action area, and in the surrounding landscape. Non-federal lands in the area are still subject to timber harvest which could further reduce habitat for the species if snag habitats are impacted. Restoration activities on federal lands in the area (CHU/LSR) are unlikely to have an effect on the species.

American Marten

The American marten is listed as a Region 5 Forest Sensitive species due to loss and fragmentation of habitat across the state, as well as the fact that they are easily trapped (CDFG 1990).

The FEMAT report (USDA Forest Service 1993) determined that the Northwest Forest Plan (Option 9), with its system of LSRs and other reserved land allocations, provided a 67% likelihood that marten would remain well distributed throughout its range. In the Klamath Forest Plan, additional S&Gs for coarse woody debris and snags provide additional protection of habitat components for marten.

In coniferous forests of the Pacific Northwest, American martens are associated with high-elevation spruce-fir forests, whereas fishers (discussed above) are associated with lower elevation forests dominated by late-successional Douglas-fir and hardwood associations (Buskirk et al. 1994, Yaeger 2005). American marten prefer high elevation (>5,000 feet), multi-storied mature and old growth conifer (true fir) forests with moderate to dense canopy closure, minimum tree size of 24 inches dbh and sufficient under-story including slash, rotten logs and stumps, to provide hiding cover and denning areas (Ruggiero et al. 1994). Marten use travel-ways comprised of closed canopy forests to move between foraging areas.

Carnivore surveys conducted by Forest personnel and other efforts on the Applegate Ranger District have not detected marten. Camera detections of martens have been confirmed on the High Cascades and Wild Rivers Districts. There is only one historic record known for the Ashland Watershed and this record is anecdotal.

Although mature true fir and red fir habitat, potentially suitable for marten, occurs within the action area, based on information from survey data from 1993-2005, there is a very low probability of marten occurring in the action area. The forest has determined that the proposed project will have **No Impact** on this species.

Effects of the Proposed Action

There are no historical records of marten in the action area. The probability of martens occurring in the area is very low. Based on negative survey data, current range of the species, and low likelihood of occurrence, it is expected that the Blue Ledge Project Area will have no effect on American marten.

Pallid Bat

Pallid bats are listed as a Region 5 and 6 Forest Service Sensitive species because of loss of habitat and disturbance created by the increasing use of caves by humans. These bats can be very sensitive to disturbance at their maternity and hibernating roost sites.

Pallid bats are known to occur throughout SW Oregon and NW California. Suitable roost habitat types include buildings, bridges, rock outcrops, caves and mines, and large decadent snags. Pallid bats have been captured from several sites on the ROR SIS NF, including some locations on the Applegate RD within five miles of the project area. They have also been captured at a site just south of Pilot Rock at 4,500 feet in elevation, southwest of the Analysis Area (Clayton personal observation). Survey work by Cross et al. (1996) on the Medford, OR, BLM District and Rogue River National Forest, found pallid bats occupying a variety of crevice sites, including those in living and dead trees. A summary of roost sites includes rock crevices, snags of black oak, snags of white oak, and snags of large (>40 inches) Douglas fir and ponderosa pine. They judged that most trees used for roosting were found in relatively open forests or extended above the canopy. There are several known pallid bat roost sites in the Applegate watershed, including three bridges below Applegate Reservoir. Two of bridges serve as significant maternity sites for pallid bats.

Pallid bats are known to roost under loose bark of large snags and within rock crevices (Clayton personal observation). Acoustical monitoring of the site in 2009 did not detect any pallid bats at the site (T. Kerwin, pers. comm.) Based on documented presence of pallid bats at both Applegate R.D. and Pilot Rock, and the presence of large, decadent snags for roosting, pallid bats may occur within the Project Area.

Townsend's Big-eared Bat

This species is listed as a Region 5 and Region 6 Forest Service Sensitive species due to a steep decline in its population, at least partially due to its high sensitivity to human disturbance at roost sites.

The FEMAT Report (1993) determined that LSRs provide critical habitat components distributed throughout this species range. LSRs and site-specific protection from standards and guidelines contribute to the viability of this bat species. The Forest Plan standards and guidelines for this species require protection of caves, mines, and abandoned wooden bridges and buildings.

The Townsend's big-eared bat occurs throughout the west. In California, the species is typically found in low desert to mid-elevation montane habitats, although sightings have been reported up to 10,800 feet (Philpott 1997, Sherwin 1998). Distribution of this species is strongly correlated with the availability of caves and cave-like roosting habitat. Townsend's big-eared bats have adapted to a variety of man-made structures, most commonly mines (Pierson et al. 1999). This species has also been found in abandoned buildings with cave-like attics, water diversion tunnels, and bridges.

Vegetation communities utilized by the species appear to vary geographically from arid plateaus in northern Mexico to primarily riparian communities in Kansas and Oklahoma

(Kunz and Martin 1982). In New Mexico and in Colorado it appears to be more associated with mesic coniferous and deciduous forest and woodlands, as well as deciduous riparian woodland and semi-desert and montane shrubland. However, the physical characteristics of habitat are much more important to the species, especially the presence of caves or mines, which provide maternal roosts, hibernacula in winter, as well as day and night roosting opportunities for males and non-breeding females (Armstrong et al. 1994). Foraging associations include edge habitats along streams and areas adjacent to and within a variety of wooded habitats. The Townsend's big-eared bat is a moth specialist, with over 90% of its diet composed of lepidopterans (Sherwin 1998).

Townsend's big-eared bats are known to occur on the Rogue River-Siskiyou National Forest associated with mines and caves. There are several sites known for the Applegate RD, including one in a cabin just downhill from the project area. Acoustical monitoring of the site in 2009 did not detect any Townsend's big-eared bats at the site (T. Kerwin, pers. comm.); however the project area is likely habitat for the species

Pacific Fringe-tailed Bat

Verts and Carraway (1998) considered *M. thysanodes* a cave-dwelling bat, even though most of the specimens they examined were from buildings. In SW Oregon, they are considered a snag obligate rooster (Cross 1996). It appears to be adapted to living in areas with diverse vegetative substrate.

Fringe-tailed myotis are known to occur within the Analysis Area. Cross et al. (1997) reported capturing two *M. thysanodes* (1 male, 1 female) within the Ashland Watershed during August. There are several known sites that occur within the Applegate Watershed and this species was detected during acoustical surveys at the project site in 2009.

Effects of the Proposed Action to Townsend's big-eared bat, Pallid bat, and Fringed Myotis Bat.

Snags that have exfoliating bark or crevices for roosting serve as important roost sites for both fringe-tailed and pallid bats. Some snags may be felled during implementation of the project if they represent a safety hazard to personnel or equipment.

The mines within the project area are suitable for all three of these bats and likely regularly used by the Townsend's Big-eared bat given the relatively close association with mines in the area and the distribution of this species in the Applegate watershed.

All proposed Action “**may adversely impact individuals, but not likely to result in a loss of viability on the planning area, (RRNF), nor cause a trend to federal listing or a loss of species viability range wide**” for Fringe-tailed myotis and Pacific pallid bats because some snags could be lost during implementation if they present hazards during underburning operations. There would also be some **beneficial** effects to these species due to the closure of the mines in the project area with bat friendly gates that may serve as roost and swarm sites for these species.

Cumulative Effects

Timber harvest on public and private lands has resulted in a reduction in the amount of suitable snag habitat within the action area, and in the surrounding landscape. Past mining activity has likely benefited these species by providing more roost habitat than naturally occurs. Non-federal lands in the area are still subject to timber harvest which could further reduce habitat for the species if roost habitats are impacted. Restoration activities on federal lands in the area (CHU/LSR) are unlikely to have an effect on these species.

Siskiyou Mountains Salamander

The Siskiyou Mountains salamander (*Plethodon stormi*) (PLST) is a member of the family Plethodontidae, the lungless salamanders. The species respire primarily through their skin, are completely terrestrial, and are very sensitive to temperature and moisture regimes. Moist microclimates are essential to survival. This salamander, and its close relative, *Plethodon elongatus* is associated with layered talus rock (Olson 1999). Siskiyou mountains salamanders move up and down through the talus substrate as microhabitat conditions change and they are usually surface active during the fall, winter and spring rains. Optimal survey conditions for this species include 65% relative humidity and soil that is moist below the top layer of cover objects. Survey protocol authors have regarded prescribed burns as not detrimental to PLST if they are conducted when animals are not surface active and if no net loss of overstory canopy occurs (Olson 1999). Studies have shown that only a portion of the total animals present at a given site are active at the surface at any one time. This species was thought to primarily inhabit stabilized talus in old-growth forest stands with northern exposures. Present information indicates PLST may occupy a wide range of forest types with a varied range of overstory canopy closures (CDFG 2004).

Plethodon stormi has an extremely restricted range, occurring in a small area (about 375 km²) of southern Oregon and northern California. They are found in the Klamath River drainage, northern Siskiyou County, California and in the Applegate River drainage, in southwestern Jackson County and southeastern Josephine County, Oregon. A range description for PLST occurs in the 2002 Survey and Manage Annual Species Review Results and Implementation Summary and the 2008 FWS Species Status Review.

The current range of PLST is substantially larger than was known when the species was listed as rare by the State of California. The known range of the PLST has roughly doubled since 1993 and the onset of federal surveys under the Survey and Manage provision. This species is known to occur up to 6,000 feet in elevation. Along its western edge, its range is contiguous with the Del Norte salamander. Siskiyou Mountain salamanders were recently divided into two separate species (Mead et al. 2006). The newly described species, the Scott Bar Salamander (*Plethodon asupak*) is located up river from Indian Creek on the north side of the Klamath River, and from Walker Creek on the south side of the Klamath River to the area around the confluence of the Klamath River and the Scott River.

In 2007, a conservation strategy was adopted by the ROR-SIS NF, Medford BLM, and USFWS; the strategy consists of a landscape approach to management of the species with the identification of high-priority sites for the management of the species as well as specific management goals for each site (Olson et al. 2007). There is no high priority sites located within the project area.

The Joe Creek area lies in what is approximately the center of the known range for the species. There are known sites within the watershed and in the project area itself (Personal Observation).

Effects of the Proposed Action

Potential talus habitat has been surveyed in the early 1990s for *Plethodon* salamanders (Clayton personal observation). There is suitable and occupied habitat within the project area. Recent field visits to the site show that the area in the immediate vicinity of the waste pile proposed for removal and associated road work to access those sites consist of large areas of bedrock outcrops and cliffs with small area of associated talus that is suitable for the species. Road construction could impact up to 3 acres of land within the projects area, of which 1.5 acres of suitable habitat could be impacted. The forest assumes that all suitable habitat within the project area is occupied by the species and that some habitat and individuals would be affected by the proposed action. However, due to the small amount of habitat potentially affected, it is unlikely to impact the species within the project area or across its range. In addition, no high-priority sites identified in the conservation strategy will be impacted by the proposed action. A seasonal restriction to all activities from October 30 to May 30 is recommended in order to reduce direct mortality for individuals. This restriction may be waived if protocol surveys at the site or at a known occupied site determine that the animals are not surface active. Due to the potential removal of only a small amount of habitat the Forest has determined that the Blue Ledge Project is considered a **“May Impact Individuals and or Habitat but not likely to cause a trend to federal listing or a loss of viability.”** project for the Siskiyou Mountains salamander.

After the waste material is removed from all of the waste sites, totaling approximately 7 acres, reclamation fill using non-mineralized native rock and soil will be used to cover the waste sites and vegetation will be established on the sites. There is potential for this reclaimed land to become suitable habitat for the species due to the use of native rock and soil that could provide interstitial spaces and suitable microhabitat for the salamander; consequently the reclaimed land could become occupied by animals from adjacent habitat. This could result in a **beneficial effect** for the salamander by providing additional acres of habitat within the project area.

Cumulative Effects

Timber harvest on public and private lands has resulted in a reduction in the amount of suitable salamander habitat within the action area, and in the surrounding landscape. Non-federal lands in the area are still subject to timber harvest which could further reduce habitat for the salamander. Activities on federal lands in the area (CHU/LSR) are unlikely to have an effect on the species.

Black Salamander

The black salamander ranges from a limited distribution in southern Oregon into Santa Cruz and Santa Clara Counties, California. In Oregon, the few records available indicate a small range in extreme southern Jackson and southeastern Josephine Counties (Leonard et al. 1993). Black salamanders are found in coniferous forests, mixed deciduous-coniferous forests, and open hillsides from sea level up to at least 1,700 meters in elevation (Nussbaum et al. 1983). Black salamanders are most likely to be found in the moist crevices of decaying logs or stumps, within moist to wet talus slopes, or under surface objects during wet weather (Leonard et al. 1993).

There are several known sites within the watershed; one site is known from USFS lands approximately 1.5 miles from the project area (Clayton personal observation). There is likely suitable and occupied habitat within the project area in the same habitat type as the Siskiyou Mountains salamander as both are typically found in similar talus habitat.

Effects of the Proposed Action

Similarly to the Siskiyou Mountains salamander, road construction could impact up to 3 acres of land within the project area, of which 1.5 acres of suitable talus habitat could be impacted. The forest assumes that all suitable habitat within the project area is occupied by the species and that some habitat and individuals would be affected by the proposed action. However, due to the small amount of habitat potentially affected, it is unlikely to impact the species within the project area or across its range. A seasonal restriction to all activities from October 30 to May 30 is recommended in order to reduce direct mortality for individuals. Due to the potential removal of only a small amount of habitat the Forest has determined that the Blue Ledge Project is considered a **“May Impact Individuals and or Habitat but not likely to cause a trend to federal listing or a loss of viability.”** project for the black salamander

Cumulative Effects

Timber harvest on public and private lands has resulted in a reduction in the amount of suitable salamander habitat within the action area, and in the surrounding landscape. Non-federal lands in the area are still subject to timber harvest which could further reduce habitat for the salamander. Activities on federal lands in the area (CHU/LSR) are unlikely to have an effect on the species.

Foothill Yellow-legged Frog

The foothill yellow-legged frog lives in or near streams with rocky or gravel substrates (Nussbaum et al. 1983, Cockran and Thoms 1996). Streams with sandy or muddy bottoms are occasionally used as are moist, rocky outcrops (Nussbaum et al. 1983). Adults commonly live amongst sedge clumps at the edges of deep pools, amongst cobbles on the bottom of pools, or in bedrock at the edge of the main stream channel (Cockran and Thoms 1996). Eggs are deposited during late spring or early summer in clusters attached to rocks on the bottom or edges of streams (Nussbaum et al 1983, Cockran and Thoms 1996). Tadpoles live in pools for three to four months before metamorphosing into adults (Nussbaum et al. 1983, Cockran and Thoms 1996).

There are records of sightings of foothill yellow-legged frogs in the Elliott Creek drainage but the Blue Ledge Project Analysis Area is at higher elevations and with higher stream gradient than will likely support yellow-legged frogs. Habitat conditions such as low velocity water flow and open canopy condition with gravel substrates are not present the Blue Ledge Project Analysis Area.

Restoration of the stream system could have a beneficial effect to the frog lower in the Joe Creek sub-drainage by restoring water quality to historic conditions. The Blue Ledge Project should have **No Effect** to the foothills yellow-legged frog.

Blue-gray tailedropper

The blue-gray tailedropper is a forest-dwelling slug. The original distribution, reported in 1993 (Frest and Johannes), included portions of Washington and Oregon, but did not include California. Records of the blue-gray tailedropper were scarce prior to implementation of the Northwest Forest Plan.

The species is now considered to be relatively common in southwestern Oregon and northwest California, particularly in the Applegate watershed, with more than 10,000 known sites reported, but it is rare elsewhere. There are over 870 sites known on the Forest, 50 known sites for the Applegate watershed, in Oregon and California.

The blue-gray tailedropper normally comes to the surface during moist conditions and is otherwise thought to be subterranean. It has been found in a wide range of moist and mixed conifer forests. Its habitat has been described as “sites with relatively higher shade and moisture levels than those of the general forest habitat” (Duncan et al. 2003). It is usually associated with partially decayed logs, leaf and needle litter (especially hardwood leaf litter), mosses and moist plant communities such as a big-leaf maple and sword fern associations (Duncan et al. 2003.).

The Blue Ledge Mine Project area is within the suspected range of the blue-gray tailedropper. There is some suitable habitat for the species within the project area but no surveys were conducted for the species as the project area is largely non-Federal land and the proposed repository on Federal land is non-habitat for the species.

Effects of the Proposed Action

The species is expected to occur on the site, due to the number of known sites in the watershed and the small amount of potential for habitat disturbance, the forest has determined that the project to be a **May Impact Individuals and or Habitat but not likely to cause a trend to federal listing or a loss of viability.**”

Cumulative Effects

Timber harvest on public and private lands has resulted in a reduction in the amount of suitable habitat within the action area, and in the surrounding landscape. Non-federal lands in the area are still subject to timber harvest which could further reduce habitat for this slug. Activities on federal lands in the area (CHU/LSR) are unlikely to have an effect on the species.

Chace’s and Traveling Sideband

The chace and traveling sideband snails may be found within 30 m (98 ft.) of rocky areas, talus deposits and in associated riparian areas in the Klamath physiographic province and adjacent portions of the south-western Oregon Cascades. Areas of herbaceous vegetation in these rocky landscapes adjacent to forested habitats are preferred (Duncan et al. 2003). In more mesic, forested habitats, especially in the Oregon Cascades, the two species are associated with large woody debris and the typical rocky habitat is not required. Forest habitats without either rock features or large woody debris are not currently considered to be suitable habitat for these species.

Nineteen locations of *M. chaceana* (MOCH) are known for the Applegate watershed. The Upper Applegate River Fuels Reduction project was surveyed for mollusks in 2005/2006 and two sites with MOCH were identified, this area is approximately 10 miles from the project area. There is one MOCH site known for the Elliott Creek watershed, approximately 2.5 miles from the project site.

Effects of the Proposed Action

The species is expected to occur on the site, due to the number of known sites in the watershed and the small amount of potential for habitat disturbance, the forest has determined that the project to be a **May Impact Individuals and or Habitat but not likely to cause a trend to federal listing or a loss of viability.**”

Cumulative Effects

Timber harvest on public and private lands has resulted in a reduction in the amount of suitable habitat within the action area, and in the surrounding landscape. Non-federal lands in the area are still subject to timber harvest which could further reduce habitat for this species. Restoration activities on federal lands in the area (CHU/LSR) are unlikely to have an effect on the species.

Johnson’s Hairstreak

This small brown butterfly occurs in isolated pockets in the western mountains of California up into British Columbia. On the ROR SIS NF, range maps indicate a population in the coastal mountains of Coos, Curry and Josephine counties. A second population is in northern Jackson County around Crater Lake National Park. There currently is no accepted survey protocol for this species; no surveys have been carried out for this species on the Rogue River-Siskiyou National Forest.

This butterfly is an old growth obligate and spends much of its time in the tops of mature conifer forests, making survey efforts extremely difficult. They do nectar on some plants, like Oregon grape and males come into damp earth sites, such as seeps and springs. Caterpillars feed on Pine dwarf mistletoe (*Arceuthobium campylopodum*) which grows on pines and others conifers. It is also known to use coastal hemlock mistletoe.

Timber harvest of mature forests may be a potential threat to this species. Other threats include spraying BT for tussock moth and other pests.

Effects of the Proposed Action

Hemlock trees do occur within the analysis area. These may or may not have mistletoe. It is possible that a hemlock tree with mistletoe may be impacted by treatment activities. The Blue Ledge Project is considered a **“May Impact Individuals and or Habitat but not likely to cause a trend to federal listing or a loss of viability.”** project for **Johnson’s Hairstreak.**

Cumulative Effects

Timber harvest on public and private lands has resulted in a reduction in the amount of suitable habitat within the action area, and in the surrounding landscape. Non-federal lands in the area are still subject to timber harvest which could further reduce habitat for the species, if hemlocks are impacted. Restoration activities on federal lands in the area (CHU/LSR) are unlikely to have an effect on the species.

Siskiyou Short-horned Grasshopper

Chloealtis aspasma distribution is in two general areas, one from southern Oregon, near the California border and the other in Benton County. The southern locality is in the Siskiyou Mountains of Jackson County, Oregon (T41S R1E Sec13) where specimens were collected on a ridge between 5,000 and 5,800 feet elevation in a bald treeless summit covered with an almost impenetrable brushy scrub through which were scattered grassy areas (Rehn and Hebard 1919).

This species occurs in Grassland/herbaceous habitats. It appears to be associated with elderberry plants. Females may lay their eggs in the pith of blue elderberry plants. This plant is native from Alberta, Canada to Mexico. It grows in gravelly, rather dry soils on

stream banks, margins of fields, woodlands. Blue elderberry is a deciduous plant with handsome showy clusters of white flowers, and the attractive dark blue berries.

Females lay eggs in the pith of elderberry stems in the summer (Foster 1974). The eggs hatch the following year. Juvenile stages forage in open meadows near the ground. Juveniles look similar to the adults except the wings are much shorter and the individuals are smaller.

Franklin's Bumblebee

Franklin's Bumble Bee is a typical primitively eusocial bumble bee. Females are generalist foragers for pollen, especially from lupine (*Lupinus*) and California poppy (*Eschscholzia*), and for nectar, especially from horsemint (*Agastache*) and mountain penny-royal (*Monardella*). They may collect both pollen and nectar from vetch (*Vicia*) and rob nectar from it (P. Schroeder personal communication). Its nesting biology is unknown, but it probably nests in abandoned rodent burrows as is typical for other members of the subgenus *Bombus* sensu stricto (Hobbs 1968). Its flight season is from mid-May to the end of September (Thorp et al. 1983).

Franklin's Bumble Bee has the most limited geographic distribution of any bumble bee in North America, and possibly the World (Williams 1998). It is only known from southern Oregon and northern California between the Coast and Sierra-Cascade Ranges. Stephen (1957) recorded it from the Umpqua and Rogue River Valleys of Oregon. Thorp et al., (1983) also recorded it from northern California and suggested it's restricted to the Klamath Mountain region of southern Oregon and northern California. Its entire distribution, including recent range extensions (Thorp unpublished), can be covered by an oval of about 190 miles north to south and 70 miles east to west between 122° to 124° west longitude and 40° 58' to 43° 30' north latitude. It is known from Douglas, Jackson, and Josephine counties in Oregon and Siskiyou and Trinity counties in California. Elevations of localities where it has been found range from 540 feet (162 m) in the north to above 7800 feet (2340 m) in the south of its historic range. There is a known site located on the south side on Mt. Ashland and historic sites known from the Little Applegate Watershed. Recent surveys by Dr. Robben Thorpe have failed to detect any individuals at any historic sites except for one lone individual located at the Mt. Ashland site in 2006.

Threats include exotic diseases introduced via trafficking in commercial bumble bee queens and nests for greenhouse pollination of tomatoes (Thorp 2003, Thorp et al. 2003), habitat loss due to destruction, degradation, conversion; and pesticides and pollution.

Effects to Franklin's Bumblebee and Siskiyou Short-horned Grasshopper

The proposed action would not affect any of the early seral/meadow habitat that these species are associated with. All action alternatives would have “**no impact**” to Franklin's bumblebee or the Siskiyou short-horned grasshopper.

Mardon Skipper

Mardon skippers use a variety of early successional meadow habitats which appear to vary by region (Kerwin et al. 2005). Populations in southern Oregon occupy small (less than 0.25 to 4 ha (0.5 to 10 ac)), high-elevation (1,372 to 1,555 m (4,500 to 5,100 ft)) grassy meadows within mixed conifer forests. (USFWS, Candidate notice of review 2005).

Seven or eight locations are known from the Cascade Mountains in Southwest Oregon, most bordering the Cascade-Siskiyou National Monument, with populations ranging from a few to approximately 200 individuals (Kerwin et al. 2005). In 2005, searches and surveys of populations on BLM and Forest Service lands in southern Oregon discovered several new sites. There are now a total of 23 known sites in southern Oregon. One site is on the RRSIS NF and is approximately 8 km north of the nearest site on BLM lands. Another locality is a complex of sites on both BLM and Forest Service lands north of Dead Indian road. Several more sites were located adjacent to known sites on BLM lands. One day counts at sites ranged from one butterfly to over 70 butterflies (Kerwin et al. 2005).

Surveys for various alpine butterflies were conducted from May thru August 1996 along the Siskiyou Crest, including the Mt. Ashland area (Nice and VanBuskirk 1996). Mardon skippers were not detected along the Siskiyou Crest with this effort.

The dominant threat to this species is loss of habitat including loss via encroachment by invasive nonnative and native vegetation, and vegetative succession from grassland to forest (Pyle 1989).

Effects of the Proposed Action

The proposed action is not expected to impact habitat and is very unlikely to affect individuals. The Blue Ledge Project is considered to be **No Impact** for Mardon skipper.

Coronis Fritillary

A relatively large (~ 3in.) butterfly that occurs in lower Rogue & Illinois River valleys of Jackson and Josephine counties. It is expected in Coos, Curry and Douglas counties. The species is locally distributed in the Siskiyou.

The *Coronis fritillary* inhabits lower elevation canyons and grasslands as well as mid-montane meadows and forest margins and openings (Pyle 2002). Caterpillars spend winter in first instar before feeding (Pyle 2002). In spring larvae feed mostly on *Viola hallii*, found in rocky serpentine habitats (Hammond pers. comm.). Adults seem to move uphill shortly after emerging, probably in search of nectar (Warren 2005). Adult's nectar on bull thistle, other composites, and chokecherry (Pyle 2002). Females, at least, apparently return to basin habitats later in the season to deposit eggs. The single annual brood flies from mid-May to mid-September.

Rocky meadow habitat does not occur within the project area. Surveys for various alpine butterflies were conducted from May thru August 1996 along the Siskiyou Crest,

including the Mt. Ashland area (Nice and VanBuskirk 1996). This fritillary was not detected along the Siskiyou Crest with this effort.

Effects of the Proposed Action

The proposed action is not expected to impact suitable habitat and is very unlikely to affect individuals. The Blue Ledge Project is considered a **No Impact** for the Coronis fritillary.

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