# Appendix D

# WILDLIFE BIOLOGICAL EVALUATION

for

Threatened, Endangered, and Sensitive (TES) Species

## Blue Mountain Ranger District
## Malheur National Forest

## Flagtail Fire Recovery Project

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## I. SUMMARY

Table 1--Threatened, endangered and sensitive (TES) species considered in the analysis of the Flagtail Fire Recovery project and the effects determination for the No Action and Action alternatives.

| Species | Status | Occurrence | Alt. 1 | Alt. 2 | Alt. 3 | Alt. 4 |
|---|---|---|---|---|---|---|
| **Terrestrial Species** | | | | | | |
| Northern Bald Eagle *Hailaeetus leucocephalus* | T | HD/D | NE | NE | NE | NE |
| Gray Wolf *Canis lupus* | T | HD/N | NE | NE | NE | NE |
| North American Lynx *Lynx canadensis* | T | HN | NE | NE | NE | NE |
| California Wolverine *Gulo gulo luteus* | S | HD/S | NI | MIIH | MIIH | MIIH |
| Pygmy Rabbit *Brachylagus idahoensis* | S | HN/N | | | | |
| Pacific Fisher *Martes pennanti* | S | N | | | | |
| American Peregrine Falcon *Falco perigrinus anatum* | S | HN | | | | |
| Western Sage Grouse *Centrocercus urophasianus phaios* | S | HD/S | NI | NI | NI | NI |
| Gray Flycatcher *Empidonax wrightii* | S | HD/N | NI | NI | NI | NI |
| Bobolink *Dolichonyx oryzivorus* | S | HD/N | NI | NI | NI | NI |
| Upland Sandpiper *Bartramia longicauda* | S | HD/N | NI | NI | NI | NI |
| Tricolored Blackbird *Agelaius tricolor* | S | HN/N | | | | |
| Bufflehead *Bucephala albeola* | S | HN/N | | | | |
| Columbia Spotted Frog *Rana luteiventris* | S | HD/S | NI | MIIH/BI | MIIH/BI | MIIH/BI |

**Status**

| | |
|---|---|
| E | Federally Endangered |
| T | Federally Threatened |
| S | Sensitive species from Regional Forester's list |
| C | Candidate species under Endangered Species Act |

**Occurrence**

| | |
|---|---|
| HD | **Habitat Documented** or suspected within the project area or near enough to be impacted by project activities |
| HN | **Habitat Not** within the project area or affected by its activities |
| D | Species **Documented** in general vicinity of project activities |
| S | Species **Suspected** in general vicinity of project activities |
| N | Species **Not documented** and not suspected in general vicinity of project activities |

**Effects Determinations**

Threatened and Endangered Species

| | |
|---|---|
| NE | No Effect |
| NLAA | May Effect, Not Likely to Adversely Affect |
| LAA | May Effect, Likely to Adversely Affect |
| BE | Beneficial Effect |

Sensitive Species

| | |
|---|---|
| NI | No Impact |
| MIIH | May Impact Individuals or Habitat, but Will Not Likely Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species |
| WIFV | Will Impact Individuals or Habitat with a Consequence that the Action May Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species |
| BI | Beneficial Impact |

## II. INTRODUCTION

The Flagtail fire burned across approximately 7,120 acres of federal lands, of which about 6,180 acres were forested. Approximately 3,150 acres of the forested land burned severely (90% tree mortality), 2,400 acres burned moderately (60%-90% tree mortality), and 460 acres burned lightly (30%-69% tree mortality). About 170 acres that were forested did not burn, mostly in riparian areas.

This Biological Evaluation (BE) analyzes the potential effects of the No Action and Action alternatives within the Flagtail project area on the Malheur National Forest. This BE satisfies the requirements of Forest Service Manual 2672.4 that requires the Forest Service to review all planned, funded, executed or permitted programs and activities for possible effects on proposed, endangered, threatened or sensitive species.

The following sources of information have been reviewed to determine which TES species, or their habitats, occur in the project area:

- Regional Forester's Sensitive Species List
- Forest or District sensitive species database(s) and the GIS mapping layer(s)
- Oregon Natural Heritage Program, Rare, Threatened and Endangered Plants and Animals of Oregon
- Project area maps and aerial photos.

The environmental baseline for each wildlife species includes description of the effects the Flagtail fire had on habitats.

## III. PROJECT DESCRIPTION

See Chapter 1 of the Flagtail Fire Recovery Project Final Environmental Impact Statement (FEIS) for a complete description of the project area and Chapter 2 for alternative descriptions, design criteria and mitigation. See Appendix J of the FEIS for the list of the past, ongoing and reasonably foreseeable

future projects; all activities on this list have been considered in the cumulative effects analyses for each species in this Biological Evaluation.

## IV. EFFECTS ANALYSIS

### A. Terrestrial Species

The Flagtail project area was evaluated to determine which TES species might occur based on the presence of probable habitat types, known sightings and the biological requirements of each species involved.

#### A.1. Listed Species

## Bald Eagle

**Status**

Federal Status: Threatened (list 1-7-00-SP-588).
USDA-Forest Service (Region 6) Status: Threatened (USFS 2000)
State Status: Threatened (last revised 12/1998) (ODFW 2000)
Oregon Natural Heritage Program Status: List 1 (ONHP 2001)

**Habitat and Existing Condition**

Bald eagles prey largely on fish and, to a lesser extent, waterfowl and are usually associated with rivers or lakes. Habitat includes clean water with abundant fish and/or waterfowl populations, and large, wolfy perch trees and roost sites nearby. In the Pacific Northwest, bald eagle nests are usually in multistoried, predominantly coniferous stands with old growth components near water bodies which support adequate food supply (U.S. Dept. Interior 1986). They usually nest in the same territories each year and often use the same nest repeatedly which can result in very large nest structures, 2-3 feet deep and up to 5 feet in diameter. They will use alternate nests. Nest trees have stout upper branches to support the nest structure and usually provide an unobstructed view of an associated water body. Most nests in Oregon have been within 1/2 mile of water. The nearest known nest site is on the Emigrant Ranger District, approximately 18 miles south in the Silvies Valley. This site has been monitored since 1991; young were produced in 8 of 11 years.

On the Malheur National Forest, bald eagles congregate at winter roost sites during the late fall, winter, and early spring. The eagles roost and feed in Bear Valley, and along the South Fork John Day River, Middle Fork John Day River, and the main John Day River. They scavenge in agricultural valleys and wetlands, feeding primarily on carrion normally found in areas of cattle concentration and birthing, or where ranchers dispose of dead animals. They roost at night in mature forest stands, which provide a microclimate that helps protect them from cold weather and wind. Eagles typically arrive in early November and depart about the end of April; however, bald eagles have been reported in every month, but not during all months within any one year. Between May and November, eagles using Bear Valley are probably foraging individuals from the nest in the Silvies Valley.

No winter roost sites are within the project area; however, two sites are located along potential timber haul routes. One winter roost exists on Forest Service land along County Road 63 in Bear Valley, between the project area and Highway 395. This roost was found in January 1991. This roost was

monitored from the winter (November through March) of 1990-91 through winter 1997-98, except during winter 1996-97. Monitoring indicated use in or near the roost every year it was monitored. The roost trees are about 500 feet north of County Road 63.

A second winter roost is located on private land in Bear Valley, about 1.5 miles east of the project area. The winter roost is located adjacent to a local ranch near the intersection of Forest Road 24 and County Road 64. The roost is within 250 feet and line-of-sight of Forest Service Road 24. Monitoring over the years has been inconsistent, but the site is believed to be used annually.

Although additional stands in the area have bald eagle winter roost attributes, including large ponderosa pine trees and snags and close proximity to the shrub- and grasslands of Bear Valley, repeated use by eagles has only been documented at the two winter roost sites described and an additional winter roost site located south of the town of Seneca, about 13 miles southeast. The Flagtail fire reduced old growth, and therefore, reduces potential roost trees, but again, even prior to the fire, trees within the Flagtail area were not being used as roost trees.

### Alternative 1 - No Action Alternative

**Direct, Indirect and Cumulative Effects**

Under the No Action Alternative, there would be no new management activities; therefore, there should be no direct, indirect or cumulative effects to bald eagles or their habitat.

**Determination**

Due to the nature of the no action alternative, there would be **NO EFFECT (NE).**

### Alternatives 2, 3, 4 and 5 - Action Alternatives

**Direct, Indirect and Cumulative Effects**

Human activities, including waking, bicycling, fishing, and vehicle traffic, have the potential to disturb perching or roosting eagles (Spahr 1991; Steenhof 1978). Of these activities, vehicle traffic is the least disturbing, as long as the vehicle does not stop, because eagles apparently become accustomed to traffic (Steenhof 1978). Significant changes in traffic volume have the potential to cause disturbance to roosting eagles or eagles entering the roosts, so it is important to consider any changes in traffic flow anticipated by this project.

County Road 63 is an open road with an established traffic pattern. This is the primary travel route for people living in the Izee vicinity and people living along County Road 63 to travel to John Day, Oregon and points north and east, and to Seneca, Oregon and points south of Bear Valley. Most traffic is probably from residents of either Izee or Bear Valley; however, recreational and cattle ranching- and logging-associated traffic also use the road. Later in the year, during October and November, traffic would be expected to be elevated due to big-game hunting seasons.

The Grant County roads department placed traffic counters on County Road 63 near the junction of Highway 395 and at various other points along the road in June 1993, April to May 1995, and April to May and in September 1997. During these dates, traffic would most likely reflect local traffic with a small amount of recreational traffic. Average daily traffic ranged from 138 vehicles per day in 1995 to

213 in 1993. The average daily traffic for all years combined was 171 trips per day. Although traffic during big-game hunting season is higher, this elevated traffic flow does not appear high enough to discourage use of the winter roost.

Salvage logging proposed under Alternatives 2, 3 and 5 would generate the greatest increase in traffic volume. It is estimated that a salvage sale could generate an average daily traffic flow of 38 trips per day past the County Road 63 winter roost. Traffic would include felling crews, purchaser representatives, Forest Service sale administrators plus logging trucks. This is considered the highest daily level of traffic expected. The seasonal roosting period is outside the normal operating season as it is usually too wet to operate, and therefore, traffic flows would likely be lower. Average daily traffic from all sources, that is local traffic plus traffic from potential salvage sales, would be estimated at 209 trips per day. This traffic level would be within the range 138 to 213 trips per day recorded by the traffic counters over several years. Because the estimated traffic volume is within the range recorded for previous years, there is not discernable increase in the traffic volume.

There is a greater disturbance risk associated with the winter roost located adjacent to Forest Road 24 and County Road 64. Although, traffic flow data is not available for these roads, traffic volume is assumed to be far lower than volumes recorded for County Road 63. It is assumed that any timber sale traffic from a Flagtail Salvage Sale past this winter roost would be well above average traffic levels for these roads, and could cause disturbance to roosting eagles. Therefore, from November 1st to April 30th, log haul and other timber sale-related traffic would be directed to alternate routes to avoid this winter roost area.

All other management activities would generate only incidental changes in traffic flow. Alternative 4 does not propose any commercial timber logging; therefore, traffic volume would be lower than the other action alternatives. No additional direct, indirect or cumulative effects are anticipated from management activities under any of the Action alternatives. Proposed activities within the project area are sufficiently distant from the winter roost sites that no other disturbance risks are expected.

All of the activities in the Flagtail Fire Recovery FEIS, Appendix J, have been considered for their potential for cumulative effects on bald eagles. No projects are planned in the two winter roost sites. The estimated traffic from these projects would not elevate traffic past the winter roosts beyond thresholds.

**Determination**

There would be **NO EFFECT (NE)** to bald eagles or their habitat under any of the action alternatives. No bald eagles nest or roost within the project area. No effects are anticipated on winter roost sites located outside the project area in Bear Valley. Changes in traffic volume past the winter roost area on Forest Road 24 had the potential to disturb roosting eagle, but seasonal restrictions will be applied to mitigate potential effects.

## Gray wolf

**Status**

Federal Status: Threatened (Fed. Reg. Vol. 68, No. 62 15804-15875, April 1, 2003) USFWS established three distinct population segments (DPS) and reclassified the Western DPS from endangered to threatened.

USDA-Forest Service (Region 6) Status: Threatened
State Status: Endangered (last revised 12/1998) (ODFW 2000)
Oregon Natural Heritage Program Status: List 2-extirpated (ONHP 2001)

**Major Threats**

Human-caused mortality is the major factor limiting the recovery of wolves with the majority of losses due to shooting, trapping and vehicle accidents. In addition, wolves, particularly juveniles, are susceptible to canine parvovirus and distemper.

Roads negatively affect this species by increasing human presence in wolf habitat and increasing the likelihood of negative contacts. A disproportionate number of human-caused mortalities occur near roads. These mortalities are mostly legal and illegal shooting resulting from human access provided by roads. Vehicle collisions account for additional mortalities.

Thurber and others (1994) cite three studies (Jensen and others 1986, Mech and others 1988, Thiel 1985) indicating wolf packs would not persist where road densities exceeded about 1.0 $mi/mi^2$ (Wisdom et al. 2000).

**Population Status and Trend**

Currently there are populations of gray wolves establishing in Idaho and Montana. There are no known wolf packs in Oregon but dispersing wolves could establish in remote areas within the State.

**Source Habitat Trend**

Source habitats span a broad elevational range and include all terrestrial community groups except exotic herblands and agriculture (Wisdom et al. 2000).

Source habitats for gray wolf likely occurred throughout the basin historically. The current extent of habitat, albeit largely unoccupied, is similar to the historic distribution except for the Columbia Plateau, Lower Clark Fork, and Upper Clark Forks Ecological Reporting Units (ERUs), where habitat is more patchily distributed that it was historically. The overall trend in source habitats across the basin was neutral.

**Existing Condition**

Historically, wolves occupied all habitats on this Forest (Wisdom et al. 2000), but are currently considered extirpated.

In 1999, a collared wolf (B-45-F) from the experimental, non-essential Idaho population traveled to the three Blue Mountain National Forests and stayed until it was captured and returned to Idaho. Another wolf was found dead near Baker City in the spring of 2000.

**Effects and Determination**

**Common to All Alternatives**

Wolves are limited by prey availability and are threatened by negative interactions with humans.

Generally, land management activities are compatible with wolf protection and recovery, especially actions that manage ungulate populations. Habitat and disturbance effects are of concern in denning and rendezvous areas.

No such habitat is currently occupied in Oregon.

At this time, the determination for almost all project activities on the Malheur National Forest is **NO EFFECT (NE)** for the following reasons:

- No populations currently occupy the Malheur National Forest.
- No denning or rendezvous sites have been identified on the Malheur National Forest.
- There is an abundance of prey on the forest, therefore prey availability is not a limiting factor.

## Canada lynx

**Status**

Federal Status: Threatened (list 1-7-00-SP-588).
USDA-Forest Service (Region 6) Status: Threatened
State Status: Endangered (last revised 12/1998) (ODFW 2000)
Oregon Natural Heritage Program Status: List 2

**Major Threats**

The Canada lynx has a large range in northern North America, particularly in Alaska and Canada. Declines have occurred in some populations, but are apparently still widespread and relatively abundant in most of the historic range, though population data are lacking for many areas. Lynx distribution at southern latitudes, including mountainous regions in Northeast Oregon, represent the occupation of marginally suitable habitat that decreases in quality and availability as one continues to move southward.

Habitat loss, fragmentation and susceptibility to overharvest (trapping) are major concerns across the lynx's range (TNC 1999). Factors contributing to these concerns include; forest management activities, fire suppression, landscape level catastrophic wildfire, roads, developments that destroy habitat, grazing, predator control and trapping, competition with other predators, and human disturbances (winter recreation off-highway travel and highways) that displace lynx from their habitat (Wisdom et al. 2000, TNC 1999, and Witmer et al. 1998).

**Population Status and Trend**

Empirical data for distribution within the Interior Columbia River Basin are scarce, and data on abundance of lynx populations are not available. McKevley and others (1999) recently summarized all known lynx locations in the united Sates, which provides a framework for designing and conducting future surveys and demographic studies of lynx populations (Wisdom et al. 2000).

**Source Habitat Trend**

Basin-wide, source habitat was projected to have increased moderately or strongly in 47 percent of the watersheds. The Blue Mountains Ecological Reporting Unit (ERU) has undergone a positive absolute

(+26.93%) and relative (>100.00%) change in source habitat availability (moderate or strong increases in more than 50 percent of the watersheds). An increase in Blue Mountains source (denning) habitat was most influenced by an increase in mid- and late-seral montane forest and mid-seral subalpine forests (Wisdom et al. 2000).

**Habitat**

Lynx are typically associated with large tracts of high elevation boreal forests where their physical adaptations of long legs and broad paws allow them to negotiate deep snow and effectively hunt their principal prey, the snowshoe hare (Lepus americanus). Lynx require a mix of late and early seral habitats to meet their cover and food needs. Mature forests provide the lynx with denning space and hiding cover, while early seral habitats provide a prey base (Koehler 1990). Intermediate successional stages may serve as travel cover, but function primarily to provide connectivity within a forested landscape. Home range size varies considerably and is usually dependent upon prey availability. Typical home range territories are 45-155 mi2 (Ruggiero 1994).

Lynx denning habitat is characterized as having large woody debris that provides security and thermal cover and mature overstory canopies. These elements combine to provide both vertical and horizontal structural diversity (Ruggiero 1994). Habitat quality, as measured by the availability of alternate den sites, appears to be an important factor in kitten survival when disturbance occurs. Primary denning sites are often in large hollow logs, beneath windfall or upturned roots, or in brush piles in dense thickets (Brittell et al. 1989). Lynx den sites are in forests with a high density of downfall logs in patches scattered over 5-10 acres (>40 logs per 40 yards [46 m] lying 1 to 4 feet [0.3-1.3 m] above the ground) (Koehler 1990). Pockets of dense forest must be interspersed with prey habitat (Grange 1965). Pockets of late and old forest, at least 5-10 acres (2-4 ha), should be left for denning sites. Management units should be designed to provide travel corridors, especially along ridges and saddles, as lynx are more likely to use these areas.

Lynx primarily prey on snowshoe hare (Lepus americanus). Their diet also includes squirrels (Tamiasciurus spp.), ducks (Anas spp), and upland game birds; especially grouse (Dendrogapus spp). Preferred foraging habitat is found in early to mid-successional, densely stocked, mixed conifer forests that support plentiful populations of snowshoe hare for hunting (Ruggiero 1994). Good hare habitat is provided by stands with a high stem and lower bough density (approximately 2,400 to 13,000 stems and boughs per acre) on trees that are small (less than 4-inch dbh with 1-inch diameter stems and boughs preferred) but above snow level. Lynx populations usually fluctuate in a cycle with snowshoe hare populations, peaking about every 9 to 10 years (Burt and Grossenheider 1976, Fox 1978, Mech 1980, U.S.D.I. Fish and Wildlife Service 1994). Because of these volatile swings, their populations became very low about every 10 years. Therefore, they can be rare in any one given area at these times.

Deep snow and cold temperatures are often associated with lynx habitat. Other predators, such as the wolverine, may need to migrate to lower elevations under these conditions in order to follow their food source. Lynx, however, remain and thrive under these conditions due to their physical adaptations to low temperatures, deep snow and ability to successfully hunt the snowshoe hare.

Because lynx populations fluctuate with snowshoe hare populations, events that create snowshoe hare cover and forage generally benefit lynx (Koehler and Brittell 1990). These events might have negative short-term effects by eliminating denning habitat. However, as forest succession progresses after a disturbance, such as fire, insect outbreak, or logging, stands transition from non-habitat to forage and

then to denning habitat. A certain level of dynamic cycling it seems is essential for maintaining optimal habitat.

Travel corridors provide security during movement from denning areas to foraging areas and during dispersal. Cover that is generally greater than 8 feet tall with stem densities in excess of 180 trees per acre allows for movement of lynx within their home ranges (Koehler 1990). Riparian corridors, forested ridges, and saddles appear to be favored travel ways. Lynx avoid large openings (> 300 feet from cover) that have the potential to disrupt movement between isolated populations (Ruggiero 1994). Lynx can be managed by managing for their prey. Snowshoe hare populations increase dramatically following disturbance, particularly fire. However, snowshoe hare recolonization may not occur until 6 to 7 years following logging, and that snowshoe hare densities may not reach their maximum for another 20 to 25 years (Koehler and Brittell 1990). This depends on site conditions and type of treatment. As stands become older (about 20 to 30 years old), their benefits to snowshoe hare decrease.

**Distribution**

The geographic range of lynx includes all of Alaska and Canada (except the northeastern parts of Northwest Territories) and the United States south to a line from southern Oregon to southern Colorado, southern Iowa, southern Indiana and southern Maryland (Verts and Carraway 1998). Lynx are considered to have historically resided in 16 of the contiguous United States (Maine, New Hampshire, Vermont, New York, Massachusetts, Pennsylvania, Michigan, Wisconsin, Minnesota, Washington, Oregon, Idaho, Montana, Wyoming, Utah, and Colorado) based on historical observations, trapping records, and other documented evidence. The occurrence of lynx in most of the contiguous United States is likely the result of transient dispersal during declines in population density of their primary prey, snowshoe hares (Quinn and Parks 1987).

**Oregon Distribution**

Oregon is considered to be at the southern fringe of the lynx's range, and animal density and habitat use are expected to differ from further north where habitat is considered more suitable. The lynx has always been rare in Oregon (Koehler and Aubry 1994).

In Oregon, there are twelve verified records of lynx documented between 1897-1993, six of which were taken from the Blue Mountains (Ruggiero et al. 1999, Verts and Carraway 1998). Of these 12 known specimens, one each was collected in 1897, 1964, 1974, and 1993, 2 in 1920, and 3 each in 1916 and 1927. Three of the six specimens taken in the Blue Mountains were collected near the town of Granite, over 40 miles northeast of the project area. The remaing six specimens were taken from the Wallowa Mountains, the Cascade Mountains, the Willamette Valley, the Stinkingwater Mountains and the Steens Mountains.

Peaks in density of lynx populations in Alaska reportedly occurred in 1916-1918, 1926-1928, 1963-1966, and 1974-1975 (Quinn and Parks 1987). Peak periods somewhat correlate to collections made in Oregon. Verts and Carraway (1998) suggest that lynx occurrence in Oregon may be dispersers from occupied areas farther north that immigrate into the area and persist for a short time.

**Local Surveys**

Surveys using a hair sampling protocol that targets lynx were conducted on the Malheur National

Forest in 1999, 2000 and 2001. The data did not determine lynx presence. In the early 1990's, winter track and camera station surveys were conducted on the Malheur National Forest to inventory forest carnivores, but no lynx were detected.

Recent unconfirmed lynx sightings have been reported along the Middle Fork of the John Day River, Blue Mountain Ranger District, and in the Reynolds Creek Subwatershed, Prairie City Ranger District. Based on the limited available information, the Fish and Wildlife Service cannot substantiate the historic or current presence of a resident lynx population in Oregon (USF&WS 2000). Verts and Carraway (1998) conclude that there is no evidence of self-maintaining populations in Oregon and USDI (1997) considered lynx "extirpated" from Oregon. Additional surveys and research are warranted before lynx are considered as having self-maintaining populations in Oregon.

**Local Habitat**

Potential habitat on the Malheur National Forest is defined as stands above 5,000 feet that are subalpine fir, lodgepole pine, Engelmann spruce, or moist grand fir types. Lynx require a mix of early and late seral habitats to meet their food and cover needs. Early seral habitats provide the lynx with a prey base, while mature forests provide denning space and hiding cover (Koehler 1990). Pockets of dense forest must be interspersed with prey. Lynx den sites are in forests with a high density of downfall logs in patches scattered over 5-10 acres (>40 logs per 40 yards [46 m] lying 1 to 4 feet [0.3-1.3 m] above the ground) (Koehler 1990). Favored travel ways within and between habitat areas include riparian corridors, forested ridges, and saddles.

**Existing Condition**

Although there are several unconfirmed sightings of lynx in Grant County, there is no indication that lynx occurs in the project area. Research indicates that lynx need approximately 10 to 15 square miles of high quality habitat to support a functional home range (Ruggiero et al. 1994). The four subwatersheds affected by the Flagtail fire contain very little lynx habitat. No subalpine fir, Engelmann spruce or moist mixed conifer forest exists. About 850 acres, or 3% of the subwatershed acres, are in lodgepole and grand fir forest types that would classify as lynx habitat. Within the burn area, 280 acres, or 4% of the burn area, are in lodgepole pine that would classify as habitat; the fire burned through these areas. The number of acres is considered insufficient for lynx and what does exist is noncontiguous; therefore, this area is not considered suitable habitat for lynx to occupy. In general, the project area is relatively dry, with mostly ponderosa pine dominated stands. Mixed conifer, high canopy closure stands with grand fir did exist prior to the fire, but they comprised only a smaller portion of the area and are still relatively dry sites. Historically, under natural fire regimes, the area was probably even more dominated by open, ponderosa pine stands than it is today, so it is not as if site potential would be conducive to historical lynx habitat. The nearest area that approximates lynx source habitat (denning and foraging) is located in the Strawberry Mountains, about 10 miles to the northeast. Areas to the south and west of the Flagtail project area do not include any large, contiguous blocks of lynx habitat, so it is unlikely that lynx would even use the project area as travel or dispersal habitat.

It is very unlikely that lynx would use the project area due to the lack of habitat.

**All Alternatives**

**Direct, Indirect and Cumulative Effects**

Because lynx habitat is so limited in the project area, both now and historically, there would be no direct, indirect or cumulative effects expected from any of the alternatives. It is very unlikely that lynx would use the project area due to the lack of habitat.

**Determination**

Project actions would have no effect on Canada lynx or their habitat; therefore, the call is **No Effect (NE)**.

### A.2. Sensitive species

## California wolverine

**Status**

Federal Status: Species of Concern (list 1-7-00-SP-588)
USDA-Forest Service (Region 6) Status: Sensitive
State Status: Threatened (ODFW 2000)
Oregon Natural Heritage Program Status: List 2 (ONHP 2001)

**Major Threats**

Status is not well known in many portions of the range and extirpated from most of its historic range in the contiguous 48 states. Wolverines are showing promising signs of semi-recovery in selected western states (TNC 1999).

Wolverine populations are suspected to be small, especially sensitive to disturbance, and vulnerable to local extinction (Ruggerio et al. 1994). Past decline in population may have been due primarily from fur trapping, but habitat alteration (e.g. agriculture, oil exploration, cattle grazing, rural settlement, timber harvest, road construction, and ski area development) and general human disturbance are contributing factors (TNC 1999, Witmer et al. 1998).

**Population Status and Trend**

Hash (1987) describes a contraction in the North American range of the wolverine beginning around 1840 with the onset of extensive exploration, fur trade, and settlement. State records suggest very low wolverine numbers in Montana, Idaho, Oregon, and Washington from the 1920s through 1950s, with increases in wolverine sightings since the 1960s (Banci 1994, Wisdom et al. 2000).

**Source Habitat Trend**

Basin-wide, source habitat was projected to have increased moderately or strongly in 56 percent of the watersheds. The Blue Mountains ERU has undergone a positive absolute (+27.46%) and relative (>100.00%) change in source habitat availability (moderate or strong increases in more than 50 percent of the watersheds). An increase in Blue Mountains source habitat was most influenced by an increase in mid- and late-seral montane community types (Wisdom et al. 2000).

**Habitat**

The wolverine occurs in a broad range of wilderness habitats (Verts and Carraway 1998). Source habitats for wolverines include alpine tundra and all subalpine and montane forests. Within the forest type, all structural stages except the closed stem exclusion stage provide source habitat (Wisdom et al. 2000). The impression that wolverines require high elevation habitat may be a result of remaining wolverine populations retreating to inaccessible, undeveloped areas, which are often at high elevations (Witmer et al. 1998).

Wolverines are solitary predators that range over vast and remote territories; consequently, they are difficult to study and to survey (Rausch and Pearson 1972). Most available research indicated that wolverines were strictly associated with secluded wilderness areas and that distribution is probably limited to upper montane and sub-alpine forest types. Some recent work suggests that although wolverines may frequent these two forest types during most of the year, during the winter they may follow migrating big game herds to lower elevation winter range (Wisdom et al. 2000, Ruggiero 1994). Big game is considered the wolverine's primary winter food source, and they often scavenge on winterkills.

In summer, wolverines use a variety of foods including small mammals, birds, carrion, and berries (Wisdom et al. 2000). Copeland (1996) found that carrion related food supplied 46 percent of wolverine diets in Idaho during both summer and winter. Banci (in the Scientific Basis for Conserving Forest Carnivores: American Marten, Fisher, Lynx, and Wolverine in the Western United States 1994) suggests that diversity of habitats and foods is important to wolverines.

Several special habitat features have been identified for wolverines. Natal dens in the western United States is generally located in subalpine basins in isolated talus fields surrounded by trees (Copeland 1996). There is also evidence that wolverine use down logs and hollow trees for denning and cavities in live trees may be used (Wisdom et al. 2000). Both talus and areas associated with large, fallen trees were used as maternal dens sites in Idaho (Copeland 1996).

Regardless of habitat type used, the critical component to suitable source habitat seems to be the absence of human activity or development (Hash 1987). High elevation wilderness and undisturbed backcountry refugia are still considered critical to the current welfare and viability of existing wolverine populations (Hornocker and Hash 1981).

**Denning Habitat**

A denning habitat model developed primarily by Jeff Copeland, Idaho Department of Fish and Game, was used to identify potential wolverine denning habitat on the Malheur National Forest. Utilizing PMR (Pacific Meridian Resources Company) data and ArcInfo base coverage, key habitat components were queried to produce a forest level coverage of potential denning habitat. Key elements included topographic relief with flat to concave curvature, slopes with north to northeast aspects, areas above 5,000-foot elevation, and rock or snow cover types.

The analysis identified large areas of potential denning habitat in the Strawberry Mountain Wilderness, Monument Rock Wilderness, and in some northern portions of the Malheur National Forest as well.

**Distribution**

Wolverines once occupied the boreal zone across the northern part of the continent and southward into the mountains of Colorado and California. Bailey (1936) states that wolverine were thought to be rare

in the United States, but probably were not yet extinct in the Cascades and Sierra Nevada's.

Since Bailey's report, numerous animals have been collected or sighted around the northwest. A query of the Oregon Natural Heritage database reveals that there are about 150 observations of wolverines in Oregon, with most occurring in the mountainous northeast (Baker, Grant, Umatilla, Union and Wallowa Counties) region (Edelmann and Copeland 1997).

Confirmed observations on Malheur National Forest and adjacent areas include:

- A partial skeleton and tufts of fir found near Canyon Mountain, Grant County (1992)
- Tracks and a probable denning site found in the Strawberry Mountain Wilderness (1997)
- Tracks in Monument Rock Wilderness (1997)
- Collection of an animal from Steens Mountain, Harney County, (1973)
- Hair and track collection on Snow Mountain Ranger District, Ochoco National Forest (1992)

Additional sightings of animals and tracks have occurred on the District, but none have been confirmed.

**Local Surveys**

No surveys have been conducted for wolverine within the Flagtail project area. In the 1990's, surveys were conducted in the large, roadless or wilderness tracts associated with the Strawberry Mountain Wilderness, Dixie Butte Wildlife Emphasis Area, Dry Cabin Wildlife Emphasis Area, Vinegar Hill-Indian Rock Scenic Area and the Shaketable, McClellan Mountain, and Aldridge Mountain Roadless Areas. No wolverine tracks or individual were found. Surveys for marten, lynx, and wolverine were also conducted in the adjacent Silvies watershed in 1992-1994 (Gold Hill, Flat Creek, Gilbert Ridge, Myrtle Creek, Lost Creek, and Silvies River) and 1996 (Myrtle Park). Multiple baited camera stations were used, following methodology suggested by Zielinski and Kucera (1995). No wolverines were documented by camera sets. Snow track intercept surveys were also conducted in the Silvies watershed during the winters of 1992-93, 1993-94, and 1994-95. No wolverine tracks were found during these track surveys.

**Existing Condition**

Wolverines were always rare in Oregon, although recent sightings, tracks, and collected remains document their continued presence at low densities in the state (Csuti et al. 1997). Current distribution appears to be restricted to isolated wilderness areas. Verts and Carraway (1998) believe that while there is a possibility of self-maintaining population of wolverine in the state, most animals seen or collected are likely dispersers from Washington and Idaho populations.

Source habitat is essentially non-existent in the project area. There are no subalpine forest types with or without talus surrounded by trees in or adjacent to this area. The Flagtail fire severely or moderately burned 5,550 acres of forested ground (90% of the forested acres), eliminating the contiguous forested conditions favored by wolverine. The nearest area that approximates wolverine source habitat is located in the Aldrich and Strawberry Mountains, about 10 miles to the north and northeast, respectively.

Foraging and dispersal habitat for wolverine occurs throughout the Blue Mountain Ranger District.

Wolverines could possibly use any area of the District to satisfy life needs; however, areas of high ungulate concentrations, low human impacts, low human disturbance, and potential denning sites that appear to be home range requirements are limited. The project area may provide some marginal foraging and dispersal habitat for wolverines, but it is assumed that high levels of human disturbance (management activities, firewood cutting, and recreational use) and development (primarily high road densities) make most of this area unsuitable for wolverine for summer foraging habitat. Winter foraging habitat is limited because elevations in the Flagtail area are above those typically associated with big game winter range. In addition, the Flagtail fire reduced habitats for many mammal species by destroying much of the cover, both vegetation and down logs. Post-fire, the loss of cover further reduces area use by wolverine and its prey species.

The likelihood of wolverine using or frequenting the area is expected to be very low.

**Alternative 1 - No Action Alternative**

**Direct and Indirect Effects**

The No Action alternative would have no direct effects to wolverine or potential habitat. Indirect effects result from potential changes in habitat for wolverine prey. Overall habitat effectiveness for deer and elk would be expected to improve over time as cover develops. Big game population numbers are expected to remain stable; distribution and use may change initially as a result of improved forage and reduced cover. By relying on natural regeneration for reforestation, recovery of trees would be slower than under a planting scenario. See the Flagtail Fire Recovery Project FEIS, Chapter 3, Big Game Habitat, for discussion of the effects the No Action alternative on big game. Cover/forage habitat for small mammals, i.e., alternative prey, is expected to increase as vegetation recovers and snags fall and provide down logs.

The risk of an intense reburn in the project area is high with this alternative, although risks do not increase for 10 to 20 years, the time expected for snags to fall to the ground and elevate fuel loads. Another stand replacement fire would delay recovery of cover vegetation for dispersal or movement.

**Cumulative Effects**

All of the activities in The Flagtail Fire Recovery FEIS, Appendix J, have been considered for their cumulative effects on wolverines. Past adverse effects on wolverine foraging and dispersal habitat have been primarily a result of timber harvest and road construction; the project area has been a relatively highly managed area. Activities that have cumulatively affected big game habitat and populations can also cumulatively affect wolverine (see Flagtail Fire Recovery Project FEIS, Chapter 3, Big Game Habitat, Cumulative Effects).

In burned riparian areas, hardwood and conifer planting, aspen restoration, and wood placement in streams are being planned under separate NEPA documents (see Appendix J – Cumulative Effects). Cumulatively, restoration activities would improve habitat for wolverine prey species. Livestock grazing would be delayed for at least two years post-burn to allow for recovery of ground cover (Post-fire grazing guidelines - Flagtail Fire Recovery Project FEIS - Appendix H). Some uncontrolled cattle use occurred in the summer/fall of 2003, but effects to riparian and upland habitats were considered well within Forest Plan and Interagency Interdisciplinary Team (IIT) standards. When livestock grazing is re-initiated, grazing would be managed to meet Forest Plan and IIT standards as well, benefiting wolverine prey species.

Adjacent private lands have already been salvage logged. Reforestation is required where commercial timber harvest has occurred and the land is left under-stocked. Private lands were planted in 2003. Some private landowners have forage-seeded burned areas to the benefit of big game. Adjacent private lands are intensively managed and even less likely to support wolverine than National Forest lands in the project area.

In 2002/2003, fire-killed, hazard trees were salvaged on 14 acres at the Bear Valley Work Center and on 650 acres along roads. Future fuels reduction is planned on 100 acres inside Riparian Habitat Conservation Areas (RHCAs); dead, unmerchantable trees 8 inches DBH and smaller would be felled, then hand piled and burned outside of the RHCAs. Under Alternative 1, no fuel treatments are proposed in the majority of the Flagtail project area. Therefore, the limited fuel treatments described here are less likely to reduce fuel loads sufficiently to avoid intense re-burns in the future. Another stand replacement fire could further delay development of cover for wolverine and its prey.

Future timber and access management activities have yet to be proposed for the unburned areas of the affected subwatersheds. Since the Flagtail Fire Recovery Project is expected to have few negative effects on wolverine in the short-term, and since future activities are expected to create more continuous, unfragmented habitat, wolverines are expected to benefit. With recognition of habitat losses due to the fire, adverse cumulative effects are expected to be incidental regardless of the alternative selected. In the mid- to long-term, the effects of this project combined with restoration projects in Appendix J would be considered favorable to wolverine.

The No Action alternative would not immediately contribute any adverse cumulative effects to wolverine, its prey, or their habitats.

**Determination**

Due to the nature of the No Action alternative, there would be **NO IMPACT (NI)** to wolverine.

**Alternatives 2, 3, 4 and 5 - Action Alternatives**

**Direct and Indirect Effects**

There are no confirmed records of wolverine occurring in the project area; therefore, there would be no direct effect to this species.

Indirect effects to wolverine, and its preferred habitat, would be minimal, regardless of the alternative. Post-fire, the project area is considered unfavorable for wolverine occupation. Human disturbance related to proposed salvage activities might displace transient or dispersing wolverine from potential foraging habitat during the duration of the project. Post-salvage road closures would help reduce the level of human disturbances as habitat conditions become more favorable to prey species.

Management recommendations by Banci (1994) suggest that management activities should incorporate strategies that improve the deer and elk forage base for wolverine, without significantly changing vegetation structure. The action alternatives would improve big game habitat; planting of trees would accelerate recovery of hiding and thermal cover, and road closures would reduce open road densities. Big game population numbers are expected to remain stable; distribution and use may change initially as a result of improved forage and reduced cover. Overall habitat effectiveness for deer and elk would

be expected to improve over time as cover develops. The Flagtail Fire Recovery Project FEIS, Chapter 3, Terrestrial Wildlife, Big Game Habitat discusses effects of the action alternatives to big game habitat. Cover/forage habitat for small mammals, i.e., alternative prey, is expected to increase as vegetation recovers and snags fall and provide down logs.

Salvage logging reduces the future build-up of down logs that could impede big game movements and elevate risk of a future re-burn. Alternatives 2, 3, and 5 propose timber salvage on 4,345 acres (70%of forested acres), 2,871 acres (46% of forested acres), and 3,740 acres (61% of forested acres), respectively. Alternative 4 only removes tree 8" dbh and smaller; although fire risk is reduced, future fuel loads would still be considered in excess of risk thresholds. Another stand replacement fire could further delay development of cover.

**Cumulative Effects**

Past, ongoing and reasonable foreseeable future activities that could affect wolverine or its habitat are described under the Cumulative Effects section for the No Active alternative. The additive effects of these activities would be as described under the No Action alternative unless discussed below.

Past adverse effects on wolverine foraging and dispersal habitat have been primarily a result of timber harvest and road construction; the project area has been a relatively highly managed area. Activities that have cumulatively affected big game habitat and populations can also cumulatively affect wolverine. Generally, the action alternatives, combined with ongoing and reasonably foreseeable future projects, are expected to improve big game habitat (see Flagtail Fire Recovery Project FEIS, Chapter 3, Big Game Habitat, Cumulative Effects).

In 2002/2003, fire-killed, hazard trees were salvaged on 14 acres at the Bear Valley Work Center and on 650 acres along roads. Future fuels reduction is planned on 100 acres inside Riparian Habitat Conservation Areas (RHCAs); dead, unmerchantable trees 8 inches DBH and smaller would be felled, then hand piled and burned outside of the RHCAs. When combined with salvage logging and fuels treatment proposed in Alternatives 2, 3 and 5, landscape-level fuels treatments are expected to help reduce the risk of an intense re-burn and another stand replacement fire. Under Alternatives 4, combined fuel treatments are less likely to reduce fuel loads sufficiently to avoid intense re-burns in the future; another stand replacement fire could further delay development of cover for wolverine and its prey. Alternatives 2, 3 and 5 also leave some burn areas untreated, but salvage logging and fuels reductions reduce fuel loads overall and break up the continuity of fuels remaining.

Future timber harvest and access management activities have yet to be proposed for the unburned areas of the affected subwatersheds. Since the Flagtail Fire Recovery Project is expected to have few negative effects on wolverine in the short-term, and since future activities are expected to create more continuous, unfragmented habitat, wolverines are expected to benefit. With recognition of habitat losses due to the fire, adverse cumulative effects are expected to be incidental regardless of the alternative selected. In the mid- to long-term, the effects of the action alternatives combined with restoration projects in Appendix J would be considered favorable to wolverine.

**Determination**

Action alternatives **may impact individuals or habitat**, **but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population** (**MIIH**). Human disturbance related to proposed salvage activities could have short-term, indirect effects on wolverines, although

the risk of disturbance to wolverines is considered low. Wolverines are considered transient based upon their large home ranges. None of the treatment areas include denning habitat. Following management activities, road closures would reduce motorized access to the benefit of wolverines. None of the alternatives will affect wolverine habitat or species viability because the principal big game prey base is expected to remain stable.

## Western sage grouse

### Status

Federal Status: Species of Concern (list 1-7-00-SP-588)
USDA-Forest Service (Region 6) Status: Sensitive (USFS 2000)
State Status: N/A

### Major Threats

Conversion of sagebrush cover types to agricultural lands and conversion of shrub-steppe vegetation to exotic forbs and annual grasses (Wisdom et al. 2000) have drastically reduced or altered the availability of this species' habitat. In southeastern Oregon over 2,760 square miles of federally administered lands have been modified to the detriment of sage grouse (Willis et al. 1993). Predation and livestock grazing contribute to the decline of sage grouse numbers.

### Population Status and Trend

Prior to the 1950s, estimates of abundance were anecdotal, and historical population levels are unknown (NatureServe Exlorer 2002). Early accounts, however, suggest that this species was once widespread and abundant in many areas of the West. There are reports of sage grouse at times blackening the sky and being shot by the wagon-load (NatureServe Explorer 2002). Declines began with livestock overgrazing of western rangelands aggravated by over harvesting and periods of drought. By the 1920s and 1930s sage grouse were thought to be declining throughout their range (NatureServe Explorer 2002). Population declines have continued to present day with accumulating loss and degradation of sagebrush habitats.

Wisdom et al. (2000) reports that sage grouse populations have shown significant, steep declines since the 1940s in Idaho, Oregon and Washington. The rates of decline in Idaho, Oregon, and Washington are not significantly different, suggesting common, widespread factors affecting these populations. In Oregon, long-term population declines have averaged 30 percent since 1950 (Interagency Interdisciplinary Sage Grouse Planning Team 2000). Braun (1998 in NatureServe Explorer 2002) estimates a current total of fewer than 142,000 grouse rangewide, and population levels fewer than 20,000 in Montana, Oregon and Wyoming.

A complicating factor is that sage grouse in this geographic area may exhibit population cycles with a periodicity of around 10 years. Apparent trends over short periods should be regarded with caution. Nonetheless, trends for populations in Colorado, for example, reveal that each population peak has been lower than the last. There have been no sustained population increases in any part of the range (NatureServe Explorer 2002).

### Source Habitat Trend

The current extent of habitat is similar to the historic distribution, although the abundance of habitat has changed in some areas. Basin-wide, nearly 48 percent of the watersheds showed a moderate or strongly declining trend in habitat, and declines exceeded increases in every ERU. The Blue Mountains ERU has undergone a negative absolute (-11.73% and -12.70%) and relative (-30.14% and -32.78%) change in winter and summer source habitat availability (Wisdom et al. 2000).

**Habitat**

Sage grouse are obligate residents of sagebrush habitat, usually inhabiting sagebrush-grassland or juniper-sagebrush-grassland communities. Throughout their range habitats used includes a wide variety of sagebrush mosaic habitats (Schroeder et al. 1999), including:

- tall sagebrush types such as big sagebrush, three-tip sagebrush (*A. tripartita*), and silver sagebrush (*A. cana*);
- low sagebrush types, such as low sagebrush (*Artemesia arbuscula*) and black sagebrush (*A. nova*);
- mixes of low and tall sagebrush with abundant forbs;
- riparian and wet meadows;
- steppe dominated by native forbs and bunchgrasses;
- scrub-willow (*Salix* spp.)
- sagebrush/woodland mixes with juniper (*Juniperus* spp.), ponderosa pine (*Pinus ponderosa*),or quaking aspen (*Populus tremuloides*).

In southeastern Oregon, the most widely used vegetation type throughout the year is forb-rich sagebrush types with low stature sagebrush, and mosaics of low and high stature sagebrush (Willis et al. 1993). Vegetation types of low stature primarily include low sagebrush (*A. longiloba*), although black sagebrush, stiff sagebrush (*A. rigida*), and three-tipped sagebrush may be used. Wyoming big sagebrush (*A. t.* var *wyomingensis*) and mountain big sagebrush (*A. t.* var *vaseyana*) are the primary species of high stature used in mosaic form with low sagebrush in Oregon. Neither expansive dense sagebrush nor expansive open areas constitute optimal sage grouse habitat.

Sage grouse use sagebrush of different age classes and stand structures for lek (courtship display), nesting, brood rearing, and wintering. During the mating season (March-May), leks may be on bare areas, such as swales, irrigated fields, meadows, burns, and roadsides or areas of low cover and stature of sagebrush and are more often within vegetation types of low sagebrush or low/big sagebrush mosaics. When not on the lek, sage grouse disperse to the surrounding areas (Interagency Interdisciplinary Sage Grouse Planning Team 2000).

After mating, hens usually nest near lek grounds, but some fly as far as 12 to 20 miles (19-32 km) to favorable nesting sites (Interagency Interdisciplinary Sage Grouse Planning Team 2000). They prefer sagebrush 14 to 25 inches (36-63.5 cm) tall with an open canopy, 10-50%, for nesting. During the nesting season, cocks and hens without nests use relatively open areas for feeding, and roost in dense sagebrush patches.

Early brood rearing occurs near the nest site depending on the availability of forbs and insects, which are the main food source for the chicks. Young broods use areas of low plant height (9 to 15 inches) and density, while older broods and adults use areas with taller plants (7 to 25 inches) (Interagency Interdisciplinary Sage Grouse Planning Team 2000). Sage grouse apparently do not require open water

for day-to-day survival if succulent vegetation is available, but they utilize free water if it is available.

Habitat used by summering groups generally takes three forms: mid-elevation playas and waterholes, high mountain areas, and alfalfa developments. After early brood rearing, hens with broods leave early brooding areas when forbs have desiccated and move to areas that still have green vegetation, such as meadows/ephemeral wet riparian areas. There they spend the mid- and late summer period with other hens and brood groups. Hens without broods group up with other unsuccessful hens in meadow habitats. By August, most birds cluster near permanent watering sites. In Oregon, sage grouse movements in mid-elevational summering areas are more random.

The Interagency Sage Grouse Planning Team (2000) identify important late brood rearing habitats as sagebrush, meadows and riparian areas, dry lake beds, and agricultural lands. The optimum habitat contains a mosaic of these lands types that include at least:

- 40 percent of the area in sagebrush stands that are 16 to 32 inches tall with a canopy cover of 10 to 25 percent and
- An herbaceous understory of 15 percent grass canopy cover and
- 10 percent forb canopy cover

Habitat loss, predation, drought, and poor weather conditions during hatching and brooding have been cited as factors leading to poor recruitment. Sage grouse hunting is closely regulated in states where it is allowed, and is not generally cited as a factor in sage grouse decline (NatureServe 2002).

Sagebrush is used for hiding cover year-round and provides thermal cover during summer and winter. Vegetation types used for wintering include primarily low sagebrush, big sagebrush, and mosaics of low and big sagebrush, where the often prefer wind swept areas free of snow.

Sagebrush, used year-round, is the most important component in the diet of adult sage grouse. Sagebrush constituted less than 60 percent of the diet only between June and September. Other forage consists largely of herbaceous leaves of dandelion *(Taraxacum* spp.), legumes (*Fabaceae*), yarrow (*Achillea* spp.) and wild lettuce (*Lactuca* spp.), which is used primarily in late spring and summer. Insects are a minor diet item for adult sage grouse. Chicks consume primarily insects, especially ants and beetles, in their first week of life (Interagency Interdisciplinary Sage Grouse Planning Team 2000). Their diet then switches to forbs, with sagebrush gradually assuming primary importance.

**Distribution**

Sage grouse occur from central Washington, southern Idaho, Montana, southeastern Alberta, southwestern Saskatchewan, southwestern North Dakota, and western South Dakota south to eastern California, south-central Nevada, southern Utah, western Colorado; formerly north to southern British Columbia, south to northern New Mexico and southeast to western Oklahoma (AOU 1998).

Western sage grouse (*B. u. phaios)*, if indeed *phaios* is a taxonomically valid subspecies, occur from central and eastern Washington (Ellensburg, and Columbia County) south to southeastern Oregon; formerly to southern British Columbia (Osoyoos Lake) (NatureServe 2001). Taxonomic validity is questionable due to introduction of nominate subspecies into range of *phaios*. Validity may be impossible to determine (NatureServe 2002).

### Existing Conditions

Sage grouse were reported scarce through Oregon at the turn of the century. Oral histories reported by one local resident claimed that sage grouse were plentiful in Bear Valley before the town of Seneca was established, but were very difficult to find afterwards. In 1993, Oregon Department of Fish and Wildlife (ODFW) biologists estimated that Bear Valley had about 60 birds and a stable population. ODFW monitored a known active lek on private land about 1 to 2 miles east of the Flagtail project area. In 2003, ODFW biologists (K. Rutherford, ODFW wildlife biologist, personal communication May 8, 2003) revised the 1993 estimates; they believe grouse populations in Bear Valley may have declined, primarily due to predation (coyotes), but also because of livestock grazing and agricultural conversion. Rutherford (2003) reported that the previously known active lek is no longer active. Little monitoring has been done in recent years to validate declines, but numbers are believed to be reduced.

In the Upper Silvies watershed, the majority of the shrub-steppe habitats are associated with the larger expanses of habitat in Bear Valley. There is very little sage grouse habitat on Forest Service managed lands. In the project area, about 780 acres, or 10.5% of the project area, classify as juniper/sagebrush, sagebrush shrublands or dry grasslands. The Bald Hills at 245 acres provides the largest block of potential habitat; the remaining acres are predominantly smaller openings 1 to 20 acres in size. Several stringer habits extend into the project area from Bear Valley. Additional small openings in the surrounding forest could contain sagebrush habitat.

Habitat in the project area is considered marginal. There is no documented occurrence of sage grouse within the Flagtail project area; there are no known leks or suspected leks. It is possible that adult sage grouse with young may use non-forested areas, but use would be only occasional and random. Potential late season brood rearing habitat exists within meadow/ephemeral wet riparian areas; hens with broods or hen groups may use these lower elevation habitat as sagebrush types dry up and herbaceous plants mature in June and July, but again, use is expected to be occasional or random.

Within the fire area, the shrub-steppe habitats burned in a mosaic pattern depending on vegetation patterns and fire behavior. Unburned islands of sagebrush can retain habitat features important to sagebrush-dependent species. Given, the small extent of habitat within the project area, the wildfire likely had minimal effect on species that depend on these semi-arid environments.

## Alternative 1 - No Action Alternative

### Direct and Indirect Effects

Under the No Action Alternative, there would be no new management activities; therefore, there should be no direct effects to sage grouse or their habitat.

Given the small extent of these habitats, the wildfire likely had minimal effect on species that depend on these environments. Recovery of sagebrush habitats is dependent on the severity of the burn. Grass and herb species respond more rapidly after fire than sagebrush (Smith 2000). Because sagebrush does not sprout from underground buds, these communities can require several decades to establish post-fire vegetation composition and structure similar to that on unburned sites (Smith 2000). A mosaic burn, such as occurred in much of the Flagtail sagebrush communities, can accelerate recovery of these habitats as compared to completely burned areas. Unburned islands of sagebrush provide an important seed source. In the Flagtail fire area, unburned islands of sagebrush could provide limited habitat for sagebrush-dependent species and a seed source for regenerating burned areas.

The risk of an intense reburn is high with this alternative, although risks do not increase for 10 to 20 years, the time expected for snags to fall to the ground and elevate fuel loads. Another stand replacement fire would delay recovery of vegetation.

**Cumulative Effects**

All of the activities in Appendix J have been considered for their cumulative effects on western sage grouse. The following discussion focuses on those past, ongoing and reasonable foreseeable future activities that may contribute adverse effects to the species or its habitat.

Juniper woodlands, sagebrush shrublands and dry grasslands have probably changed due to 100 years of fire suppression. Other conifer species have encroached on these habitats, reducing their size. On residual acres, juniper density probably has increased. Livestock grazing, primarily early in the century, may have caused changes in shrub, grass and forbs composition or abundance. The Flagtail fire reduced all conifer species, killing both juniper and the conifer species that compete with juniper. Juniper woodland and shrubland habitats are very limited in the project area. Few management activities are proposed, and natural recovery rates from the fire are expected. Proposed erosion control on the Bald Hills would slow runoff, allowing more water to percolate in soils and be available for vegetation growth.

As stated in the existing condition section, sage grouse populations on private lands in Bear Valley have declined primarily as a result of predation, livestock grazing and agricultural conversion. Adjacent private lands have already been salvage logged. Private lands were planted in 2003. Some private landowners have forage-seeded burned areas. Generally, these lands are not managed to preserve or restore sagebrush habitats.

Livestock grazing in the Flagtail project area would be delayed for at least two years post-burn to allow for recovery of ground cover (Post-fire grazing guidelines - Flagtail Fire Recovery Project FEIS - Appendix H). Some uncontrolled cattle use occurred in the summer/fall of 2003, but effects to riparian and upland habitats were considered well within Forest Plan and Interagency Interdisciplinary Team (IIT) standards. When livestock grazing is re-initiated, grazing would be managed to meet Forest Plan and IIT standards as well. At moderate grazing levels, livestock grazing can be compatible with sage grouse management.

Current levels of noxious weeds in the project area are below threshold levels that can cause measurable changes in terrestrial habitat. Over the long-term, habitat may be degraded by encroaching noxious weeds if they are not controlled.

In 2002/2003, fire-killed, hazard trees were salvaged on 14 acres at the Bear Valley Work Center and on 650 acres along roads. Future fuels reduction is planned on 100 acres inside Riparian Habitat Conservation Areas (RHCAs); dead, unmerchantable trees 8 inches DBH and smaller would be felled, then hand piled and burned outside of the RHCAs. Under Alternative 1, no fuel treatments are proposed in the majority of the Flagtail project area. Therefore, the limited fuel treatments described here are less likely to reduce fuel loads sufficiently to avoid intense re-burns in the future.

Sagebrush habitats are very limited in the project area. The No Action alternative would not have any additive adverse effects on these habitats.

**Determination**

Due to the nature of a No Action alternative, there would be **NO IMPACT (NI).**

**Alternatives 2, 3, 4 and 5 – Action Alternatives**

**Direct and Indirect Effects**

Juniper woodland, shrub-steppe and grassland habitats would not be treated under any of the action alternatives; therefore, there would be no direct effects to sage grouse. Effects would be as described for the No Action alternative.

**Cumulative Effects**

Past, ongoing and reasonable foreseeable future activities that have or can contribute effects to sagebrush habitats are described under the Cumulative Effects section for the No Active alternative. The additive effects of these activities would be as described under the No Action alternative unless discussed below.

In 2002/2003, fire-killed, hazard trees were salvaged on 14 acres at the Bear Valley Work Center and on 650 acres along roads. Future fuels reduction is planned on 100 acres inside Riparian Habitat Conservation Areas (RHCAs); dead, unmerchantable trees 8 inches DBH and smaller would be felled, then hand piled and burned outside of the RHCAs. When combined with salvage logging and fuels treatment proposed in Alternatives 2, 3 and 5, landscape-level fuels treatments are expected to help reduce the risk of an intense re-burn and another stand replacement fire. Under Alternatives 4, combined fuel treatments are less likely to reduce fuel loads sufficiently to avoid intense re-burns in the future. Alternatives 2, 3 and 5 also leave some burn areas untreated, but salvage logging and fuels reductions reduce fuel loads overall and break up the continuity of fuels remaining.

Sagebrush habitats are very limited in the project area; the action alternatives conduct little to no activities in these habitats. Even with all cumulative effects considered, the action alternatives will not lead to any adverse effects to sage grouse populations nor will they contribute to a trend toward federal listing or loss of viability to the population or species.

**Determination**

Activities proposed under these alternatives are not expected to measurably change sagebrush habitats or potential late brood-rearing habitat. Given that there would be no direct or indirect or cumulative effects, there would be **NO IMPACT (NI)** to this species.

## Gray flycatcher

**Status**

Federal Status: N/A
USDA-Forest Service (Region 6) Status: Sensitive (USFS 2000)
State Status: N/A

**Major Threats**

This species is vulnerable to land clearing, but it is generally found in very arid environments not usually converted to agriculture (USDA Forest Service 1994). Clearing of juniper in favor of grasslands for livestock grazing or widespread harvesting of juniper could be detrimental.

**Population Status and Trend**

North American BBS (Breeding Bird Survey) shows a survey-wide significantly increasing trend of 10.2 percent average per year (n = 89) during the 1966-1996 sample period; a nonsignificant decline of -1.0 percent average per year (n = 22) during 1966-1979; and a significant increase from 1980 to 1996 of 10.0 percent average per year (n = 84) (Sauer et al. 1997).

Data for Oregon reflects a strong long-term increase of 7.9 percent average per year (n = 29) during the 1966-1996 period (Sauer et al. 1997).

**Habitat**

The gray flycatcher prefers relatively treeless areas with tall sagebrush, bitterbrush, or mountain mahogany communities, but is also associated with pinyon-juniper woodland with understory sagebrush, and open ponderosa pine forests (Csuti et al. 1997). This species is most abundant in extensive tracts of big sagebrush, often selecting areas along washes where the sagebrush is especially tall. In the western Great Basin, this species nests in tall big sagebrush shrublands (Ryser 1985).

During the nonbreeding season, this species commonly inhabits arid scrub, riparian woodland, and mesquite (NatureServe 2002).

**Distribution**

Breeding range covers extreme southern British Columbia and south-central Idaho south to southern California, southern Nevada, central Arizona, south-central New Mexico, and locally western Texas (NatureServe 2002). In Oregon, this species is typically found east of the Cascade Mountains (Csuti et al. 1997).

Birds winter in southern California, central Arizona, south to Baja California and south-central mainland of Mexico (NatureServe 2001).

**Existing Condition**

The Malheur National Forest considers this species as a rare (not seen every year) summer resident.

In the Upper Silvies watershed, the majority of the shrub-steppe habitats are associated with the larger expanses of habitat in Bear Valley. There is very little gray flycatcher habitat on Forest Service managed lands. In the project area, about 780 acres, or 10.5% of the project area, classify as juniper/sagebrush, sagebrush shrublands or dry grasslands. The Bald Hills at 245 acres provides the largest block of potential habitat; the remaining acres are predominantly smaller openings 1 to 20 acres in size. Several stringer habits extend into the project area from Bear Valley. Additional small openings in the surrounding forest could contain sagebrush, bitterbrush and mountain mahogany habitat.

Within the fire area, the shrub-steppe habitats burned in a mosaic pattern depending on vegetation patterns and fire behavior. Unburned islands of sagebrush can retain habitat features important to sagebrush-dependent species. Many of the small isolated patches of sagebrush, mountain mahogany and bitterbrush that occupied the understories of forested communities were lost in the fire. Given, the small extent of habitat within the project area, the wildfire likely had minimal effect on species that depend on these semi-arid environments.

## Alternative 1 - No Action Alternative

### Direct and Indirect Effects

Under the No Action Alternative, there would be no new management activities; therefore, there should be no direct effects to gray flycatcher or their habitat.

Juniper woodlands, sagebrush shrublands and dry grasslands comprise only 780 acres, or 10.5% of the project area. Given, the small extent of these habitats, the wildfire likely had minimal effect on species that depend on these environments. Recovery of sagebrush habitats is dependent on the severity of the burn. Grass and herb species respond more rapidly after fire than sagebrush (Smith 2000). Because sagebrush does not sprout from underground buds, these communities can require several decades to establish post-fire vegetation composition and structure similar to that on unburned sites (Smith 2000). A mosaic burn, such as occurred in much of the Flagtail sagebrush communities, can accelerate recovery of these habitats as compared to completely burned areas. Unburned islands of sagebrush provide an important seed source. In the Flagtail fire area, unburned islands of sagebrush could provide limited habitat for sagebrush-dependent species and a seed source for regenerating burned areas.

### Cumulative Effects

All of the activities in Appendix J have been considered for their cumulative effects on gray flycatcher. The following discussion focuses on those past, ongoing and reasonable foreseeable future activities that may contribute adverse effects to the species or its habitat.

Juniper woodlands, sagebrush shrublands and dry grasslands have probably changed due to 100 years of fire suppression. Other conifer species have encroached on these habitats, reducing their size. On residual acres, juniper density probably has increased. Livestock grazing, primarily early in the century, may have caused changes in shrub, grass and forbs composition or abundance. The Flagtail fire reduced all conifer species, killing both juniper and the conifer species that compete with juniper. Juniper woodland and shrubland habitats are very limited in the project area. Few management activities are proposed, and natural recovery rates from the fire are expected. Proposed erosion control on the Bald Hills would slow runoff, allowing more water to percolate in soils and be available for vegetation growth.

As stated in the existing condition section, sage grouse populations on private lands in Bear Valley have declined primarily as a result of predation, livestock grazing and agricultural conversion. Adjacent private lands have already been salvage logged. Private lands were planted in 2003. Some private landowners have forage-seeded burned areas. Generally, these lands are not managed to preserve or restore sagebrush habitats.

Livestock grazing in the Flagtail project area would be delayed for at least two years post-burn to allow for recovery of ground cover (Post-fire grazing guidelines - Flagtail Fire Recovery Project FEIS - Appendix H). Some uncontrolled cattle use occurred in the summer/fall of 2003, but effects to riparian and upland habitats were considered well within Forest Plan and Interagency Interdisciplinary Team (IIT) standards. When livestock grazing is re-initiated, grazing would be managed to meet Forest Plan and IIT standards as well. At moderate grazing levels, livestock grazing can be compatible with sage grouse management.

Current levels of noxious weeds in the project area are below threshold levels that can cause measurable changes in terrestrial habitat. Over the long-term, habitat may be degraded by encroaching noxious weeds if they are not controlled.

In 2002/2003, fire-killed, hazard trees were salvaged on 14 acres at the Bear Valley Work Center and on 650 acres along roads. Future fuels reduction is planned on 100 acres inside Riparian Habitat Conservation Areas (RHCAs); dead, unmerchantable trees 8 inches DBH and smaller would be felled, then hand piled and burned outside of the RHCAs. Under Alternative 1, no fuel treatments are proposed in the majority of the Flagtail project area. Therefore, the limited fuel treatments described here are less likely to reduce fuel loads sufficiently to avoid intense re-burns in the future.

Sagebrush habitats are very limited in the project area. The No Action alternative would not have any additive adverse effects on these habitats.

**Determination**

Due to the nature of a No Action alternative, there would be **NO IMPACT (NI).**

**Alternatives 2, 3, 4 and 5 – Action Alternatives**

**Direct and Indirect Effects**

Juniper woodland, shrub-steppe and grassland habitats would not be treated under any of the action alternatives; therefore, there would be no direct effects to gray flycatcher. Effects would be as described for the No Action alternative.

In harvest units, occasional bitterbrush, mountain mahogany, and sagebrush shrubs could be affected, but damage would be incidental. The fire killed most of these shrubs, and harvest design typically avoids larger live shrub areas.

**Cumulative Effects**

Past, ongoing and reasonable foreseeable future activities that have or can contribute effects to sagebrush habitats are described under the Cumulative Effects section for the No Active alternative. The additive effects of these activities would be as described under the No Action alternative unless discussed below.

In 2002/2003, fire-killed, hazard trees were salvaged on 14 acres at the Bear Valley Work Center and on 650 acres along roads. Future fuels reduction is planned on 100 acres inside Riparian Habitat Conservation Areas (RHCAs); dead, unmerchantable trees 8 inches DBH and smaller would be felled, then hand piled and burned outside of the RHCAs. When combined with salvage logging and fuels

treatment proposed in Alternatives 2, 3 and 5, landscape-level fuels treatments are expected to help reduce the risk of an intense re-burn and another stand replacement fire. Under Alternatives 4, combined fuel treatments are less likely to reduce fuel loads sufficiently to avoid intense re-burns in the future. Alternatives 2, 3 and 5 also leave some burn areas untreated, but salvage logging and fuels reductions reduce fuel loads overall and break up the continuity of fuels remaining.

Sagebrush habitats are very limited in the project area; the action alternatives conduct little to no activities in these habitats. Even with all cumulative effects considered, the action alternatives will not lead to any adverse effects to gray flycatcher populations nor will they contribute to a trend toward federal listing or loss of viability to the population or species.

**Determination**

Activities proposed under these alternatives are not expected to measurably change bitterbrush, mountain mahogany, or sagebrush shrub habitats. Given that there would be minimal direct, indirect or cumulative effects from this project, there would be NO IMPACT (NI) to this species.

## Upland Sandpiper

**Status**

Federal Status: none
USDA-Forest Service (Region 6) Status: Sensitive (USFS 2000)
State Status: sensitive species, critical category

**Major Threats**

Conversion of grassland cover types to agricultural lands (Kirsch and Higgins 1976) have drastically reduced or altered the availability of this species' habitat. Predation, forest succession and livestock grazing contribute to the decline of upland sandpiper numbers (NatureServe 2003).

**Population Status and Trend**

Populations of upland sandpipers in Oregon and Washington are disjunct from the rest of the species' range in the Midwest. It is unknown if the Oregon population is genetically different than the larger Midwest population. Breeding Bird Survey information is not available due to insufficient sample size for population trend analysis (Altman 2000).

In the 1980's through 1991, numbers in Oregon were the largest population of nesting sandpipers west of the Rockies. Seven locations make up the Oregon population, and two of those areas are Bear Valley and Logan Valley on the Malheur National Forest. Numbers of nesting upland sandpipers have been declining since the mid-1980's, especially in Logan Valley where they have not nested in recent years (Scoville 1991, Tom Hunt pers. commun.). Bear Valley numbers are higher, but also have been declining (Scoville 1991). The reasons for the decline are unknown. Grazing system changes prior to 1992 in Logan Valley may explain some differences in habitat condition; however, a similar drop in numbers occurred in Bear Valley where no grazing changes were made. Changes in grazing does not totally account for the decline in numbers. Decreased survey effort may partly explain the decrease in the number of birds found, but it appears the population shows a steady decreasing trend since 1984 regardless of survey effort.

Bear Valley and Logan Valley locations accounted for over half of the sandpipers in the state in 1984 (Marshall 1988), when 23 pair (7 nests) and 3 singles were found in Bear Valley, and 12 pair (2 nests) and 6 singles were found in Logan Valley. Nests have been found along ditches or near moist areas, often adjacent to sagebrush. Bear Valley is located immediately east of the Flagtail area and Logan Valley is 25 miles east.

Bear Valley survey results:

| | 1977 | 1979 | 1980 | 1984 | 1987 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| #pair | 0 | 0 | 8 | 23 | 19 | 15 | 0 | no | no | 0 | 0 | 0 | 4 |
| #single | 8 | 0 | 1 | 3 | 0 | 8 | 1 | survey | survey | 3 | 6 | 4 | 0 |

Logan Valley survey results:

| | 1977 | 1979 | 1980 | 1984 | 1987 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| #pair | no | 0 | 11 | 12 | 8 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| #single | survey | 2 | 0 | 6 | 0 | 2 | 0 | 3 | 0 | 0 | 0 | 1 | 0 |

**Habitat Trend**

Both Bear Valley and Logan Valley have areas of short grasses mixed with forbs and scattered sagebrush patches. The removal of sagebrush and the seeding of non-native grasses have altered the habitat in Bear Valley east of Highway 395, where upland sandpipers nested in the early 1980's. Management has not changed in the rest of Bear Valley where the majority of the habitat is, but bird numbers have declined. Herman et al. (1985) speculated that the Bear Valley habitat was not fully occupied, thus the valley could support more nesting birds. Logan Valley management has apparently changed which might have contributed to the decline of upland sandpipers. Lodgepole pine has encroached in the valley and water regimes and drainage patterns have also changed which has affected the character of the habitat. Projects are underway to reverse this trend. Productivity declined at the same time that the population was declining. We also do not know why the productivity declined. Habitat factors might have contributed to the declining of the population and productivity, or it could be due to other factors, such as habitat or other conditions on their winter range in South America. Swainson's hawks died by the thousands due to pesticide use on their wintering grounds in Argentina in 1992. Upland sandpipers from Oregon also winter in Argentina and may have been affected by the pesticides used to kill grasshoppers.

**Habitat**

In the Blue Mountains, upland sandpiper habitat is large flat or gently rolling expanses of grassland in mountain valleys and open uplands ranging in elevation from 3,400 to 5,200 feet with small creek drainages and wet to dry meadows (Akenson and Schommer 1992). Use areas have a wide diversity of plants, and forb abundance is particularly important. They often use stringer meadows, which generally are at least 125 acres. They selectively nest where the vegetation is between 6 and 13 inches tall and avoid fields containing relatively uniform stands of grass, tall undisturbed stands of grass, or those seeded to smooth brome (Buhnerkempe and Westemeier unpubl., Kirsch and Higgins 1976). Upland sandpipers have strong site fidelity, returning to the same area about the same time each year. Other key habitat features near nest sites are loafing and feeding areas that have shorter, sparser vegetation than nesting areas and the proximity of a small shrub or tree. Fence posts are often used as perches, possibly to survey the area for predators. Sandpipers are very secretive and easily disturbed by humans (Altman 2000). Early

research on upland sandpipers suggests that a subtle change, sometimes unable to be detected by humans, causes nesting areas to become unacceptable (Buss and Hawkins 1939).

**Distribution**

Primary breeding habitat is in Canada and the north central United States. Upland sandpipers breed in North America and winter in South America (Akenson and Schommer 1992). They arrive on breeding grounds in the Blue Mountains of Oregon in early May. Clutches are initiated in mid May; renesting clutches were initiated as late as June 14. Hatching occurs in mid-June and fledge at about 30 days. Hatching is synchronous among neighboring nests. Chicks are precocial and begin feeding themselves soon after hatching.

Nests are built in cover that is 6-16 inches (15-40 cm) tall, and they avoid areas where vegetation in less than 2 inches (5 cm) or greater than 24 inches (60 cm). Upland sandpipers select areas with mixed grasses and forbs. Nests are constructed in a scratch in the ground and are lined with grass. In moist areas, they are on a slightly elevated rise or clump of vegetation and are concealed by grassy vegetation.

Upland sandpipers feed primarily on insects. They prefer to feed in vegetation that is less than 4 inches (10 cm) tall and prefer upland sites that have higher soil moisture than adjacent areas. Foraging sites might have had surface water during spring.

Brooding habitat is usually in vegetation that is less than 8 inches (20 cm) tall and has a variety of vegetation. Grazed areas are suitable brooding habitat.

**Existing Condition**

There are no known sightings of sandpipers within the project area. Surveys have not been conducted specifically for this species on either federal or private lands. The closest nest sites are located on private lands in Bear Valley about 1 to 3 miles southeast near Scotty Creek and 1 to 2 miles northeast adjacent to Keller Creek. The project area contains potentially suitable breeding habitat for upland sandpipers on approximately 350 acres, primarily along Jack Creek and Silvies River. Meadow habitats are smaller than the recommended 125 acres. Compared to the extensive habitat in Bear and Logan Valley there is limited suitable upland sandpiper habitat. Therefore, use is expected to be occasional and random within the Flagtail project area. Fire damage in meadow habitats was variable; moister meadows tended not to burn or burned in a mosaic pattern. Vegetation is expected to recover rapidly.

**Effects and Determination**

**Alternative 1 - No Action Alternative**

**Direct and Indirect Effects**

Under the No Action Alternative, there would be no new management activities; therefore, there should be no direct or indirect effects to upland sandpipers or their habitat.

**Cumulative Effects**

Major threats to breeding habitat are from predation, forest succession and livestock grazing

(NatureServe 2003). All of the activities in Appendix J have been considered for their cumulative effects on bobolinks. Few management activities would affect sandpiper habitat.

Livestock grazing would be delayed for at least two years post-burn to allow for recovery of ground cover (Post-fire grazing guidelines - Flagtail Fire Recovery Project FEIS - Appendix H). Some uncontrolled cattle use occurred in the summer/fall of 2003, but effects to riparian and meadow habitats were considered well within Forest Plan and Interagency Interdisciplinary Team (IIT) standards. When livestock grazing is re-initiated, grazing would be managed to meet Forest Plan and IIT standards as well. Prescribed burning, grazing, or mowing can be used to provide essential nesting conditions, but these activities can be detrimental if conducted inappropriately.

Current levels of noxious weeds in the project area are below threshold levels that can cause measurable changes in terrestrial habitat. Over the long-term, habitat may be degraded by encroaching noxious weeds if they are not controlled.

Livestock grazing and agricultural activities on private lands in Bear Valley can influence sandpiper habitat, although, as stated previously, management activities can be compatible with sandpiper management. Recnt salvage logging of private timberlands has had little effect on sandpiper habitat. Private lands were planted in 2003. Some private landowners have forage-seeded the burned areas.

In 2002/2003, fire-killed, hazard trees were salvaged on 14 acres at the Bear Valley Work Center and on 650 acres along roads. Future fuels reduction is planned on 100 acres inside Riparian Habitat Conservation Areas (RHCAs); dead, unmerchantable trees 8 inches DBH and smaller would be felled, then hand piled and burned outside of the RHCAs. Under Alternative 1, no fuel treatments are proposed in the majority of the Flagtail project area. Therefore, the limited fuel treatments described here are less likely to reduce fuel loads sufficiently to avoid intense re-burns in the future. Meadow habitats recover relatively rapidly after fire.

The No Action alternative would not contribute additive adverse effects.

**Determination**

Due to the nature of a no action alternative, there would be **NO IMPACT (NI).**

**Alternatives 2, 3, 4 and 5 - Action Alternatives**

**Direct and Indirect Effects**

The proposed activities will not enter meadow habitats; therefore, no impacts to upland sandpipers would be expected.

**Cumulative Effects**

Past, ongoing and reasonable foreseeable future activities that have or can contribute effects to meadow systems are described under the Cumulative Effects section for the No Active alternative. The additive effects of these activities would be as described under the No Action alternative unless discussed below.

In 2002/2003, fire-killed, hazard trees were salvaged on 14 acres at the Bear Valley Work Center and

on 650 acres along roads. Future fuels reduction is planned on 100 acres inside Riparian Habitat Conservation Areas (RHCAs); dead, unmerchantable trees 8 inches DBH and smaller would be felled, then hand piled and burned outside of the RHCAs. When combined with salvage logging and fuels treatment proposed in Alternatives 2, 3 and 5, landscape-level fuels treatments are expected to help reduce the risk of an intense re-burn and another stand replacement fire. Under Alternative 4, combined fuel treatments are less likely to reduce fuel loads sufficiently to avoid intense re-burns in the future. Alternatives 2, 3 and 5 also leave some burn areas untreated, but salvage logging and fuels reductions reduce fuel loads overall and break up the continuity of fuels remaining. Meadow habitats recover rapidly after fire.

The action alternatives would not contribute additive adverse effects.

**Determination**

Activities proposed under these alternatives are not expected to change potential habitat; therefore, there would be **NO IMPACT (NI)** to this species.

## Bobolink

**Status:** Federal - None
State - Sensitive
Region 6 - Sensitive

**Habitat**

Unless otherwise mentioned, the following information on bobolinks was derived from Dechant et al. (2001).

Bobolinks are found in native and tame grasslands, haylands, lightly to moderately grazed pastures, no-till cropland, small-grain fields, old fields, wet meadows, and planted cover. Bobolinks prefer habitat with moderate to tall vegetation, moderate to dense vegetation, and moderately deep litter, and without the presence of woody vegetation. They are found in areas with high percent grass cover and moderate percent forb cover, and avoid haylands with high legume-to-grass ratios; however, a forb component is beneficial for nesting cover.

If habitat is not maintained, use by bobolinks declines significantly, possibly due to the accumulation of litter and encroachment of woody vegetation. Bobolinks respond positively to properly timed burning or mowing treatments. In 2 years, a Wisconsin field that was burned in April each year was occupied by bobolinks in early June; the year it was not burned, the field was occupied by mid-May. Bobolink abundance declined in the burn year, but peaked 1-2 years postburn. In South Dakota, bobolinks preferred lightly grazed (grazed by American bison [*Bos bison*]) areas to spring-burned areas.

In the Great Plains, bobolinks responded positively to moderate grazing in tallgrass, but negatively to heavy grazing in shortgrass. In southeastern North Dakota, bobolinks occurred in grazed areas that had few shrubs and moderate to deep litter. Higher densities of bobolinks were found in areas under a short-duration grazing treatment (involved a system of pastures rotated through a grazing schedule of about 1 week grazed and 1 month ungrazed) than in idle areas.

Bobolink territories include both foraging and nesting areas. Average territory size ranged from 0.45 to 2.5 ha, depending on habitat variables. Bobolinks appear to prefer large grassland areas to small,

having a minimum size of approximately 10-45 ha. Studies suggest bobolink abundance in tallgrass prairie fragments was positively related to area and/or fragment size.

Bobolinks generally are considered an uncommon or rare host of the brown-headed cowbird (*Molothrus ater*), but their nests may be multiply-parasitized as well. Nest depredation and brown-headed cowbird brood parasitism generally decreased farther from woody edges, and nest depredation rates were lower on large (130-486 ha) than on small (16-32 ha) grasslands. Nest productivity is usually highest in habitats far (>45 m) from a forest edge.

Keys to management are providing large areas of suitable habitat (native and tame grasslands of moderate height and density, with adequate litter), controlling succession, and protecting nesting habitat from disturbance during the breeding season. Avoid disturbing (e.g., haying, burning, moderately or heavily grazing) nesting habitat during the breeding season, approximately early May to mid-July. Treatments can be done in early spring (several weeks prior to the arrival of adults on the breeding grounds) or in the fall after the breeding season.

**Distribution**

Bobolinks breed from southern British Columbia across southern Canada to Nova Scotia, and south to eastern Oregon, central Colorado, central Illinois, western Virginia, and western North Carolina (Marshall 1996).

**Existing Condition**

Bobolinks are very local and scattered in the eastern one-third of Oregon and are known to breed on the Malheur National Wildlife Refuge, south end of Blitzen Valley, Harney County, Union County, and Wallowa County (Marshall 1996). Locally, sporadic nesting occurs in the Prairie City, Mt. Vernon, Silvies Valley, and Bear Valley areas (Sweeney, 2001; Winters 2001).

Bobolinks appear to prefer large grassland areas to small, requiring approximately 25-110 acres depending on habitat quality. About 350 acres of capable habitat exist in the Flagtail area, with the majority of the acres along Jack Creek and the Silvies River, but also in stringer meadows along the edge of Bear Valley. Meadows habitats are generally smaller with only a few greater than 25 acres in size. Most of these acres are grazed and may not be providing tall enough grass for bobolinks. Meadows exist in the forest, but they tend to be small or habitat is naturally dry and low in productivity. Because of the low quality and the natural fragmentation, bobolinks would likely use only the largest areas. Bobolinks have not been reported in the project area. Fire damage in meadow habitats was variable; moister meadows tended not to burn or burned in a mosaic pattern. Vegetation is expected to recover rapidly.

**Alternative 1 -No Action Alternative**

**Direct and Indirect Effects**

Under the No Action Alternative, there would be no new management activities; therefore, there should be no direct or indirect effects to bobolinks or their habitat.

**Cumulative Effects**

All of the activities in Appendix J have been considered for their cumulative effects on bobolinks. Few management activities would affect bobolinks.

Livestock grazing would be delayed for at least two years post-burn to allow for recovery of ground cover (Post-fire grazing guidelines - Flagtail Fire Recovery Project FEIS - Appendix H). Some uncontrolled cattle use occurred in the summer/fall of 2003, but effects to riparian and meadow habitats were considered well within Forest Plan and Interagency Interdisciplinary Team (IIT) standards. When livestock grazing is re-initiated, grazing would be managed to meet Forest Plan and IIT standards as well. Grazing could occur in areas that may occasionally be used as nesting, loafing and brood-rearing habitat. At moderate grazing levels, livestock grazing can be compatible with bobolink management.

Current levels of noxious weeds in the project area are below threshold levels that can cause measurable changes in terrestrial habitat. Over the long-term, habitat may be degraded by encroaching noxious weeds if they are not controlled.

In 2002/2003, fire-killed, hazard trees were salvaged on 14 acres at the Bear Valley Work Center and on 650 acres along roads. Future fuels reduction is planned on 100 acres inside Riparian Habitat Conservation Areas (RHCAs); dead, unmerchantable trees 8 inches DBH and smaller would be felled, then hand piled and burned outside of the RHCAs. Under Alternative 1, no fuel treatments are proposed in the majority of the Flagtail project area. Therefore, the limited fuel treatments described here are less likely to reduce fuel loads sufficiently to avoid intense re-burns in the future. Meadow habitats recover relatively rapidly after fire.

The No Action alternative would not contribute additive adverse effects.

**Determination**

Due to the nature of a no action alternative, there would be **NO IMPACT (NI).**

**Alternatives 2, 3, 4 and 5- Action Alternatives**

**Direct and Indirect Effects**

The proposed activities will not enter meadow habitats; therefore, no impacts to bobolinks would be expected.

**Cumulative Effects**

Past, ongoing and reasonable foreseeable future activities that have or can contribute effects to meadow systems are described under the Cumulative Effects section for the No Active alternative. The additive effects of these activities would be as described under the No Action alternative unless discussed below.

In 2002/2003, fire-killed, hazard trees were salvaged on 14 acres at the Bear Valley Work Center and on 650 acres along roads. Future fuels reduction is planned on 100 acres inside Riparian Habitat Conservation Areas (RHCAs); dead, unmerchantable trees 8 inches DBH and smaller would be felled, then hand piled and burned outside of the RHCAs. When combined with salvage logging and fuels treatment proposed in Alternatives 2, 3 and 5, landscape-level fuels treatments are expected to help reduce the risk of an intense re-burn and another stand replacement fire. Under Alternative 4, combined fuel treatments are less likely to reduce fuel loads sufficiently to avoid intense re-burns in the future. Alternatives 2, 3 and 5 also leave some burn areas untreated, but salvage logging and fuels

reductions reduce fuel loads overall and break up the continuity of fuels remaining. Meadow habitats recover rapidly after fire.

The action alternatives would not contribute additive adverse effects.

**Determination**

Activities proposed under these alternatives are not expected to change potential habitat; therefore, there would be **NO IMPACT (NI)** to this species.

## Columbia Spotted Frog

**Status**

Federal Status: none
USDA-Forest Service (Region 6) Status: Sensitive (USFS 2000)
State Status: Undetermined Status (ORNHP 2000)
Oregon Natural Heritage Program Status - List 3 (OHRNP 2000)

**Major Threats**

Great Basin populations have been adversely affected by habitat degradation resulting from mining, livestock grazing, road construction, agriculture, and direct predation by bullfrogs and non-native fishes (NatureServe 2002). Spotted frogs are moderately threatened range-wide; its habitat or community lends itself to alternate use. They are fairly resistant and tolerant of nondestructive intrusion.

**Populations Status and Trend**

Recent intensive surveys indicate severe declines in the Great Basin populations.

**Habitat**

Spotted frogs are highly aquatic and are rarely found far from permanent water. Breeding habitat is usually in shallow water in ponds or other quiet waters along streams. Breeding may also occur in flooded areas adjacent to streams and ponds. Adults may disperse overland in the spring and summer after breeding.

**Distribution**

This species occurs in extreme southeastern Alaska, southwestern Yukon, northern British Columbia, and western Alberta south through Washington east of the Cascades, eastern Oregon, Idaho, and western Montana to Nevada (disjunct, Mary's, Reese, and Owyhee river systems), southwestern Idaho (disjunct), Utah (disjunct, Wasatch Mountains and west desert), and western and north-central (disjunct) Wyoming. Disjunct populations occur on isolated mountains and in arid-land springs.

In Oregon, Columbia spotted frogs appear to be widely distributed east of the Cascade Mountains. This species is believed to be present in all subbasins on the Malheur National Forest. It is assumed widely distributed in the project area.

### Existing Condition

No habitat surveys have been conducted specifically for spotted frog; however, habitat probably exists along most perennial and some intermittent streams. Habitat has been degraded by past management activities, such as livestock grazing, road construction along streams, and timber harvest adjacent to streams, springs, and marshes.

It is unknown what effects the Flagtail fire had on individual animals. Fire severity in riparian areas was variable. Generally, the fire killed most of the trees in the riparian uplands while leaving shrubs, forbs and grasses in the floodplains untouched or spot-burned due to the high moisture content of this ground vegetation. Snow Creek is the major exception; portions were severely burned with nearly all vegetation being killed.

## Alternative 1 - No Action Alternative

### Direct and Indirect Effects

Habitat requirements for spotted frogs are limited, but it is assumed that if healthy stream channels and riparian vegetation are maintained, then population viability will be maintained.

Under the No Action alternative, there would be no new management activities; therefore, there would be no direct effects to spotted frogs or their habitat. Although the fire killed most of the conifer overstory, the expected flush of ground vegetation, particularly shrub species, may elevate the amount and distribution of riparian hardwoods to levels higher than existed prior to the fire. Grasses and forbs are expected to reestablish naturally in 2 to 5 years; shrubs are expected to reestablish in 2 to 15 years. Riparian vegetation likely provides cover for frogs and habitat for insects that frogs may feed on. The Flagtail fire created many snags that will be available for recruitment into project area streams in the future, down logs can help stabilize stream channels and create pools for frogs. Most of the smaller snags (~10-14" dbh) will fall within the first 10 years post-burn, as well as some of the larger snags. Nearly all snags will be on the ground within 30 years.

The No Action alternative would do nothing to reduce impacts of the existing road system. Roads in RHCAs would continue to confine stream channels and restrict frog habitat by inhibiting the expansion of wetlands that were reduced or degraded by road construction where these habitats originally existed. It would be expected that sedimentation from existing roads would increase over time, unless other projects are implemented to address these impacts.

### Cumulative Effects

All of the activities in Appendix J have been considered for their cumulative effects on spotted frogs. The following discussion focuses on those past, ongoing and reasonable foreseeable future activities that may contribute adverse effects to the species or its habitat.

Road construction roads, timber harvest and grazing activities on private and public land have reduced spotted frog habitat quality and complexity in and adjacent to project area streams.

In burned riparian areas, hardwood and conifer planting is being implemented under separate NEPA documents. In 2003, conifer trees were planted on 190 acres in riparian areas and 190 acres in

uplands. Hardwoods were planted on 25 acres in 2003; additional hardwoods are proposed for interplanting on the same acres in 2004. Aspen restoration is being planned on an estimated 250 acres (76 aspen sites). Placement of coarse woody debris in streams would improve channel condition and create additional pools. Proposed fuels reduction in the RHCAs would remove only snags 8 inches DBH or smaller, reducing future fuel loads and risk of reburn that could delay recovery of vegetation. In the short-term, restoration activities could impact individuals or habitat. In the long-term, these actions will help reestablish riparian vegetation and stream integrity to the benefit of spotted frogs.

Livestock grazing would be delayed for at least two years post-burn to allow for recovery of ground cover (Post-fire grazing guidelines – Flagtail Fire Recovery Project FEIS - Appendix H). Some uncontrolled cattle use occurred in the summer/fall of 2003, but effects to riparian habitats were considered well within Forest Plan and Interagency Interdisciplinary Team (IIT) standards. When livestock grazing is re-initiated, grazing would be managed to meet Forest Plan and IIT standards as well.

Current levels of noxious weeds in the project area are below threshold levels that can cause measurable changes in terrestrial habitat. Over the long-term, habitat may be degraded by encroaching noxious weeds if they are not controlled.

Adjacent private lands have already been salvage logged. Private lands were planted in 2003. Some private landowners have forage-seeded the burned areas. Private lands are not typically managed to maximize wildlife habitat; therefore, habitat needs become more demanding on federal lands.

In 2002/2003, fire-killed, hazard trees were salvaged on 14 acres at the Bear Valley Work Center and on 650 acres along roads. Future fuels reduction is planned on 100 acres inside Riparian Habitat Conservation Areas (RHCAs); dead, unmerchantable trees 8 inches DBH and smaller would be felled, then hand piled and burned outside of the RHCAs. Under Alternative 1, no fuel treatments are proposed in the majority of the Flagtail project area. Therefore, the limited fuel treatments described here are less likely to reduce fuel loads sufficiently to avoid intense re-burns in the future.

The No Action alternative would not contribute additive adverse effects.

**Determination**

Due to the nature of a No Action alternative, there would be **NO IMPACT (NI)** to spotted frogs or their habitat.

**Alternatives 2, 3, 4, and 5 - Action Alternatives**

**Direct and Indirect Effects**

Habitat requirements for spotted frogs are limited, but it is assumed that if healthy stream channels and riparian vegetation are maintained, then population viability will be maintained. Spotted frogs are fairly resistant and tolerant of nondestructive intrusion.

Salvage logging and fuels reduction activities would have minimal adverse effects to Columbia spotted frogs or their habitat. Overall, streams would be protected with INFISH RHCA buffers. There may be limited felling of hazard trees in RHCAs, but the trees would be left on site. It is unlikely that felling of hazard trees would kill spotted frogs, and effects to habitat would be considered minimal. Harvest

and fuels treatment activities outside riparian areas are expected to have little to no indirect impacts on riparian and aquatic systems. Vegetation recovery and recruitment of snags in stream channels would be as described for Alternative 1, both considered beneficial to the riparian and aquatic system.

The activities with the highest potential for affecting streams are road management activities, particularly those that directly affect riparian vegetation, floodplains, or stream channels. Alternatives 2, 3 and 5 propose 0.3 miles of system road construction and 13.1 miles of road decommission. The objective of the road construction is to relocate an existing section of road impacting Snow Creek; the existing road would be decommissioned under these alternatives. The road construction is not within RHCAs. Road effects are typically magnified when activities occur within 100 feet of streams; only 4.2 miles of decommissioning would occur within 100 feet of streams.

Proposed road management actions such as culvert replacement or cleaning at stream crossings, or road decommission, reconstruction, or maintenance within 100 feet of streams would produce short-term (1-2 years) sediment into project area streams. These activities have the potential to adversely affect spotted frog habitat by increasing fine sediments in the short-term, although sediment may be less of a concern for frogs than fish species. The short-term increase in sediment would be very small in size and scale due to the small area of disturbance at each project point. Best management practices (BMPs) are incorporated into standard road maintenance and reconstruction practices and would reduce the probability and magnitude of the short-term risks. In the mid- to long-term, road reconstruction and maintenance would reduce the chronic sediment production of existing roads by removing ruts and rills from the driving surface, adding less erosive surfacing material, and improving drainage. Road decommissioning is designed to benefit riparian habitat and water quality in the mid- to long-term by improving filtration, restoring ground cover, reducing sediment yield and restoring floodplains.

Alternative 4 forgoes opportunities to relocate the Snow Creek road; road construction is dropped and road decommissioning is reduced from 13.1 miles to 11.9 miles. Only 3.4 miles of road decommissioning would occur within 100 feet of streams. Alternative 4, by reducing road construction and decommissioning, would reduce both short-term impacts and long-term benefits regarding sediment, drainage network, and peak/base flows proportionate to the reduced level of activities.

**Cumulative Effects**

Past, ongoing and reasonable foreseeable future activities that have or can contribute effects to spotted frogs are described under the Cumulative Effects section for the No Active alternative. The additive effects of these activities would be as described under the No Action alternative unless discussed below.

In 2002/2003, fire-killed, hazard trees were salvaged on 14 acres at the Bear Valley Work Center and on 650 acres along roads. Future fuels reduction is planned on 100 acres inside Riparian Habitat Conservation Areas (RHCAs); dead, unmerchantable trees 8 inches DBH and smaller would be felled, then hand piled and burned outside of the RHCAs. When combined with salvage logging and fuels treatment proposed in Alternatives 2, 3 and 5, landscape-level fuels treatments are expected to help reduce the risk of an intense re-burn and another stand replacement fire. Under Alternative 4, combined fuel treatments are less likely to reduce fuel loads sufficiently to avoid intense re-burns in the future. Alternatives 2, 3 and 5 also leave some burn areas untreated, but salvage logging and fuels reductions reduce fuel loads overall and break up the continuity of fuels remaining.

The action alternatives would not contribute to further degradation of riparian areas. Restoration activities associated with the action alternatives are expected to contribute long-term benefits to the recovery of spotted frog habitat, more so than the No Action alternative, likely improving conditions beyond the pre-fire baseline.

**Determination**

In summary, action alternative **May impact spotted frog individuals or habitat, but would not likely contribute to a trend towards Federal listing or loss of viability to the population or species** (**MIIH**)**.** The only short-term impacts to spotted frogs would be those from road maintenance or decommission activities that occur within 100 feet of streams; anticipated sediment impacts are expected to have a negligible effect to spotted frogs or populations. However, the long-term reduced impacts to riparian aquatic resources (also due to road management activities) would result in a **Beneficial Impact** for spotted frog.

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