CHAPTER 4
CONSULTATION, COORDINATION AND REFERENCES CITED

4.0 – INTRODUCTION

This chapter discusses the results of consultation with other agencies. It also identifies the agencies, organizations, and interested publics contacted as part of the notification and scoping effort associated with this planning effort.

4.1 - CONSULTATION WITH US FISH AND WILDLIFE SERVICE (USFWS) and US NATIONAL MARINE FISHERIES SERVICE (NMFS)

Consultation with these 2 federal agencies is required before a project may proceed if there is likelihood for adverse effect to species listed under authority of the Endangered Species Act as Endangered or Threatened. Within the planning area, there are 3 species listed as threatened; the bald eagle, the northern spotted owl and the mid-Columbia steelhead. The proposed project, as planned, is not expected to have adverse effect to any species currently listed as federally Endangered or Threatened due to adherence to pre-determined project design criteria and conservation measures (such as seasonal restrictions).

These design criteria and conservation measures to prevent adverse effects to T & E species are derived from 2 sources, the current Forest Service programmatic informal consultation with the USFWS (USFWS reference 1-3-01-IR-2231, dated 9/28/2001; extended 12/7/2006, reference #13410-2007-I-0022), and the National Fire Plan Project Design and Consultation (Counterpart Regulations 50 CFR 402.04) as informally advised by Vince Harke, USFW.

The summary table of Biological Effects is located in Appendix A, including the rationale for effects determinations. As there are no T&E species or habitat that is likely to have potential for adverse effects, formal consultation, and take statement, will not be required for the Catherine Creek restoration project.

4.2 - STATE HISTORIC PRESERVATION OFFICER

An evaluation of the Catherine Forest Restoration with recommended mitigations was submitted by CRGNSA archeologist, Marge Dryden, to the Washington State Historic Preservation Office and concurrence was received on April 9, 2007.

4.3 – PERSONS,AGENCIES AND ORGANIZATIONS CONTACTED

Following is a partial list of county, state, and federal agencies, and tribal governments that have been contacted concerning the proposed action discussed in this Environmental Assessment:

- 94 adjacent land owners (listed in Appendix C).
- Nez Perce Tribal Executive Committee
- Confederated Tribes of the Warm Springs of Oregon
- Yakama Tribal Council
- Confederated Tribes of the Umatilla Indian Reservation
- Bureau of Indian Affairs
- Catherine Collaborative Group
- Chinook Trail Association
- City of Hood River

- City of The Dalles
- Clark Co. Commissioners Chairman
- Clark County Planning Dept
- Clear Creek Distillery
- Columbia Land Trust
- Columbia River Gorge Commission
- Congressman David Wu
- Congressman Greg Walden
- David Evans & Associates
- DEQ, Manager
- Director Western Land Exchange
- Friends of the Columbia Gorge
- Gifford Pinchot Task Force
- Goldendale Sentinel, News Desk
- Gresham Outlook
- Hood River Co. Commission
- Hood River Co. Forestry Dept.
- Hood River County Planning Dept
- Hood River News
- Juniper Flat Dist. Imp. Co.
- Klickitat County Planning Dept
- KWSO Radio
- Little White Salmon NFH
- Longevity Herb Co.
- Mazamas Conservation Committee
- Multnomah County Planning Dept
- Native Plant Society of Oregon
- Nature Conservancy
- Nature Conservancy Oregon
- North Sails Windsurfing Inc.
- Oregon Nation Resources Council
- ONRC-NW Oregon Field Rep.
- Or State Rep District 52
- Or State Rep District 59
- Or State Sen District 26
- Or State Sen District 30
- Oregon Dept of Transportation
- Oregon DEQ
- Oregon State Parks
- Palena Associates Inc
- Pierce National Wildlife Refuge
- Port of Hood River
- Port of the Dalles
- Post Record
- Reeves, Kahn & Eder Attys
- Sandy River Basin Watershed Coun.
- Siuslaw National Forest
- Skamania Co. Commissioners, Chair
- Skamania Co. Parks Dept
- Skamania Co. Pioneer Editor
- Skamania Co. Planning Dept.
- State Representative Dist 15
- State Representative Dist 15
- State Representative Dist 15
- The Columbian
- The Dalles Chronicle
- The Oregonian/NW Outdoors
- U.S. Congressman Brian Baird
- U.S. Congressman Earl Blumenauer
- U.S. Congressman Richard Hastings
- U.S. Sen. Ron Wyden
- U.S. Senator Gordon Smith
- U.S. Senator Maria Cantwell
- U.S. Senator Patty Murray
- US Army Corps of Engineers
- WA Dept of Transportation
- WA Dept. of Community Development
- WA DNR Mgr. SW
- WA State Dept of Wildlife
- WA State Dept. of Natural Resources
- WA State Parks & Recreation
- Wasco County Planning Dept
- Wasco County Public Works
- Washington Dept of Fish and Wildlife
- White Salmon Enterprise
- Wilderness Society
- Other interested Individuals

4.4 - LIST OF PREPARERS

The following interdisciplinary team members participated in the preparation of this document:

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APPENDIX A - BIOLOGICAL EVALUATIONS

Biological Evaluation
Of the Potential Impacts to Sensitive Flora and Fauna

U.S. Forest Service
Columbia River Gorge National Scenic Area

Date: March 31, 2007

Project: Catherine Creek Forest Restoration

Pre-field Review
Natural resource GIS data, prior environmental documents, and conversations with state and USFWS biologists were completed to determine known and potential locations of sensitive fish, wildlife and plant species within and adjacent to the planning area.

Field Review
Flora: The project area was been surveyed for sensitive flora over the years by many botanists. A fairly good data base exists for this area. A cursory survey was completed in 1997 on the mid-elevation areas of the Catherine Creek area and a survey of the lower elevation areas, below 1200 feet, was conducted in 1999 following the Catherine Creek fire and re-seeding efforts after the fire. Because no surveys had been conducted on some of the parcels at higher elevations, a survey for all sensitive flora and those species of Survey and Manage (S&M) with suitable habitat was completed immediately prior to implementation during the Spring of 2007. All sites were noted and all protection standards within the EA were implemented to protect all sensitive flora. The data displayed in the table is based on our current data base and all known surveys by local botanists.

Fauna: The project area was surveyed to USFS Region 6 protocol for NW Forest Plan Survey and Manage species in March and April of 2006. Peregrine and bald eagle nest site monitoring occurred within the National Scenic Area as part of a multi-agency nest monitoring program, as coordinated annually by Oregon State University. Fish surveys, including steelhead spawning survey, were completed in spring and summer of 2006 within Major Creek. Stream survey was completed on Catherine creek in spring of 2007. Surveys for spotted owl, goshawk and western gray squirrel will be completed the season prior to project implementation (planned to start in 2007) so as to have the most recent and accurate nest location possible for buffers that may need to be applied.

Findings
Flora: No new populations of sensitive flora were observed during the more recent survey efforts, but several previously noted sites were re-confirmed. Our current data base shows many locations of sensitive flora, most at lower elevations where there will be little to no activities related to this project. Although the orchid, Mountain Lady Slipper (Cypripedium montanum), is not a listed species, it will be protected within the project area. While most of the Project Area

was not determined to be suitable habitat for Survey and Manage Species (S&M), at the higher elevations, some of the area was surveyed. No sites of S&M species were located.

Fauna: Effects to CRGNSA sensitive species from the proposed project are displayed in the summary table of effects, displayed below. There are a total of 90 species or critical habitat on the CRGNSA sensitive species list, with 22 species having potential to be found within the planning area. The proposed project, with the many conservation measures, is not likely to adversely affect any of the 22 species to the point that population impacts could potentially be incurred. Further information on each sensitive species, including the effects rationale, follows in detail below.

The project is not expected to lead to negative impacts to any Threatened, Endangered, Sensitive, and Candidate fish and wildlife species due to the seasonal restriction of implementation outside of the species' nesting/rearing season, implementation restrictions, as well as the small area of treatment per year in the larger context of the untreated surrounding habitat. Roads shall only be reconstructed where there is existing wheeled track. Temporary skid roads shall be constructed on side slopes less than 30%. Erosion control measures will be employed so that no fill material is transported from the road site to other areas.

Historically, fires have shaped wildlife habitats, and the relationship of fire in maintaining the health of white oak woodlands is clear. Fire effects to wildlife populations is anticipated to be positive, as animals native to areas with centuries of fire history can undoubtedly persist and thrive in habitat shaped by fires. After thinning, an initial late winter/early spring underburn, followed thereafter by fall underburning will help ensure that prescribed fires burn "cool" and remain low in intensity (flame lengths less then 3'). The cessation of spring underburns by March 15 ensure that ground nesters, such as the Western meadowlark, spotted towhee, Bewick's wren, ruffed grouse and turkey are impacted as little as possible. There are no ground nesters that are on the CRGNSA sensitive species list. Spring underburns would be limited to 1/4 of the planning area or less, per year, to allow for local areas of refugia and replication of mosaic burns that provides for diversity of wildlife habitat. Fires have the potential to injure or kill fauna, but in reality most animals are able to move away from the flames and smoke, either through flight, or underground tunnels and burrows (Kapler, 2000). Direct mortality from low intensity prescribed underburns is documented to be low or non-existent as derived from research literature. The restoration of open oak, pine-oak, and eastside forests from a century of fire suppression is a priority conservation strategy listed in all current state and federal wildlife conservation plans. The restoration of these forests is expected to maintain pine/oak habitat that will directly benefit 10 local sensitive species, such as the Western gray squirrel, Lewis' woodpecker, ash-throated flycatcher, pileated woodpecker, Vaux's swift, flammulated owl, and California Mountain kingsnake.

After a century of fire suppression, the no-action plan would maintain forests in an altered stand composition that does not shelter fire-adapted wildlife species. The risk of stand replacement crown fires is high; with increasing risk each year that fire continues to be suppressed. Whether through stand replacement fire, or continued encroachment by faster-growing conifers, oak stands will eventually be lost.

Seven sensitive species that are declining due to loss of large trees that supply cavities or crevices in bark for nesting include the flammulated owl, pileated woodpecker, pygmy nuthatch,

purple martin, Pacific Pallid bat, Silver-haired bat, and the Long-eared myotis. No action within the project area will continue the decline of large trees and the open understory habitat required by these species. The thinning of these forests is expected to directly improve habitat components for these species. Mast production from trees in more open stands is also expected to increase due to greater access to sunlight and reduced competition for available moisture and nutrients.

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	Botanist/Ecologist		**Fish and Wildlife Biologist**
	US Forest Service, CRGNSA		**US Forest Service, CRGNSA**

FISH, WILDLIFE, AND PLANTS BIOLOGICAL EVALUATION

Summary Table Of Effects
for
Threatened, Endangered, Proposed and Candidate species found in Oregon and WA
as listed by the Federal Endangered Species Act,
and
U.S. Forest Service Regional Forester's Sensitive Species list
for the Columbia River Gorge National Scenic Area
and
Section 1.01 and 1.02, Other "sensitive wildilfe areas and sites" as defined by the
(i) 1992 Management Plan for the Columbia River Gorge National Scenic Area (Including Oregon and Washington State Endangered, Threatened, Sensitive and Candidate Species with historic or suspected range in the CRGNSA)

Project area of analysis: Catherine Forest Restoration *Species with potential habitat or populations within the planning area (Field Review column) are discussed further in the B.E. narrative following this table, as well as in Chapter 3.5 of the E.A.	**County/State:** Klickitat County, WA

SPECIES (population segment)	**STATUS***	**PREFIELD REVIEW Usual Habitat in OR/WA**	**FIELD REVIEW**		**EFFECT DETERMINATION**	
			Habitat Present?*	Species Present?	No Action**	Proposed Action
Bull trout (Columbia R.) *(Salvelinus confluentus)*	T, OR-SC, WA-C	Spawns and rears in cold streams/lakes. Adults will disperse and/or migrate in warmer systems such as the Columbia River mainstem. Presently also documented in Hood R., Drano Lake, and may also use use the Klickitat R and Sandy R for migration within the NSA.	No			
Bull trout (Columbia River) Critical Habitat		Within the NSA: Designated Critical Habitat includes all of the White Salmon and Klickitat River, within the NSA.	No			
Steelhead (Snake R.) and Critical Habitat *(Oncorhynchus mykiss)*	T, WA-C	Anadromous: Habitat and presence within the NSA limited to migration corridor of the Columbia River. Critical Habitat designation limited to Columbia River corridor within the NSA.	No			
Steelhead (Mid-Col. R.) *(Oncorhynchus mykiss)*	T, WA-C	Anadromous: Spawns and rears within Columbia River tributaries between Mosier and Yakima, in both OR and WA.	Yes, Major Creek	Yes, upper distribution unknown	NE	NE
Steelhead (Mid-Col. R.) Critical Habitat		Within the NSA: Designated Critical Habitat includes the Columbia River corridor, as well as White Salmon R (to NW lake) and Klickitat River in WA, with Rock, Mosier, Chenowith, Mill, 3-mile, 5-mile creeks in Oregon.	No			
Steelhead trout (Upper Col. R.) and Critical Habitat *(Oncorhynchus mykiss)*	E, WA-C	Anadromous. Habitat and presence within the NSA limited to migration corridor of the Columbia River. Critical Habitat designation limited to Columbia River corridor within the NSA.	No			
Steelhead (Lower Col. R.) *(Oncorhynchus mykiss)*	T, OR-SC, WA-C	Anadromous: Spawns and rears within Columbia River tributaries between the mouth of the Columbia R east to Hood River, in both OR and WA.	No			
Steelhead (Lower Col. R.) Critical Habitat		Within the NSA: Designated Critical Habitat includes the Columbia River corridor, Sandy, Wind, and the Hood River systems, as well as short lower reaches of Gorge tributaries, located downstream of the Hood River.	No			
Chinook (mid-Col. spring run) *(Oncorhynchus tshawytscha)*	FS	Anadromous: Spawns (late summer/fall) and rears within Columbia River tributaries from the Klickitat River upstream to include the Yakima River (excluding the Snake River Basin), in both OR and WA.	No			
Chinook salmon (Snake R. spring/ summer/fall runs) and Critical Habitat *(O. tshawytscha)*	T, OR-T, WA-C	Anadromous. Presence within the NSA limited to migration corridor of the Columbia River. Critical Habitat designation limited to Columbia River corridor within the NSA.	No			

Chinook salmon (Lower Col. R.) *(Oncorhynchus tshawytscha)*	T, OR-SC (fall run), WA-C	Anadromous: Spawns and rears within Columbia River tributaries between the mouth of the Columbia R east to Hood River, in both OR and WA.	No			
Chinook salmon (Lower Col. R.) Critical Habitat		Within the NSA: Designated Critical Habitat includes the Columbia River corridor, Sandy, Wind, White Salmon (to NW lake) and the Hood River systems, as well as very short lower reaches of Gorge tributaries, located downstream of the Hood River.	No			
Chinook salmon (Upper. Col. R) and Critical Habitat *(Oncorhynchus tshawytscha)*	E, WA-C	Anadromous: Presence within the NSA limited to migration corridor of the Columbia River. Critical Habitat designation limited to Columbia River corridor within the NSA.	No			
Sockeye salmon (Snake R.) and Critical Habitat *(Oncorhynchus nerka)*	E, WA-C	Anadromous. Presence within NSA limited to migration corridor of the Columbia River. Spawning area typically adjacent to or within lakes, where young rear. Critical Habitat designation limited to Columbia River corridor within the NSA.	No			
Chum salmon (Columbia R.) *(Oncorhynchus keta)*	T, OR-SC, WA-C	Anadromous: Spawns and rears in several locations on the Columbia River shoreline as well as within low gradient Columbia R tributaries, in both OR and WA. Historically documented spawning run as far east as the Umatilla/Walla Walla systems, but present pop. largely below Bonneville dam. Some incidental spawning known to occur near the mouths of White Salmon R (WA) and Eagle Creek (OR).	No			
Chum salmon (Columbia R.) Critical Habitat		Within the NSA: Designated Critical Habitat includes the Columbia River corridor, Gibbins, Lawton, Indian mary, Duncan, Hardy, Hamilton, Cedar. Greenleaf, and White Salmon (to NW lake).	No			
Coho (lower Columbia R.) *(Oncorhynchus kisutch)*	T, OR-E	Anadromous: Spawns and rears within Columbia River tributaries between the mouth of the Columbia R east to Hood River, in both OR and WA.	No			
River lamprey *(Lampetra ayresi)*	WA-C	Anadromous: Historically thought to occur throughout the Columbia River system, but little information on current distribution or abundance. Difficult to ID as ammocoetes. Adults not documented in Columbia River system of OR/WA since 1980.	No			
Eulachon *(Thaleichthys pacificus)*	WA-C	Anadromous, with spawning in mainstem Col R & lower reaches of rivers, often within tidal influence. (Sandy R in NSA). Historically migrated as far east as Hood R prior to Bonneville Dam	No			
Leopard dace *(Rhinichthys falcatus)*	WA-C	Disjunct pops in Columbia R. mainstem Yakima, Snake, Similkameen rivers. Habitat in large, slower flowing rivers/lakes. Lay adhesive eggs in riffles, late spring.	No			
Mountain sucker *(Catostomus platyrhynchus)*	WA-C	Historic range in Columbia River system, largely east of Cascades, including the Col R mainstem & lower Klickitat R within the NSA. June/July spawner in riffles.	No			

Cope's giant salamander *(Dicamptodon copei)*	FS, OR-SU	W. WA, NW OR: Clear, cold mountain streams w/rocky substrate	No			
Cascade torrent salamander *(Rhyacotriton cascadae)*	FS, WA-C, OR-SV	Cascade Mtns of southern WA and northern OR: in and adjacent to cold, fast, mountain streams or seeps w/rocky substrate	No			
Dunn's salamander *(Plethodon dunni)*	WA-C	Coast range only WA and Western OR: moss-covered rock rubble, shady stream banks.	No			
Oregon slender salamander *(Batrachoseps wrighti)*	FS, OR-SU	N and Central OR Cascades: Forests with large down logs and moist talus with abundant wood debris	No			
Larch mountain salamander *(Plethodon larselli)*	FS, WA-S, OR-SV	Cascades mountains of S. WA/N. OR: Largely in moss-covered talus slopes, or other rocky substrate, at low-mid elev.	Yes	No	NI	NI
Oregon spoted frog *(Rana pretiosa)*	C, FS, WA-E, OR-SC	The Oregon spotted frog was historically found in the Puget Trough from the Canadian border to the Columbia River and east, as well as both sides of the Cascades. In or near large perennial lakes/marshes with heavy vegetation and shallow warm egg-laying areas. Closest extant population at Crane prairie reservoir in Deschutes county.	No			
Northern leopard frog *(Rana pipiens)*	WA-E, OR-SC	Lowland marsh/ponds with dense vegetation; presently found in Grant county only. Likely extirpated in Gorge.	No			
Western toad *(Bufo boreas)*	WA-C, OR-SV	Widespread distribution in WA and OR:in marshes and ponds (breeding sites in midspring); can travel readily overland and be found along streams/seeps. Known within the Scenic Area near White Salmon, Major and Catherine creeks. There are presently no known sites within the Oregon portion of the Scenic Area.	Yes	Yes	NI	MIIH
Northwestern pond turtle *(Clemmys marmorata)*	FS, WA-E, OR-SC	Streams, lg rivers, slow sloughs, and quiet waters with nesting habitat (open meadow) within ½ mile. Occurs <3000'	No			
Painted turtle *(Chrysemys picta)*	FS (OR), OR-SC	Slow water ponds, marshes, rivers below 3000'. Widely introduced outside CRG and CR basin.	No			
California Mtn king snake *(Lampropeltis zonata)*	FS(WA), WA-C, OR-SV	Main population in CA and Klamath mtns, with disjunct pop. in Col. R. Gorge (Klickitat, Skamania county area): oak/pine woodland, rocky riparian within logs/rocky cover. No confirmed specimens on OR side of NSA, although unconfirmed sightings have been reported at The Dalles and Maupin areas.	Yes	Yes	NI	MIIH (Implementation) BE (long-term habitat)
Sharptail snake *(Contia tenuis)*	FS (WA) WA-C, OR-SV	East slope of WA Cascades, Columbia R. Gorge, W OR: rocky slopes often in open pine/oak woodland w/prey species of small slugs. Often in moist riparian east of Cascades. Largely subterranean during summer, appearing in spring/fall.	Yes	Likely	NI	MIIH
Striped whipsnake *(Masticophis taeniatus*	FS(WA), WA-C	South/central WA (Columbia basin), E. OR: brushy country, open grasslands, and dry rocky sites. Not identified to be in the Scenic Area (WA GAP data)	No			

Bald eagle *(Haliatus leucocephalus)*	T , WA-T, OR-T	Shoreline (generally within 1 mile of large water bodies) with large trees and prey base of primarily fish. Diet also includes some waterfowl, turtles, and carrion	Yes	Yes	NE	NLAA
Northern spotted owl *(Strix occidentalis caurina)*	T, WA-E, OR-T	Mature coniferous forest generally used for nesting, roosting, and foraging. Will disperse in early or mid-seral forests.	Yes, dispersal	Marginal nesting habitat in parts of East Conifer	NE	NE
Northern spotted owl Critical Habitat		Within the NSA: Designated Critical Habitat includes most Oregon FS land between Wahkeena Creek and Hood River, as well as headwater areas of the little Wind River and Brush Creek watershed in WA.	No			
Ferruginous hawk *(Buteo regalis)*	FS(WA), WA-T, OR-SC	Open prairie and shrub steppe in eastern WA and OR.	No			
Peregrine falcon *(Falco peregrinus)*	FS, OR-E, WA-S	Tall (>75'), undisturbed cliff sites with adequate-sized cliff ledges and overhang for nesting, that is within 1 mile of water and is located near areas with abundant small bird prey base.	Yes, in cliff habitat adjacent to planning units	None so far. (Effects determina-tion conserva-tively assumes future use)	NI	MIIH (Implementation) BE (long-term habitat)
Northern goshawk *(Accipiter gentilis)*	WA-C, OR-SC	Typically more common east of Cascades in a wide variety of forest ages, structural conditions, and successional stages. Uses stands of mature forest as nesting sites. Typically found between 1900 and 6100 feet in Oregon.	Yes	Poten-tial in east conifer	NI	NI BE (long-term habitat)
Golden eagle *(Aquila chrysaetos)*	WA-C	Various habitats in open country/forests, often nests on steep cliffs or large trees	Yes, potential	No	NI	NI
Merlin *(Falco columbarius)*	WA-C	Open forests, grasslands, marshes. Nests in N. WA Cascades, NE WA. Winters in all NW U.S. Post breeders (winter) commonly seen in NSA at low elevations.	Yes, winter	Yes, foraging	NI	NI BE (long-term habitat)
Flammulated owl *(Otus flammeolus)*	WA-C, OR-SC	E. Cascades: cavity nester in mature pine/ mixed conifer with open-canopy, at mid-elevations. Prefers mosaic of habitat. Insectivore. Winters S. of US border	Yes, marginal	Potential, but unlikely	NI	NI BE (long-term habitat)
Common loon *(Gavia immer)*	FS(WA), WA-S	Undisturbed lakes and ponds with fish/invert prey base. Spring/fall migrant and winters in NSA.	No			
Western Grebe *(Aechmophorus occidentalis)*	WA-C	open lakes and marshes w/rushes and tules, winters in coastal esturaies/bays	No			
Clark's grebe *(Aechmophorus clarkii)*	FS(WA)	Winters in NSA on large rivers. Breeds in large lakes with tule or rushes.	No			
Horned grebe (OR only) *(Podiceps grisegena)*	FS(OR), OR-SP	Common winter resident on Columbia River within NSA. Breeds on marshes and lakes in E WA/OR	No			
Red-necked grebe *(Podiceps grisegena)*	FS(OR), OR-SC	rare winter migrant on the Col. R. Uncommon breeder in E WA/OR.	No			
Eared grebe *(Podiceps nigricollis)*	FS(WA),	Documented but uncommon winter resident of NSA. Breeds in E OR/WA lakes/reservoirs with rushes/cattails	No			

American white pelican *(Pelecanus erythrorhynchos)*	WA-E, OR-SV	Gregarious birds that nest in large colonies on islands within shallow water and marshes free of human disturbance and mammalian predators. Post breeders sometimes seen in Col R. (such as Klickitat Delta). Winters in S US through Mexico.	No			
Sandhill crane *(Grus canadensis)*	WA-E OR-SV (tabida ssp.)	Riverine wetland, islolated mtn meadows/basins. No current breeding pops in the NSA, some migration.	No			
Yellow-billed cuckoo *(Coccyzus americanus)*	WA-C, OR-SC	Historic range in WA and OR. No reported breeding occurrences since the 1950's, although individuals have been sighted east of Cascades sporadically. Riparian forests, with cottonwood/thick willow; Neotropical migrant. Considered extirpated from WA and OR.	No			
Lewis' woodpecker *(Melanerpes lewis)*	WA-C, OR-SC	Open pine/oak woodland, conifer forests, and riparian woodland; Commonly seen in east areas of NSA in dry forest types of oak and pine. May migrate during harsh winters into areas of milder weather.	Yes	Yes		NI BE (long-term habitat)
White-headed woodpecker *(Picoides albolarvatus)*	WA-C, OR-SC	Central/E. WA/OR open, mature ponderosa pine forest specialist, usually above 2000'. Cavity nester. Not currently documented in NSA.	No			
Black-backed woodpecker *(Picoides arcticus)*	WA-C, OR-SC	Uncommon Cascades resident usu. at higher elvations (>1000'); bulk of range in Canada. Scattered and variable distribution as populations are highly associated with post-fire habitats in mature forests (stand-replacement fires with snags). Dependent on high density of dead and insect-ridden trees. It has not been detected in the NSA, despite regular availability of burned areas.	No			
Pilieated woodpecker *(Dryocopus pileatus)*	WA-C OR-SV	Conifer/mixed conifer forests, as well as decidous stands in valley bottoms with large dead or live trees (or remnants) for foraging and nesting. Primary cavity nester.	Yes	Yes	NI	NI BE (long-term habitat)
Sharp-tailed grouse *(Tympanuchus phasianellus)*	WA-T	Grasslands/sagebrush. Historically found east of the Cascades, including much of Klickitat county, but extirpated in 1950's from most of range in WA and OR. Remnant pop. in NE WA.	No			
Sage sparrow (Amphispiza belli)	WA-C	Eastern WA/OR; flat terrain highly associated with big sagebrush, may also use chaparral, and dry foothills. On periphery of habitat in NSA; in the extreme eastern end. No known current pops.,although migrants may pass through the NSA. Winters in S OR, and SW US states.	No			
Sage thrasher *(Oreoscoptes montanus)*	WA-C	Eastern WA/OR semi-arid sagebrush plains and bottomlands. May have historically been in outlying east portion of NSA, but no current populations.	No			
Loggerhead shrike *(Lanius ludovicianus)*	WA-C	East of Cascades: dry grassland and sagebrush desert habitats. On periphery of habitat in NSA with sightings in east Klickitat county. Neotropical migrant.	No			

Oregon vesper sparrow *(Pooecetes gramineus affinis)*	WA-C	Lowland valleys of W WA and OR: (Willamette, Klamath, Puget sound) sparsely vegetated grasslands with scattered tall structures used for song perches, including ag. lands. On periphery of habitat in NSA. Ground nester.	No			
Gray flycatcher *(Empidonax wrightii)*	FS	SE WA and E OR: Sagebrush and pinyon juniper woodlands, ponderosa pine-oak-DF woodlands with open understory. On periphery of habitat in NSA. Winters in SW US and southward.	Yes	No	NI	NI
Ash-throated flycatcher *(Myiarchus cinerascens)*	FS(WA)	Open oak, pine and juniper woodlands. Nests in cavities of large oak. Readily accespts artificial boxes. Winters in SW US, and southward.	Yes	Yes	NI	NI BE (long-term habitat)
Vaux's swift *(Chaetura vauxi)*	WA-C	Found in forests and urban areas where their need for hollow trees/bark or chimneys for nesting sites are met; neotropical migrant	Yes, overhead foraging. Limited nesting habitat.	Yes	NI	NI BE (long-term habitat)
Purple martin *(Progne subis)*	OR-SC, WA-C	W WA/OR up through Gorge to W Wasco County: cavity/crevice nester, often near water. Forages over open water/fields/ forest canopy. Winters in S. America.	No			
Grizzly bear *(Ursus arctos)*	T, WA-E	Historically in lower 48 states, presently restricted to areas with low human pops., such as North Cascades Range.	No			
Gray wolf *(Canis lupus)*	E, WA-E	Historically found in almost all habitats in lower 48 states; presently in steppe, woodland, and forest where reintroduced.	No			
California wolverine *(Gulo gulo)*	FS, WA-C, OR-T	Conifer Forests. Intolerant of human encounters/disturbance. Require very large home ranges. One sighting in last several decades from road-killed juv male on I-84, near Starvation Creek, Jan 1990.	No			
Pacific fisher *(Martes pennanti)*	C, FS, WA-E, OR-SC	Found in low and mid-elevation late successional conifer forest, with high canopy cover and large down logs for nesting. Requires large home ranges. Likely extirpated in NSA and adjacent forests; undetected in multi-year surveys.	No			
Columbian white-tailed deer (Lower Col. R pop only) *(Odocoileus virginianus leucurus)*	E, WA-E, OR-SV (OR = coast pop only)	Historic distribution in floodplains and bottomland riparian of Willamette and Lower Col. R. east to the Klickitat River. Severe riparian habitat loss presently limits this sub-population to a small area between Skamokawa, W.A. and Clatskanie, Oregon.	No			
White-tailed jackrabbit *(Lepus townsendii)*	WA-C, OR-SU	East of Cascades: open areas with native bunchgrass, sagebrush plains, can also be found in coniferous forests and subalpine meadows. On periphery of habitat in NSA at the Dalles/Dallesport.	No			
Washington ground squirrel *(Spermophilus washingtoni)*	WA-C, OR-E	Presently found in Columbia basin of WA state in sagebrush/grassland w/ sandy soils; also Giliam, Morrow and Umatilla counties, OR. May have historically been within the eastern edge of NSA.	No			

Western gray squirrel *(Sciurus griseus)*	FS(WA), OR-SU WA-T	Open mixed oak/conifer woodland, typically within ½ mile of water source. Core range for WA in Klickitat county. Known to occur in Hood River and areas east within OR. Easily confused with the non-native and invasive Eastern gray squirrel.	Yes	Yes	NI	MIIH BE (long-term habitat)
Gray-tailed vole *(Microtus canicaudus)*	WA-C	Endemic to Clark County, WA and OR Willamette Valley: Grassy and agricultural lands, meadows. On periphery of habitat in NSA. Common in OR.	No			
Townsend's big-eared bat *(Corynorhinus townsendii)*	FS(WA), WA-C, OR-SC	Throughout Western US. Roost and hibernaculum sites within caves, buildings, mines and bridge undersides, with exacting temp, humidity, and physical requirements. Very intolerant of human disturbance which results in loss of critical fat reserves during torpid period.	No			
Pacific Fringe-tailed bat *(Myotis thysanodes vespertinus)*	FS	Nursery colonies and roosts in mines, caves, buildings and similar. Intolerant of human disturbance. Documented in Little W.Salmon subbasin in 1996	No			
California floater mussel *(Anodonta californiensis)*	WA-C	Shallow areas of lakes, ponds, reservoirs, and large rivers with muddy or sandy substrate. Historically found throughout the western US, but presently known to occur as remnant populations in Columbia, Okanogan, and lower Willamette river systems. Intolerant of fluctuating water levels that decimate local populations.	No			
Giant Columbia River limpet *(Fisherola nuttalli)*	WA-C	Historically in almost the entire Columbia R. basin, now restricted to a few remant sites. In WA, confirmed in Hanford Reach of the Columbia R., as well as the Okanogan, Wenatchee and Methow rivers. In OR, only documented in Deschutes R.	No			
Great Columbia River spire snail *(Fluminicola columbiana)*	WA-C	Historically, widespread throughout the Lower Snake and Columbia Rivers, and their larger tribs. Now limited to a few reaches of the Columbia R.system that remain free-flowing, colder, and with high oxygen content. Confirmed in a few sites along the Columbia (Hanford Reach), Okanogan, Wenatchee and Methow Rivers in WA, and the Deschutes River in OR.	No			
Puget Oregonian *(Cryptomastix devia)*	FS	Western Cascade Range in Low/Mid elevations (CRGNSA, GPNF, Clackmas RD. HR RD, ZZ RD, OlympicNF, Salem BLM, Hebo RD, Wenatchee NF, MBSNF): Moist conifer forests, associated with bigleaf maple. Often found on or under hardwood logs, leaf litter, or under sword fern, moist rocks/talus. Yound devia may be under mosses on trunk of big-leaf maple.	No			
Columbia Oregonian *(Cryptomastix hendersoni)*	FS, WA-C	Low to Mid elevations Gorge in Wasco, Sherman, Skamania and Klickitat counties (CRGNSA, MHNF, Naches RD, Mt. Adams RD): Within 100 m. of streams, seeps, & springs (low elev) in steppe communities. May also be in mid elev. mature closed canopy forests among moist talus, leaf litter, or shrubs, or under logs or other debris.	Yes	No	NI	NI

Malone's jumping slug *(Hemphilia malonei)*	FS-WA	<4600'. Benton Cnth northward into W OR Cascades and into SW Cascades of WA. CRGNSA, GPNF, MHNF excp Barlow, Salem BLM Cascades, Olympic NF Hood CanalRD, WillametteNF DetroitRD): Moist forest stands, generally >50 yrs, with >50% canopy cover, esp. where dense sword fern and LWM exist. Some found near marshy areas w/low veg cover.	No			
Columbia Duskysnail *(Lyogyrus n. sp. 1)*	FS	CRGNSA, GPNF, MHNF. Counties include Klickitat, Skamania, Cowlitz, Clark, Wash, Mult, Clack, Hood R): Spring and Spring outflows in cold, clear, and well-oxygenated water. Usu. slow flow with moss substrate.	Yes	No	NI	NI
Dalles sideband *(Monadenia fidelis minor)*	FS, WA-C	Central and East Gorge; Wasco and Klickitat Counties. CRGNSA, MHNF Barlow and Hood R RD, GPNF Mt Adams RD): Within 200 m. of streams, seeps, or springs, in steppe or dry forest plant communities (within talus and moist rocky areas). May be found among rocks, shrubs/veg. and down wood.	Yes	No	NI	NI
Blue-gray taildropper *(Prophysaon coeruleum)*	FS-WA, WA-C	Widespread. Western Cascades and puget trough, south to N. CA. Occurs on both sides S. OR Cascades. Suspected on E slopes of Casacdes in WA: Moist conifer and mixed conifer/hardwood forest, where litter is moist and shaded. Associated with decayed logs, leaf litter, mosses and bigleaf maple/sword fern.	No			
Columbia River tiger beetle *(Cicindela columbica)*	WA-C	Known to occur only in sandbars of Snake and Columbia river riparian area, east of Cascades.	No			
Yuma skipper butterfly *(Ochlodes yuma)*	WA-C	Main pop. in Great Basin area w/outliers in central and eastern OR/WA: near freshwater marshes, streams, ponds, linked with *Phragmites* reeds. The only record within CRGNSA, in 1999, found at Maryhill on ornamental *Miscanthus (Pyle, 2002)*.	No			
Chinquapin hairstreak butterfly *(Habrodais grunus herri)*	WA-C	North-central OR, Skamania County, WA: Obligate with *Chrysolepis chrysophylla*. One known location near Stevenson, WA.	No			
Johnson's hairstreak butterfly *(Callophry[Mitoura] johnsoni)*	WA-C	Cascades, Coast, Siskiyou, Blue, Wallowas mtns: coniferous forest old-growth obligate.	No			
Mardon skipper *(Polites mardon)*	C, WA-E	Historic distrubution unknown. Present known distribution is disjunct: N CA, Puget sound and south Cascades of WA. Habitat of open fescue grasslands, riparian, or meadows with nectar plant source. No known populations in the NSA but surveys by NSA office continues. Species decline likely due to loss of native grass meadows and prairie habitat throughout NW.	Marginal	No	NI	NI
TES Plants						
Agoseris elata	OR-2 WA-S FS-S	Meadows and open woods to mid-elevations.	NO			

Agrostis howellii	OR-1 FS-S Endemic	Moist rocks on south side of Gorge (Multnomah and Hood River counties).	NO			
Arabis sparsiflora var. atrorubens	OR-2 FS-S	Eastside, low elevation . Open areas.	YES	NO	MIIH	BI
Artemesia campestris spp borealis	OR-1 WA-1 FS-S US-C	Gravely beach areas of Columbia. Miller Island in Gorge	NO			
Astragalus hoodianus	OR-2 Endemic	Dry open areas of east Gorge	Marginal	NO	MIIH	BI
Bolandra oregana	WA-2 FS-S	Wet basalt cliffs	NO			
Botrichium lanceolatum	OR-2 FS-S	Moist, wet areas in mountains.	NO			
Botrichium lunaria	OR-2 FS-S	Moist wet areas but rarely in meadows.	YES	NO	NI	MIIH
Botrichium montanum	OR-2 FS-S	Forested/open areas in conifer forest zones	NO			
Calamagrostis breweri	OR-2 FS-S	Stream banks, lake margins, sub-alpine to alpine meadows.	NO			
Calamagrostis howellii	Endemic	Rocky banks and crevices of cliffs within the Gorge.	NO			
Calachortus longebarbaus var. longebarbatus	OR-2 WA-2 FS-S	East slope of Cascades.	Possibly	NO	MIIH	BI
Carex densa	WA-1 FS-S	Wet areas on both sides of Cascades.	NO			
Carex heteroneura (carex atrata var. erecta)	WA-2 FS-S	Montaine	NO			
Carex livida	OR-2 FS-S	Willamette Valley.	NO			
Carex macrochaeta	OR-2 FS-S	Moist open places, coastal but suspected in CRG	NO			
Carex vernacula	OR-2 FS-S	Alpine to sub-alpine. Dwarf size.	NO			
Castilleja levisecta	OR-1 FS-S	Open fields west side of Cascades.	NO			
Castilleja rubicola	OR-2 FS-S	Rocky cliffs at low to moderate elevations.	NO			
Chrysolepis chrysophylla	WA-2 FS-S	Open to closed forest openings Low to mid elevations.	No			
Cicuta bulbifera	OR-2 WA-2 FS-S	Wet places to standing water. Low elevations	NO			
Cimicifuga elata	OR-1 WA-2 FS-S	Hardwood and mixed forest on west side	NO			
Collinsia sparaiflora var. bruceae	WA-1 FS-S	Dry slopes with sparse vegetation on east side of Cascades. Low elevations.	YES	YES	MIIH	MIIH
Copsis trifolia	OR-2 WA-1 FS-S	WASCO	possibly	NO	MIIH	MIIH implementation BI (longterm)

Corydalis aqua-gelidae	OR-1 WA-2 FS-S	Along cold streams on west side of Cascades.	NO			
Cryptantha rostellata	WA-2 FS-S	Dry open areas, east side Cascades.	YES	NO	MIIH	MIIH
Cyperus bipartitus	WA-2 FS-S	Wet places. Low elevation	NO			
Cypripedium fasiculatum	OR-2 WA-3 FS-S	Open to closed forested woodlands/forest. East side of Cascades.	YES	NO	MIIH	MIIH implementation BI Longterm
Damasonium californicum	WA-1 FS-S	Sloughs, marshes and other standing waters.	NO			
Delphinium leucophaeum	OR-1	West side (Mult.)	NO			
Delphinium nuttallii	OR-2	Westside	NO			
Douglasii laevigata var. laevigata	OR-3 Endemic	Basalt cliffs and rocky out-crops, low elevation through the Gorge	NO			
Erigeron howellii	OR-2 WA-1 Endemic FS-S	Open areas on ridges and rocky areas.	NO			
Erigeron oreganus	OR-1 WA-2 Endemic FS-S	Over hanging basalt cliffs	NO			
Eryngium petiolatum	WA-1 FS-S	Dry ephemeral wetlands in east Gorge	Possibly	NO	NI	MIIH
Euonymus occidentalis	WA-1 FS-S	In woods in west Cascades	NO			
Fritillaria camschatcensis	OR-1 WA-2 FS-S	Moist areas west Cascades from coast to mountains.	NO			
Heuchera grossularifolia var. tenuifolia	WA-3 FS-S	Cliffs, often shaded, along streams or rivers in East Gorge	YES	NO	NI	NI
Hieracium longiberbe	Endemic	Open areas throughout Gorge.	NO			
Howellia aquatilis	OR-1 WA-2 FS-S	Westside	NO			
Lewisia columbiana var. columbiana	OR-2 FS-S		NO			
Linanthus bolanderi	WA-2 FS-S	Dry open areas in East Gorge	YES	YES	NI	NI
Liparis loeselii	WA-1 FS-S	Wet or damp areas within forest	NO			
Lomatium laevigatum	OR-2 WA-2 FS-S Endemic	Basalt cliffs in east Gorge	NO			
Lomatium salmoniflorum	OR-2	Wasco	NO			
+ Lomatium suksdorfii	OR-2 WA-3 FS-S Endemic	Open wooded or open areas in east Gorge	YES	NO	MIIH	BI MIIH

Lomatium watsonii	OR-2 FS-S		NO			
Lupinus latifoius var thompsonianus	Endemic	Open areas in pine/oak woodlands.	YES	YES	MIIH	BI MIIH
Luzula arcuata	OR-2 WA-1 FS-S	Hood	NO			
Lycopodiella inundata (Northeren bog clubmoss)	OR-2 WA-2 FS-S	Westside	NO			
Lycopodium complanatum	OR-2 FS-S	Westside	NO			
Meconella oregana	OR-1 WA-2 FS-S	Oak woodlands in east Gorge	YES	No	MIIH	MIIH Implementation BI longterm
Microseris borealis	WA-2 FS-S		NO			
Mimulus jungermannioides	WA-1` FS-S	Wet areas in east Cascades.	Possibly	NO	NI	MIIH
Mimulus pulsiferae	WA-2 FS-S	Wet areas.	NO			
Mimulus suksdorfii	WA-2 FS-S		NO			
Montia diffusa	WA-2 FS-S	Up-turned root disturbances within the forest of Cascades.	NO			
Montia howellii	FS-S		NO			
Navaretia tagetina	WA-1 FS-S	Dry, open areas in east Gorge	YES	YES	NI	MIIH
Ophioglossum pusillum	OR-1 WA-1 FS-S	Meadows and woods.	Possibly	NO	MIIH	MIIH Implementation BI longterm
Parnassia frimbriata var. hoodiana	WA-1 FS-S	Bogs, stream banks, wet areas (Mult., Hood, and Washington Counties, Oregon)	NO			
Penstemon barrettiae	OR-1 WA-2 FS-S Endemic	Rocky cliffs, talus slopes in east Gorge	YES	YES	NI	NI
Phlox hendersonii	OR-2 FS-S	Hood	NO			
Pityopus californica	WA-1 FS-S		NO			
Platanthera sparsiflora	WA-1 FS-S	Wet, boggy areas	NO			
Plagiobothrys figuratus ssp. corallicarpus	OR-1 FS-S		NO			
Platanthera sparsiflora	WA-1 FS-S	Wet, boggy areas	NO			
Poa gracillima var. multnomae	Endemic	Mostly on s. side of Columbia Gorge in rocky, shaded cliff near water falls	NO			
Poa laxiflora	WA-2 FS-S	Moist woods to open rocky slopes up to mid-elevations	NO			
Poa nervosa var. nervosa	WA-2 FS-S	Limited to lower Col. River and adj. tribs. Open slopes, ridges and talus slopes.	NO			
Polemonium carneum	WA-1 FS-S		NO			

Potentilla breweri	WA-1 FS-S		NO			
Potentilla diversifolia var. perdissecta	WA-1 FS-S		NO			
Potentilla villosa var. parviflora	OR-2 FS-S	Hood	NO			
Ranunculus populago	WA-2 FS-S		NO			
Ranunculus reconditus	OR-1 WA-1 FS-S Endemic	Open grasslands or open areas in pine/oak woodlands. East Gorge.	NO			
Romanzoffia thompsonii	FS-S		NO			
Rorippa columbiae	OR-1 WA-1 FS-S	Mud flats along Columbia River	NO			
Scheuchzeria palustris var. americana	OR-1 FS-S		NO			
Scirpus subterminalis	OR-2	Wasco	NO			
Scribneria bolanderi	WA-1 FS-S		NO			
Sidalcea hirtipes	OR-2 WA-1 FS-S		NO			
Sisyrinchium sarmentosum	OR-2 WA-1 FS-S	Wet/dry meadows at mid to high elevations	NO			
Spiranthes porrifolia	WA-2 FS-S	Open moist meadows.	YES	YES	NI	NI
Streptopus streptopoides	OR-2		NO			
Suksdorfia violacea	OR-2 FS-S		Possibly	NO	NI	NI
Sullivantia oregana	OR-1 WA1 FS-S Endemic	Wet basalt cliffs	NO			
Synthyris stellata	Endemic		NO			
Tauschia stricklandii	OR-2 FS-S	Mult.	NO			
Utricularia intermedia	WA-2 FS-S	Slow moving water or streams	Possibly	NO	NI	NI
Utricularia minor	OR-2		Possibly	NO	NI	NI
Veratrum insolitum	WA-1 FS-S		NO			
Wolffia borealis	FS-S		NO			
Wolffia columbiana	OR-2		NO			
FUNGI						
Albatrellus ellisii (WA only)	S&M		NO			
Bridgeoporus nobilissimus	WA-1 OR-1` S&M	On boles of noble firs	NO			
Cordyceps capitata (Former S&M)	S&M	OR/WA	NO			

Cortinarius barlowensis (OR only)	S&M		--			
Cudonia monticola	S&M	OR?	NO			
Gomphus kauffmanii	S&M	OR/WA	NO			
Gyromitra californica	S&M	OR/WA	NO			
Helvella crassitunicata	OR-2	Hood	NO			
Hygrophorus caeruleus	OR-2	Hood	NO			
Leucogaster citrinus	S&M		NO			
Macowanites mollis	OR-1	Mult. co	NO			
Mycena monticola (Former S&M)	S&M	OR/WA	NO			
Otidea smithii	S&M	OR/WA Forests with conifers	NO			
Phaeocollybia attenuata	S&M	OR	NO			
Phaeocollybia californica (OR only)	OR-1 S&M		--			
Phaeocollybia olivacea (OR only)	S&M	OR	--			
Phaeocollybia oregonensis	OR-1 S&M	OR	NO			
Phaeocollybia piceae	S&M	OR?	NO			
Phaeocollybia pseudofestiva	S&M	OR	NO			
Phaeocollybia scatesiae	S&M	OR	NO			
Ramaria amyloidea	S&M	OR	NO			
Ramaria cyaneigranosa (WA only)	S&M	WA	NO			
Ramaria gelatiniaurantia	S&M	OR/WA	NO			
Ramaria rubrievanescens (WA only)	S&M	WA	NO			
Sarcodon fuscoindicus (WA only)	S&M	WA	NO			
Sowerbyella rhenana	S&M	OR/WA Conifer forests	NO			
Spathularia flavida (WA only)	S&M	WA	NO			
LICHENS						
Cetrelia cetrarioides (WA only)	S&M	WA	NO			
Chaenotheca subroscida	S&M	WA, OR?	NO			
Collema nigrescens (WA only)	S&M	WA	NO			
Dendriscocaulon intricatulum (WA only)	S&M	WA Both in old-growth western forests and in open oak balds	Possibly	NO	MIIH	MIIH Implementation BI longterm
Dermatocarpon luridum	S&M	WA, OR? Aquatic on submerged or seasonally emergent rocks	NO			
Hypogymnia duplicata (OR only)	S&M	OR Western Cascade forests at mid-elevations !000-5500’	--			

Leptogium burnetiae var. hirsutum	S&M	OR?/WA? Epiphytic on trees, logs, rocks, mosses	NO			
Leptogium cyanescens	S&M	OR?/WA? Tree bark both conifers and hardwoods, logs, rocks in cool, moist sites	NO			
Lobaria linita (OR only)	S&M	OR Cool, humid old-growth forest on boles of silver firs and boulders	--			
Nephroma bellum (WA only)	S&M	WA w. Cascades, mostly on conifer branches	NO			
Nephroma occultum	S&M	OR/WA	NO			
Pannaria rubiginosa	S&M	OR/WA? Epiphyte on Hooker's willow at low elev. In old-growth western forests	NO			
Peltigera neckeri (Former S&M)	S&M	OR?/WA? Mossy logs, soil and tree bases in moist forests	NO			
Peltigera pacifica	S&M	OR/WA Same as P. neckeri	NO			
Pilophorus nigricaulis (Former S&M)	S&M	WA/OR? On rocks in talus slopes, cliffs within old-growth forests	NO			
Platismatia lacunosa (WA only)	S&M	WA Western conifer forest	NO			
Pseudocyphellaria rainierensis	S&M	OR/WA On conifers in cool, humid, old-growth western forests	NO			
Ramalina pollinaria (Former S&M)	S&M	1) OR? 2) CA only	NO			
Tholurna dissimilis	S&M	OR/WA High elev. Wind swept trees	NO			
Usnea longissima	S&M	OR/WA Wet moist forest	NO			
BRYOPHYTES						
Conostomum tetragonum	OR-2	Moss, Hood	NO			
Encalypta brevicolia var. crumiana (Former S&M)	S&M	WA?	NO			
Gymnomitrion concinnatum	OR-2	LIVERWORT	NO			
Polytichium sphaerothecium	OR-2	Moss, hood	NO			
Rhizomnium nudum (OR only)	OR-2 S&M	OR Very moist humus or soil, typically near see page in conifer forest	NO			
Schistostega pennata	S&M	OR/WA Mineral soil in shaded pockets of overturned tree roots, or at entrances to caves, or animal burrows	NO			
Scouleria marginata (Former S&M)	S&M	OR?/WA? Semi-aquatic on rocks along edges of streams	NO			
Tetraphis geniculata	OR-2 S&M	OR/WA Moist forests with large down logs	NO			

NOTE: RATIONALE FOR CONCLUSION OF EFFECTS IS CONTAINED IN THE NEPA DOCUMENT.
** All effects for the No Action alternative do not take into account the impacts to the habitat that may occur should a replacement fire occur or more and more oak/pine woodland habitat is lost over time. While short term impacts to the species themselves are not significant because they can move, the risk of impacts to their habitats increase over time under the No Action alternative.

*Key to table abbreviations

FS = Forest Service Region 6 (OR/WA) sensitive species,

Endangered Species Act (federal) listed species:

- E = Endangered
- Th = Threatened
- S = Sensitive
- C = Candidate
- P = Proposed

WA = Washington State listed species, E = Endangered, T = Threatened, S = Sensitive, C = Candidate

OR = Oregon state listed (E, T, or S_, see below)

- SC = Sensitive Critical
- SV = Sensitive Vulnerable
- SP = Sensitive Peripheral or naturally rare
- SU = Sensitive Undetermined status

NI/NE = No Impact/No Effect

MIIH = May impact Individuals Or Habitat, But Will Not Likely Contribute To A Trend Towards Federal Listing or Loss Of Viability To The Population Or Species

WIFV = Will Impact Individuals Or Habitat With A Consequence That The Action May Contribute To A Trend Towards Federal Listing Or Cause A Loss Of Viability To The Population Or Species

BI = Beneficial Impact

NLAA = May affect, but is Not Likely to Adversely Affect.

LAA = May affect, and will Likely Adversely Affect

Species with potential habitat within or adjacent to the project area are discussed in further detail in the following section.

Mid-Columbia Steelhead
Federal Threatened, Washington State Candidate

Steelhead and coho are the 2 anadromous salmonid species that are known to regularly spawn in Major Creek, below the natural falls at river mile 0.3. The falls is comprised of 3 tiers that total 17' in height. Since their arrival coincides with high spring flows, steelhead can intermittently pass upstream of these falls in some years, dependent on the flow levels. All of the mainstem Major Creek as well as the lower 1.2 miles of each fork (west and east forks) of Major Creek are passable by steelhead, although spawning gravel accumulations are scarce and use is likely very low. The upper extent of steelhead spawning reaches from this system has not been quantified due to the checkerboard ownership of the stream channel. Catherine creek does not contain fish due to its intermittent nature, combined with an impassable culvert near its confluence with the Columbia River. Please refer to the hydrology subsection, chapter 3.4 for a more detailed description of the stream habitat, and potential physical effects from the 2 alternatives proposed in this E.A.

Effects from the Proposed alternative

The various restrictions to actions within the riparian buffer (reference chapter 2.3, alternative 2) are expected to prevent adverse effects to the stream habitat from the proposed action alternative due to the retention of intact vegetation streamside. The limited hand-thinning, and underburning within patches of the riparian reserve is expected to lower the intensity of fires that may enter the riparian canyon area of Major Creek due to the reduction in ladder fuels. This will directly aid in the maintenance of large overstory trees that are a vital component to the riparian area. The patchiness in planned treatment is intended to mimic the burn patterns from naturally occurring wildfires (Agee, 2003; Johnson, 1994).

Effects from the No-action alternative

The no-action alternative will also continue to provide for vegetated areas that filter and buffer the stream and riparian habitat. The no-action alternative incurs a higher risk for measurable negative impacts to the stream at a later time, when a wildfire burns into forested areas with high fuel loading. This is especially true for Major Creek, where the canyon walls could act as a natural "chimney" for fires. Once ignited, fires in this steep-sided canyon would be extremely difficult to control. The moderate to high severity burns that will result from the high fuel loading will have high potential to cause acute and chronic sediment input to adjacent surface water through increased surface and bank erosion, and sediment bulking from ash deposits (McNabb and Swanson, 1990; McMahon et. al., 1990; USFS, 2003). The sediment input from a moderate to high severity fire in the watershed will likely cause degraded fish spawning and rearing habitat downstream, where anadromous fish are known to occur, for multiple years. A 17 year study on the Boise National Forest that followed a high-intensity fire's effect to a stream noted degraded conditions for 5-10 years after wildfires (higher stream temperature, fine

sediment), with improved conditions thereafter, due to import of large amounts of gravel, woody debris and nutrients from upslope erosion areas (Burton, 2005).

Bald Eagle

Federal Threatened (proposed for federal de-listing since 1999), W.A. State Threatened, Oregon State Threatened.

The bald eagle has a large distribution throughout North America, and is known to live and nest within the CRGNSA. In Washington State, the last statewide surveys conducted in 1998 recorded 664 occupied nest sites; with growth rate of 16.7% per year for eastern Washington and 9.5% for western Washington annually. Presently, the population may be near carrying capacity, modeled at approximately 4000 eagles state-wide, including non-breeders (Stinson, et. al, 2001). In the lower 48 states, the species has increased from a population estimated at less than 500 breeding pairs in 1967, when the birds were first listed, to a conservative estimate of at least 7,066 nesting pairs (Federal Register, 2006).

Locally, within the Columbia River Gorge, almost all nests are in relatively undisturbed sites, located on large trees within ½ mile of the Columbia River or a direct tributary. Primary prey species is fish, as well as some waterfowl. Bald eagles often construct multiple nests in one area, although only one is used per season. Twenty-two nest sites are known to have been active in 2006 in the National Scenic Area, with a subset of 14 nests (64%) on Forest Service managed land (Isaacs and Anthony, 2007). Bald eagles often forage around five to seven miles away from their nest sites. Courtship and nest building can start as early as January, with eggs laid by late February to early March. In general, adult eagles become less sensitive to nest disturbance once the young develop by mid-June.

Effects from the Proposed alternative

One active bald eagle nest site is on the NW edge of the planning area. The nest site will have a ¼ mile no-entry buffer from January 1 to August 15 to minimize risk of nest disturbance (Effects Determination Criteria Instructions for Bald Eagle, from Northwest National Fire Plan Project Design and Consultation Process, 2003). The tree will also be protected from damage during thinning (see Natural Resource Mitigation Plan, Chapter 2).

The table below breaks down the action activity into work elements and resultant effects to bald eagles:

Work Element	Window of operation	Effect Determination (due to disturbance)
Thinning outside of ¼ mile nest buffer	July 1 to February 28	No Effect
Thinning anywhere (including within ¼ mile of nest)	August 16 – December 31	No Effect
Prescribed fire anywhere (including within ¼ mile of nest)	August 16 – December 31	No Effect
Prescribed fire outside ¼ mile nest buffer, with wind blowing smoke away from the nest, and no smoke will settle around nest tree.	July 1 to March 15	NLAA (May Affect, Not Likely to Adversely Affect)

The proposed action of under-story thinning and regular prescribed fire will favor the maintenance and growth of large trees that will continue to provide quality habitat for nesting and roosting bald eagles.

Effects from the No-action alternative
The no-action alternative will continue to provide for habitat in the short-term, but risks the complete or partial loss of habitat (large dominant trees for nesting and perching) due to uncharacteristically large crown fires.

Northern Spotted Owl
Conservation status: Federal Threatened, Washington State Endangered, Oregon State Threatened.
The spotted owl was listed as a federally threatened species in 1990. At the time of federal listing the primary causal factor for its decline was attributed to the loss and fragmentation of late successional forest habitat. The Northwest Forest Plan was implemented in 1994. Despite this protection, the results of intensive monitoring of several spotted owl populations for over a decade suggest a continuing range-wide decline (4.1% per year, over the last ten years) even though rates of timber harvest have declined dramatically on federal lands. Compared to other states, the decline is steepest in Washington state (Buchanan and Swedeen, 2006). The cause of the decline has not been pinpointed, but possible causes have been postulated that include the high density of barred owls moving into (and displacing) spotted owl habitat, loss of habitat from wildfire, private land harvest, lag effects from earlier loss of habitat (low reproductive capacity), and forest defoliation from insect outbreaks (Anthony, 2004).

The spotted owl is known to nest, roost, and forage within the CRGNSA. Northern spotted owls have large home ranges, with the reported median home range of 6,610 acres (>10 square miles) in the eastern Cascade Mountains of Washington state (Buchanan and Swedeen, 2006). Within these home ranges, owls use both old-growth forest structure, as well as a substantial amount of younger forests that contain complex structures, such as large snags, down wood, and residual (remnant) large trees. Spotted owl habitat is composed of four components: (1) Nesting, (2) roosting, (3) foraging, and (4) dispersal. The components of suitable nesting, roosting, and foraging habitat typically include moderate to high canopy closure (60 to 80 percent), a multilayered, multi-species canopy dominated by large (> 30 inches dbh) overstory trees, a high incidence of large trees with various deformities, numerous large snags, large accumulations of fallen trees and other woody debris on the ground, and sufficient open space below the canopy for owls to fly through. Dispersal-only habitat generally consists of mid-seral stage stands between 40 to 80 years of age with canopy closure of 40 percent or greater, and trees with a mean dbh of 11" or greater (USFWS, 2002). Spotted owls do not build nests but rather prefer to nest in existing natural cavities in large-diameter trees with broken tops, abandoned goshawk nests, or open platforms created from accumulations of debris atop mistletoe infestations (Tesky, 1992). This type of feature is generally lacking within the planning area, but will be improved by the creation of snags as a part of the proposed project. The breeding and rearing (young to full independence stage) period for the spotted owl is March 1 to August 31. Nesting spotted owl, and their young, are more likely to be disturbed during the time period between March 1 and June 30; the period when the young are still in the nest.

The planning area is not within spotted owl designated critical habitat unit (USFWS), late successional reserve (USFS Northwest Forest Plan), or Spotted Owl Special Emphasis Area (WA Forest Practices Rules). The planning area units located within upper Major Creek watershed are near the Washington state core habitat delineation for the spotted owl (NE and east conifer forest types). The nearest known pair was located 1.5 miles to the north, in 1994. In addition, three records of single owls were documented within 1.5 to 2 miles away from the northernmost planning area (N. East conifer), in 1994-1996 (WDFW Database, 2006). Within the planning area, none of the stands currently meet the typical structure that would be defined as quality nesting, roosting, and foraging habitat (typically defined as stand average dbh of 16", and at least 4 trees over 30" dbh per acre). Important structural components, such as large snags, down logs, and open flight space under the canopy are also lacking in the young and dense understory. The current habitat may provide some limited foraging, and clearly some dispersal, habitat in its present seral state. The NE and east conifer habitat types are classic examples of east-side forests that are shifting to a tree composition and forest structure that are considered unstable or are highly vulnerable to stand-replacing events. The habitat degradation and potential loss of these dry eastside forest types that have developed an unnaturally high canopy closure and dense understory characteristics due to fire suppression, are a concern that have been noted in several recent owl briefing or management reports (Buchanan and Swedeen, 2006; USFWS, 2006). Although unlikely to be nesting habitat, protocol surveys will be completed by USFS Scenic Area staff during the 2007 season to conclusively determine spotted owl use within the planning area.

Effects from the Proposed alternative

The proposed action alternative has thinning activities restricted to occur between July 1 to February 28, and underburning restricted to occur between July 1 to March 15 as to be outside of the general breeding season for most native fauna. If paired owls are detected within the east conifer planning unit, the nest area shall have a ¼ -mile no-action buffer for all action, for the period between March 1 and June 30, so as to have no effect to spotted owl (USFWS correspondence September 28, 2001, and December 6, 2006). The implementation of this project will have no-effect on short-term habitat for the northern spotted owl and will result in the long-term development and maintenance of large over-story trees and creation of habitat components (snags) that may provide quality foraging and dispersal habitat. The thinning of dense under-story trees will result in beneficial effects for owl habitat in the long-term as the older canopy trees gain reductions in competition and provide better quality habitat for spotted owl and other mature forest species. The proposed action follows the recommendations of the latest USFWS workshop to protect the long-term sustainability of spotted owl and their habitat within dry forest ecosystems (USFWS, 2006).

Effects from the No-action alternative

The no-action alternative will continue to sustain a forest that does not have structural components that would be beneficial for spotted owl dispersal or foraging habitat. This alternative will not implement the recommendations from the USFWS workshop on silvicultural practices that support northern spotted owl habitat in dry forest ecosystems (USFWS, 2006). Most spotted owl habitat on the eastside of the Cascade crest owes its structure and species composition to fire. Historically, spotted owls occupied a dynamic landscape that often consisted of large areas of burned and unburned forest (Tesky, 1992). Today, however, habitat is greatly reduced and fragmented, and owl populations have become increasingly vulnerable to loss of large tracts of habitat due to unnaturally high intensity stand-replacement fires. Wildfire

has resulted in the loss of 2.3 percent of spotted owl habitat due to uncharacteristically large stand-replacement wildfires in the last decade (Courtney et. al, 2004). The no-action will, initially, have no effect to the spotted owl. In the long-term, this alternative will perpetuate the degradation of potential habitat, to the extent that it will eventually be unsuitable, or lost through high intensity fire.

California Mountain King Snake

FS Sensitive (in WA only), Washington State Candidate, Oregon Sensitive - Vulnerable

As its name implies, the main population of CA mountain king snake reside in California and the Klamath mountains. Its habitat preference is open pine and oak forests, avoiding dense coniferous forests (St. John, 2002). It is active diurnally during the spring and fall, but becomes nocturnal during the heat of summer. The disjunct population here in the Scenic Area has mostly been found in open oak/pine woodland, as well as nearby rocky riparian areas, from White Salmon River to the Klickitat River. King snakes are secretive in habit, and known sightings are often opportunistic in nature. There have been specimens chanced upon in backyards and urban areas of White Salmon, with several other specimens found dead along roads and highways. Little is known of its habitat requirements or population status, specific to Washington State. It was listed as a Candidate species due to its extremely limited range within Washington. Its habitat and presence is confirmed in the planning area. In WA, this snake is typically found at elevation under 400', under rocks and rotting logs (Larsen et. al., 1997). Much less commonly, several specimens have been noted around the 900-1100' elevation band.

Effects from the Proposed alternative

The CA mountain kingsnake is a native species that has long evolved to live in oak-pine habitat that has been maintained by low-intensity fires. The thinning activity that will need to occur to reintroduce ground fires to the landscape will likely disturb some individuals of this species since they are known to occur within the area. The snake's secretive nature and their propensity to seek shelter under large rocky substrate and logs will, in itself, keep the snake removed from most of the surface activity that takes place. Project restrictions that should further minimize impacts to the local population include:

- Seasonal restriction from March 1 to June 30 to allow over-wintering individuals to recover body weight and complete breeding activities without concentrated human disturbance.
- Restricted treatment of riparian corridor (50' no treatment buffer), and hand-thinning only methods planned within all the oak-pine woodland habitat (includes all the riparian reserve of Catherine and Major Creeks).

During thinning activities, all down logs and large rocks will be left undisturbed. Prescribed underburn activities during the fall and winter is unlikely to impact individuals, again, due to their propensity to seek cover and live in areas of mesic riparian zones that will likely reduce individual injury from low intensity ground fires (Smith, 2000). Research studies are in general agreement that low-intensity prescribed fires have little effect to herptofauna abundance and diversity (Keyser et. al., 2004; Renken, 2005; Lyon et. al., 2005; Ford, 1999). The lack of measurable effects was attributed to the retention of moisture-holding litter, duff and coarse woody debris that provided snakes with underground refugia, as well as the retention of canopy and quick regrowth of ground vegetation after a low-intensity fire. Due to their limited

distribution, there may be some localized impacts to individuals of this species due to mechanical thinning activities. This disturbance due to the increased human activity (mechanical and hand thinning) to the planning area, warrants a May Impact Individuals or Habitat, but will Not Likely Contribute to a Trend Towards Federal Listing (MIIH) for the CA mountain king snake. Again, the species long association with pine-oak habitat types, and thus their inherent resilience to not only survive, but thrive, in areas of repeated low-intensity ground fires, is apparent. Actions that work to maintain this habitat type through natural disturbance patterns (fires) will be beneficial, and may be crucial, to the species in the long term.

Effects from the No-action alternative

The continued program for fire suppression in the pine-oak, and pine-oak-DF habitat will allow for the conversion of these stands to a dense coniferous forest. This forest-type does not provide for habitat for the CA mountain king snake. The no-action alternative will have no-effect to this species in the short-term, but will gradually degrade and remove habitat for this species in the long-term within the project area. The risk of high-intensity ground fires increase with this alternative, and again will remove habitat associated with the king snake, if it occurs. Due to their extremely limited distribution in Washington, high intensity wildfire(s) in their current habitat may have severe impacts to this disjunct population, depending on the extent and intensity of the habitat burned and lost.

Sharp-tailed Snake

FS Sensitive (in WA only), Washington State Candidate, Oregon Sensitive - Vulnerable

Another secretive snake species, with habitat that overlaps the CA mtn kingsnake within the WA portion of the NSA. Unlike the king snake, this species has a much wider distribution in the Northwest; including Wasco county, central Washington, as well as the Willamette Valley and southward.

Effects from the Proposed alternative

This snake has not been formally documented in Catherine and Major creek watersheds, but the rocky riparian of both streams provides suitable habitat and this species is assumed to be present in the project area in this analysis. It is documented near Balch lake/Lyle area just to the east of the planning area. Much like the king snake, except more so, this species leads a largely subterranean existence in search of its slug prey. This fossorial habit will provide this species refugia during prescribed burns. Research studies are in general agreement that low-intensity prescribed fires have little effect to herptofauna abundance and diversity (Keyser et. al., 2004; Renken, 2005; Lyon et. al., 2005; Ford, 1999). The lack of measurable effects was attributed to the retention of moisture-holding litter, duff and coarse woody debris that provide underground refugia, as well as the retention of canopy and quick regrowth of ground vegetation after a low-intensity fire. Disturbance from mechanical thinning activities may occur in the fall, when snakes are near the surface during rainy or cool, overcast days. The proposed action may impact invididuals or habitat, but is not likely to cause a trend toward federal listing (MIIH).

Effects from the No-action alternative

The no-action alternative will have no-effect to this species in the short-term. It is uncertain how high intensity fires will affect this species. The degree of effects to the local population depends largely on the location and extent of the wildfire. It's fossorial habits will likely keep it safe

during most wildfires.

Peregrine falcon

FS Sensitive, Washington State Sensitive, Oregon State Endangered

The peregrine falcon is distributed worldwide, and ranges throughout North America (Wahl, 2005). American peregrine falcon was listed as endangered by the U.S. Fish and Wildlife Service (USFWS) in October 1970. At that time, the peregrine falcon was essentially considered extirpated from Oregon and Washington due to reproductive failure from organochlorine pesticides (Pagel and Jarman, 1991). The species recovered rapidly at a national level and was federally de-listed on August 25, 1999 (Fed. Reg. August 25, 1999, 64(164) 46541-46558). Although peregrine populations are recovering, reproductive success of the subspecies in the Pacific Northwest is still being impacted by residual organochlorines. The peregrine falcon is a small, crow (male) to raven-sized (female), bird known for its fast and powerful diving flight and foraging habitats over large open areas. Having a water source available is the major attractant for open-country prey, such as waterfowl and shorebirds, as well as passerines. Nest sites are typically located in deep ledges (with overhangs), on sheer cliffs over 150' in height, that are out of reach of mammalian predators and is within ½ mile to riparian, lacustrine, or marine habitat (Hays and Milner, 1999, Pagel, 1992, USFWS, 1982). The nest site is usually located at the 40-80% height of the cliff. Pacific Northwest falcons have recently taken the opportunity to locate nests on suitable bridges, and tall buildings.

In 2006 within the NSA, there were 12 known nests, or eyries, of peregrine falcons monitored within Oregon (Issacs, 2007). An additional 3 eyries are known and monitored in Washington State. Falcons have not been noted within the planning area but there is suitable habitat present in the cliff area of Coyote Wall, a distance of alittle over ½ mile from the nearest thinning unit. Presently the high recreation use, consisting of hikers and mountain bikers, immediately adjacent (both above and below) to the cliff area likely discourage peregrine falcon use. Survey will continue in this area by the USFS Scenic Area office in 2007 to determine level of use. There are approximately 102 acres of prescribed fire units within ½ mile of this cliff habitat. These units are roughly clustered near the top and bottom of the Wall. The proposed action as well as no-action alternatives will not impact habitat of the peregrine falcon, as no cliff habitat will be treated, and high intensity fires will not impact cliff area habitats. Direct and indirect impacts to peregrine falcon are limited to potential disturbance to the species during nesting preiods, and impacts to prey species from the proposed action.

Similar to bald eagle and other raptors, peregrines are most susceptible to human disturbance during courtship and incubation, with nest tenacity by adults increasing as incubation progresses and hatching occurs (USFWS, 1982). The level of impact that a certain disturbance factor may have on peregrine falcons depends upon the familiarity of an individual or nesting pair to that particular disturbance. If peregrines are accustomed to a certain disturbance as a normal or routine occurrence, and the disturbance offers no known direct threat, then the peregrines will ignore it. If the disturbance is new, intermittent, or unexpected within their nesting territory, then the peregrines will be less tolerant of that disturbance. When peregrines have not experienced a human disturbance, or the activity is intermittent (e.g. log skidding, aircraft, or distant rockfall) then they can become noticeably concerned (ranging from curiosity fly-overs to intense territorial defense). Nesting success will depend on the duration, distance, and timing of the distance to nest.

Effects from the Proposed alternative
Thinning activities are expected to have no effect to future use of Coyote wall peregrine falcon suitable habitat due to a combination of factors:

- no thinning treatments are proposed within the cliff habitat
- thinning activity is at least ½ mile away from potential habitat, and
- timing of activity restricted to July 1 to February 28.

Prescribed fire effects on peregrine falcons has been little studied. Presently, there is no documented use of Coyote Wall by peregrine falcons. Potential nesting habitat does exist, and it is prudent to analyze the project with assumptions that peregrines may be present in the future. There are units below the cliff where late winter/spring fires could potentially disturb a peregrine nesting pairs if smoke disperses to the NW, immediately over the cliff face. In a worse case scenario, the smoke would discourage or disrupt breeding for the year. In a likely scenario, the short duration of smoke (hours) would disturb the birds, but courtship, and or incubation of eggs would continue successfully. This would only have potential to occur during the initial winter/spring burn, while later, fall-only burns would have no-effect to nesting birds. The proposed prescribed fire window is from July 1 to March 15. Smoke created by fires from July 1 to Dec 31 will have no effect to potential peregrine use at Coyote Wall. Prescribed fires that occur between Jan 1 to March 15 have some potential to disturb nesting pairs, and may impact individual breeders during the initial spring burn (MIIH). Future prescribed fires, in the fall, will have no- effect to peregrine falcons at Coyote Wall.

Because peregrine falcons require open areas for hunting, fires that create these open areas would probably be beneficial, provided burning led to an increase of avian prey species. The maintenance of a mosaic of habitats, as well as open areas, would maintain abundant prey, thus favoring the peregrine falcons (Snyder, 1991, Smith 2000). A factor that may limit peregrine falcon use of the area is the high level of human presence (hikers and mountain bikers) in this area during spring and summer.

<u>Western gray squirrel</u>
FS sensitive (in Washington State only), Washington State Threatened, Oregon State Sensitive - Undetermined
Western gray squirrels are distributed from Washington to California in mixed oak and conifer forests. Currently within Washington, gray squirrels are limited to 3 isolated populations; Puget Trough (Fort Lewis), Klickitat and eastern Skamania County, and Chelan/Okanogan Counties (Linders and Stinson *in draft*, 2006). Although Klickitat County contains the largest population of the 3 areas, it is also believed to be declining (Vander Haegen et. al., 2005). In 1993, the state of Washington listed the western gray squirrel as 'threatened' due to declining populations resulting from: habitat loss and conversion, fluctuating food supplies, disease, interspecific competition, road kills and illegal shooting. In the Klickitat region, habitat for the Western gray squirrel occur in the where oak woodlands and pine forest converge, an ecotone between the upland Douglas-Fir forests and the lowland grassland/oak savanna. Stand composition is typically Oregon white oak, ponderosa pine, and Douglas-Fir, with riparian area that may include bigleaf maple, Oregon ash, black cottonwood, and quaking aspen. Optimum stands are conifer-dominated of large diameter, mast producing trees, usually of pine and oak. A diversity of trees species, and the presence of oak were also important habitat components (Linders and Stinson *in*

draft, 2006). Mature trees produce more mast (acorn, pine/fir seeds) than younger stands; a critical winter food item. Leaf nests are generally found in pine or Douglas-fir trees, with cavities in oaks used whenever available. High-use stands in the Puget Trough included a mix of conifers, oaks, and other hardwoods such as big leaf maple and Oregon ash in the canopy. Large, healthy oaks and conifers (especially ponderosa pine) are more likely to provide greater quantities of mast foods and more nest and den sites compared with smaller trees of the same species. Proximity to water may also be important, with more nests generally found from 540' to 1800' of a water source.

Effects from the Proposed alternative

The proposed action alternative follows the recommendation of all available management plans for the pine/oak habitat type (ODFW, 2006; Larsen and Morgan, 1998; Altman, 2000), as well as specific management plans for the western gray squirrel (Linders and Stinson *in draft*, 2006; Fimbal, 2004; Ryan and Carey, 1995). All plans unanimously agree on the urgent need to restore, as much as is possible, the pine-oak forests to pre-fire suppression vegetation types to sustain native wildlife species. Habitat restoration to benefit the gray squirrel has occurred, or is on-going, at Fort Lewis (Nature Conservancy), WDFW Klickitat wildlife area, and Columbia Land Trust (BLM). All treatments include thinning, followed by prescribed underburns to maintain open forest structure. As 77% of Western gray squirrel habitat in Klickitat County is privately owned, much area will remain unchanged and be a source for comparison of control versus restoration treatments nearby.

Although adaptive management and restoration has been initiated in many different locations of Northwest oak/pine woodland, the newness of the restoration technique has caused a lag in information on the long-term effect of restoration actions specific to the western gray squirrel populations. Many studies have been completed that described no impacts to small mammals populations after prescribed fire in pine/oak forests, regardless of season (Ford et. al., 1999; Monroe and Converse, 2006; Rowan et. al., 2005; Lyon et. al., 2000; McMahon and deCalesta, 1990). The most important factor was the low intensity (flame lengths less than 3 feet and mosaic burn pattern) of the prescribed burn, rather than the season of burn. Small mammal survival of these low intensity burns is attributed to the inherent adaptations of these species to the frequent fire regimes for this habitat type. Small mammals had fossorial habits and readily took refuge in underground burrows, spaces under rocks, as well as large down wood. Tree squirrel species escape into the forest canopy (Kaprowski et. al., 2006).

The following paragraphs summarize fire effects to the Eastern fox squirrel. The information was clipped directly from the Fire Effects Information System (FEIS) online database of the U.S. Forest Service Rocky Mountain Research Station (Tesky, 1993). All references for this report are available on-line.

> Fire effects to the Eastern fox squirrel, *Sciurus niger*.
>
> **DIRECT FIRE EFFECTS ON ANIMALS:**
>
> Eastern fox squirrels would probably not be able to escape fast-moving (high severity) fires. However, they could probably easily escape low-severity ground fires. Kirkpatrick and Mosby found no evidence that prescribed burning caused significant direct mortality among eastern fox squirrels. Wildfires could destroy

leaf nests, nest trees, and eastern fox squirrel nestlings. However, cavities used for denning and leaf nests are usually above the impact zone of prescribed fires.

HABITAT RELATED FIRE EFFECTS :
Fire often has a positive effect on eastern fox squirrel habitat. Fire maintains the pine-oak habitat preferred by eastern fox squirrels and has a direct effect on eastern fox squirrel foods. Under presettlement conditions longleaf pine savannas (preferred eastern fox squirrel habitat) may have burned at average intervals of 3 to 5 years, usually between April and October. The open stands produced by fire result in better pine cone and mast production. Pines and oaks growing in the open receive more light, maintain more branches at lower levels, and produce heavier crops of cones and nuts. Additionally, nutrient availability and the enhanced vigor of burned pine forest are associated with larger crops of fungi, which are also important eastern fox squirrel foods. A lush, grassy understory maintained by fire is important as protective cover.

Fire has probably been a determining factor in the niche separation between gray and eastern fox squirrels on the Coastal Plain. Both exist in mixed pine-oak forests and feed heavily on acorns, but the more competitive gray squirrel dominates where the overlap of oak crowns allows tree-to-tree travel throughout the canopy. Eastern fox squirrels are more abundant where patches of oaks comprise less than 30 percent of pine-hardwood stands and do best in fire-type pine forests with scattered hardwood inclusions. Fire could be a deciding factor in determining the availability of suitable habitat and resources for one or the other species.

FIRE USE:
Prescribed fire can be used to maintain eastern fox squirrel habitat. Prescribed burning at 2- to 5-year intervals can be beneficial to eastern fox squirrels by maintaining an open understory and better foraging habitat. According to Humphrey, ground fires are valuable in maintaining habitats of Big Cypress fox squirrels. In the habitat of this subspecies, future fire management plans call for an increase in prescribed burning to 50,000 acres a year. Pinelands are expected to be burned on a 5- to 7-year rotation.

In summary, the Western gray squirrel is expected to benefit from thinning and prescribed underburning activities within the planning area as this will begin to return their oak woodland habitat to the more open and mixed age stand that they likely evolved in. Thinning of stands, as occurred with low intensity fires, should result in accelerated growth in the older oaks and pines, which will be retained. The survey of and protection of squirrel nests within the planning area, as well as seasonal restriction of thinning and underburning activities are expected to reduce potential impacts to the western gray squirrel to very low levels. These conservation measures are listed under subsection 2.3 of this document. The unavoidable increase in human and loud machinery within their range may still disturb some individuals, but is not expected to impact the local population (MIIH). In the long-term, the habitat should improve markedly for persistence of this State threatened species.

Effects from the No-action alternative

The no-action alternative would have no short-term effects on the western gray squirrel, as increased human and machinery presence would not occur. The continued fire suppression and the resultant shift in oak-pine-DF habitat to dense stands of DF with remnant pines would slowly eliminate squirrel habitat, as presence of oak seem to be associated with squirrel presence. Moderate to high intensity fires that, may later, become reality due to the unnaturally high fuel load will likely cause direct mortality of squirrels (Kaprowski et. al., 2006). The optimal habitat of large mast producing trees would take 100-200 years to replace, depending on fire intensity and resultant soil damage.

Western toad

Washington State Candidate, Oregon State Sensitive - Vulnerable

Western toads have a broad distribution from Alaska to Mexico, across all of the western states (Marshall, 1996). Declines of this species have been noted range-wide, and many theories exist, but the cause(s) has yet to be positively identified. Western toads occur in a wide variety of terrestrial habitats including forests, meadows and brush; absent only from shrub-steppe habitat. Breeding usually occurs in permanent ponds, shallow lake edges (<18" depth), spring pools, and slow-moving portions of streams, in mid to late spring. Tadpoles rear in areas with the warmest temperatures, typically the shallowest areas. Transformed toads are primarily terrestrial, but often occur near water bodies, especially in drier climates (Corkran and Thoms, 2006). In Wyoming, summer post-breeding habitat includes adjacent meadow or forest usually around 100-300m away from breeding areas (Keinath and Bennett, 2000). At low elevations, toads are primarily nocturnal and seek shelter from desiccation under rocks, logs, or in underground rodent burrows. Similar habitat is used for over-wintering shelter (Nussbaum et. al., 1983). Foraging may occur diurnally during overcast or wet days. Western toads are documented within the Washington portion of the Scenic Area, in the White Salmon River area and east to Major/Catherine creeks. They are likely found in other areas west of White Salmon where there are patches of suitable habitat. Although historically documented in Multnomah and Hood River counties within the NSA, there are presently no known sites within the lowlands of Hood River County and it is uncertain if sites in Multnomah County still harbor western toads.

Effects from the Proposed alternative

Western toads are principally seen in the lower 1 mile of Catherine and lower 1/2 mile of Major Creeks, where water pools and becomes warm enough for breeding. This population is near the eastern-most extent of this species presence in the Gorge. Due to the hot and dry weather experienced in the planning area during the summer, it is expected that toadlets and adult toads would stay relatively near permanent water sources during summer and early fall. Areas near permanent water have little to no thinning treatment in the proposed action. Further, since toads take shelter in burrows or other cover and are otherwise less active during the day, it is unlikely that individuals would encounter workers or be affected by the hand-thinning activities near the riparian areas. The general seasonal restriction (March 1-June 30) further assures that breeding migration can take place, to lower stream areas, without disruption by thinning activity. The thinning of understory trees is expected to have no effect to terrestrial or stream habitat that supports the western toad, as the habitat is moving toward a forest composition where this population has persisted in the past. Although no machine thinning is proposed within the

riparian reserve, hand-thinning activities in the fall may overlap with toad foraging activity on wet or overcast days, and thus impact to individuals cannot be ruled out. This is especially the case since few studies have been completed to document the extent of terrestrial habitat use (from nearby water bodies) by western toads in Washington State. This potential for incidental disturbance and mortality from getting crushed underfoot or by fallen trees will be at the individual, rather than the population level impact.

Western toads occupy diverse habitats across the Western United States, some of which experience fire relatively frequently (pine-oak and east-side forests), and some of which rarely experience fire (riparian zones tend to act as fire breaks but will burn during extended dry conditions). Until recent history, the project area had a frequent fire return interval of which the toads have adapted and persisted. No specific information describing the response of western toads and their habitat to fire was available in the literature, although many research studies have studied the effects of other amphibian and reptile species to prescribed fire. These studies are in general agreement that low-intensity prescribed fires have little effect to herptofauna abundance and diversity (Keyser et. al., 2004; Renken, 2005; Lyon et. al., 2005; Ford, 1999). The lack of measurable effects was attributed to the retention of moisture-holding litter, duff and coarse woody debris that provided refugia, as well as the retention of canopy and quick regrowth of ground vegetation after a low-intensity fire. In the longer term there are differential responses to fire among prey organisms; for example, ant populations were one-third higher in burned areas than in unburned areas, but beetles tend to decrease on burned areas (Sullivan, 1994). Other studies note a decrease in abundance in soil and litter dwelling arthropod, but not diversity and richness of taxa (Riesle-Kinney, 2005). Return in abundance followed the regrowth of lush vegetation (Lyon, 2000).

The first underburn, planned in early spring, followed by fall/winter-only prescribed fires is planned at those seasons to be of low intensity and thus minimize impacts to hibernating toads that can take shelter under rocks, large logs, or in underground burrows. These fires are not expected to change runoff rates or increase stream sedimentation that would degrade stream habitat for the western toad. The limited area of prescribed burn each year within the watershed, as well as the natural ability of toads to take shelter underground, limits the impacts to individuals, rather than at the population scale.

Effects from the No-action alternative

The no-action alternative will initially have no effect to the western toad or its habitat. Assumptions of habitat changes are derived from fuel modeling in chapter 3.1 of this E.A. (Fire resilience chapter, Environmental consequences subheading). Fuel modeling predicts that in 50 years, 60-75% of the project area will be in fuel model 10, an increase from 44% at current conditions. The increased risk of high intensity fires in the watershed, including the riparian area, may affect western toad habitat, depending on the intensity of burn within the riparian area and the extent of riparian burned within the watershed. The 2 components affected would be ground cover components, such as large logs, snags and the shrub/forb layer. This component provides for critical shelter cover from predators as well as evaporation. The other component affected would be water quality related, such as sediment input, which may affect the juvenile (tadpole) phase of the population through gill clogging and reduced forage. The no-action alternative places some risk to local western toad population, depending on the season and severity of fire effects, but the species affinity for to the riparian area and stream habitat should shelter them from all but the most severe area fires.

White-headed woodpecker

Washington State Candidate, Oregon State Sensitive - Critical

This species is an open canopied, mature ponderosa pine forest specialist, ranging from south-central BC to southern California (Garrett et. al., 1996). In Washington and Oregon, white-headed woodpecker are mainly found >2000' elevation on the east slope of Cascades (Marshall, 1997). Their diet consists largely of pine seeds, wood-boring larvae and insects, surface foraged on branches, trunk and some cones of trees, as well as occasionally on the ground. White-headed woodpeckers are a year-round resident of Oregon and Washington forests, although there may be some movements into lower elevations during the winter. This species excavates and nests in snags. There are currently no records of this species within the Scenic Area, although they have been documented at higher elevations in Klickitat and Wasco counties.

Black-backed woodpecker

Washington State Candidate, Oregon State Sensitive - Critical

This species is closely associated with dead or dying forests in boreal and (>1000') montane coniferous forests, east of the Cascades. This woodpecker's main diet is larvae of wood-boring beetles gathered from under bark of trees. Its irruptive occurrence is associated with availability of bark beetles that occur after stand stressing events, such as fires. It ranges largely within Canadian forests, with a southern limit into the northern tier states of the United States. The black-backed woodpecker is a year-round but sporadic resident in eastern Washington and Oregon. This species can be locally common but has a patchy distribution (Marshall et. al., 1996). It has not been documented in the Scenic Area despite suitable habitat of burned forests that occur nearly every year.

Pilieated woodpecker

Washington State Candidate, Oregon State Sensitive - Vulnerable

This species is a year-round resident through forested eastern North America and into Canada, then south into montane regions of w. Montana, n. Idaho, and ne. Oregon; in the Pacific Northwest from central British Columbia south through Washington and Oregon west of the Cascades to central California. This is the largest woodpecker species in the Pacific Northwest, and nests locally in all coniferous forest types, except for juniper and monotypic lodgepole pine (Marshall et. al., 1996). Nesting habitat is typically in mature forests, or forest with remnant large snags or live trees. Mean diameter of trees excavated for nest cavities vary from 27 to 38 inch dbh in Oregon and Washington (Bull and Jackson, 1995). Large trees are also excavated for roosting at night and in inclement weather. Roost trees in western Oregon and NE Oregon ranged from 16-82 inch dbh (Lewis and Azerrad, 2003). Foraging can occur in much younger forests, as well as deciduous riparian areas, in search for prey species of ants, termites, beetle, and other insects. The pileated woodpecker excavates into primarily dead standing or down wood for prey species, as well as scaling and chipping bark. Timber harvest has been the most significant impact on its habitat through the removal of large-diameter trees, snags, and downed woody material that supports nest and roost sites, foraging habitat, and cover. Nesting occurs around late March to early July (Lewis ands Azerrad, 2003).

Effects from the Proposed alternative
Pileated woodpeckers are present within the planning area, and nesting may potentially occur within the east conifer forest stands. Foraging may occur in any of the forested stands. Management recommendations from Washington state (WDFW) includes the retention of multiple canopy layers, large standing and dead trees, as well as dead and down wood. Oregon management recommendations include the maintenance and creation of large hollow diameter trees, snags and logs during forest management (ODFW, 2006). The proposed action will meet all of the management recommendations through retention of large overstory trees, retention and creation of snags, as well as the retention and creation (tops of trees dropped when creating short snags) of large down wood. The seasonal restriction for activity will avoid all potential breeding season disruptions. Although this species is tolerant of human activity near nests and roost trees, thinning and underburning noise and activity during the fall and winter may cause individual birds to move from the area being treated to a different portion of their home range (average of 1,006 acre home ranges). It is expected that the short duration of activity in a given area, versus the large amount of refuge habitat in adjacent areas, will minimize winter-time impacts to this species and is not expected to reach a level that would cause negative impacts.

Effects from the No-Action alternative
The no-action alternative will have no effect to this species, as no human activity and associated machine noise would occur within the planning area. In the long-term, the dense young trees will stress the existing large trees so that mortality may regularly occur and produce abundant insect prey for the pileated woodpecker. A moderate to large stand replacement fires may remove roosting and nesting habitat when the canopy layer is lost. Foraging habitat may still be provided if there are adjacent forest stands that weren't affected by the fire. Roosting and nesting habitat of large diameter snags would take from 100-200 years to re-grow, depending on the severity of soil damage from the fire.

<u>Northern goshawk</u>
Washington State Candidate, Oregon State Sensitive - Critical
The Northern goshawk has a wide distribution in North America, Europe and Asia in forested areas. In Oregon, most breeding areas are to the east of the Cascades, while in Washington, the species also occupies some sites in the Western Cascades and the Olympic peninsula. In the Northwest, the goshawk is associated with coniferous forests, especially ponderosa pine and higher elevation mixed conifer forests. Goshawk home range territories are often categorized into 3 primary areas: nest stand (20-30 acres), post-fledging family area, and foraging habitat. Breeding home ranges generally have the following characteristics overall: a high density of large trees, > 50% canopy cover, multiple canopy layers, and low understory/shrub density (Desimone and Hays, 1994). Within this home range, canopy cover within the nest stand varied from 60-88% in east-central WA and eastern Oregon studies. Goshawks forage in a wide variety of forest types. Goshawk prey varies by region and consists of a variety of small to large birds, chipmunks, squirrels, hares, and sometimes reptiles as the opportunity arises.

Presently, no nest sites are documented in the NSA, although suitable habitat occurs. Within the planning area, some limited nest habitat is present in the NE and east conifer units in the Major creek headwaters. The habitat is considered limited due to the dense understory of young trees contained in the stand. Surveys for this species will be completed within the upper elevation NE

and east conifer habitat types. Any nests detected will be protected with a ½ mile buffer during March 1 to September 30, or as collaborated with WDFW biologists.

Effects from Proposed Action alternative
Understory thinning prescriptions, coupled with prescribed fire, is a conservation action that is recommended for the goshawk to address the decline of its suitable nest habitat in Oregon (ODFW, 2006). WDFW management recommendations largely highlight protection of key habitat components, such as retention of ≥ 60% canopy cover in eastside stands (70-80% in nest areas), snag and down wood, as well as maintenance of forest structure in later stages of structure (Desimore and Hays, 2004). The proposed action will improve breeding area habitat for the Northern Goshawk, as forest stand components will be shifted toward the preferred habitat range for this species in terms of retention of overstory large trees, canopy closure, snag retention/creation, as well as the opening of the understory. Prescribed fire will maintain this stand type and continue to retain suitable stand characteristics. Any existing goshawk nests detected during survey will be protected with appropriate seasonal restrictions to have no impact to this species during project implementation.

Effects from No Action alternative
The no-action alternative maintains the action of fire suppression. In its current condition, the stand supports foraging habitat for the goshawk. Nesting habitat is limited due to the young and thick understory that is unnaturally maintained by fire suppression. The current condition supports foraging habitat, and will continue in this component. The continued recruitment of dense young sprouts will further move the stand away from suitable habitat for the goshawk, and place the stand at high risk of high-intensity fire. The loss of large blocks of this habitat contributes to the range-wide reduction of suitable nesting habitat for the goshawk (Griffin, 1993).

Golden eagle
Washington State Candidate
The golden eagle ranges throughout much of western North America in a variety of habitats. It is locally most common in open shrub steppe habitats (for foraging) with nearby cliffs (for nest sites) that provide protection from mammalian predators (Tesky, 1994). Large trees are also known to be used by golden eagles for nesting, although much less commonly than cliff sites. This species subsists primarily on large rodents such as rabbits, hares, ground squirrels, and prairie dogs. Golden eagles are most efficient predators in open areas where winds and thermal updrafts aid flying. They are less efficient where shrub and/or tree cover increases. Abundant shrub cover provides hiding and escape cover for prey. Physical obstructions close to the ground make hunting difficult. Habitat management for the golden eagle primarily consists of protecting areas used for nesting, resting, and foraging, and protecting habitat used by the prey base.

All known nest sites within the Scenic Area are in open habitat; located from the Klickitat River and eastward. Although suitable habitat is present, there is no known golden eagle use of the planning area. Cliff habitat at Coyote Wall provides potential habitat for nesting golden eagles, especially coupled with the open grassland nearby. There are currently no golden eagle nests within this habitat. The area may not be chosen by golden eagles, similar to the peregrine falcon, due to the disturbance from high recreation use both above and below this cliff habitat. Unlike

the peregrine falcon, golden eagles are not known to be as readily habituated to human disturbance.

Effects from the Proposed and No-Action alternatives
As there are currently no golden eagles known to use the planning area, the proposed action alternative, as well as the no-action alternative, will have no effect to the golden eagle. The golden eagle forages successfully in open fire-dependent plant associations in the western United States: grassland, semidesert grassland-shrub, sagebrush-grassland, pinyon-juniper woodland, and ponderosa pine-Douglas-fir (Pseudotsuga menziesii) forests. Regular, low-intensity burning helps to keep habitats in a suitable condition for many prey species of the golden eagle and increases its hunting efficiency. Golden eagles have been observed taking advantage of abundant prey associated with the growth of new vegetation on a burned site. In a case study in the Appalachian Mountains, historic open areas used by golden eagles for foraging in those mountains were maintained by fire. After full suppression policies began, the openings reverted to brush and eventually to forest. Today, there are few openings in the Appalachian Mountains; as a result, the golden eagle has almost disappeared (Tesky, 1994).

Merlin
Washington State Candidate
The Merlin is a small falcon that breeds throughout the northern forests and prairies of North America, Europe, and Asia. Locally, this species is a nomadic and occasional winter resident in southern Washington, including the Scenic Area. Known breeding areas are in Northern Washington and the Puget trough in semi-open areas that facilitate mid-air capture of small bird prey. Wintering habitat within the Scenic Area is considered to be any open area <1000' elevation, where there is abundant prey of small birds. Merlins are very tolerant to nearby human activity; foraging near grain elevators and in major cities where small birds congregate in winter (Warkentin et. al., 2005). Like the peregrine falcon, this species is readily nesting in urban areas.

Effects from Proposed and No-Action alternatives
The project area provides suitable foraging habitat for the Merlin, and it is likely used occasionally by wintering individuals. The increase in open habitat and understory vegetation from the proposed action will have beneficial effects for the Merlin by maintaining the open and semi-open habitat in which it prefers to forage. Thinning and underburning activity within the project area is expected to have no effect to foraging Merlins due to the short-duration of underburning activity, the limited areas that will be treated per day (birds can easily forage in another location within the planning area), as well as the high tolerance that Merlins have for human activity near their winter foraging sites. The no-action alternative will also have no-effect to wintering Merlins.

Flammulated owl
Washington State Candidate, Oregon State Sensitive - Critical
Flammulated owls are distributed in mid-elevation western pine forests from southernmost B.C. to Mexico (McCallum, 1994). In Oregon and Washington, this small owl occurs east of the Cascade crest during the nesting season (May to mid-August) in a mosaic of open forests

containing mature ponderosa pine, patches of dense forest growth, and grasslands (Marshall et. al. 1996). Cavity nests are used that have been excavated by other species. In the fall, this owl migrates south for the winter, presumably as far as central America (Hays and Rodrick, 2004). The flammulated owl is strictly nocturnal and catches insect prey, such as moths and grasshoppers, beetles, spiders and crickets, in flight as well as on the ground.

Effects from Proposed and No-Action alternatives
Within the Scenic Area, 2 nest trees of this species have been documented, located 2 miles to the east from the planning area. The species is potentially present in areas adjacent to the Burdoin, Catherine Creek, and Balfour treatment sites. Currently flammulated owl appears common in North America and in no danger of extinction, but crucial population growth rates are not yet available. Greatest intrinsic source of danger may be low reproductive rate. Human activities perhaps most likely to endanger it are (1) incremental decreases in longevity or fecundity (owing to pesticides, pollution, subtle habitat change) that might tip what may already be delicate balance, (2) outright habitat destruction (McCallum, 1994). The proposed project will maintain and restore long-term habitat suitable for this species, including open ponderosa pine forest, grasslands, snag retention/creation, and patches of dense forest (untreated areas in riparian areas, and steep slopes). Since the owls nest so late in the season, some disturbance may occur to nestling in July and early August if thinning activity occurs adjacent to the cavity nest. Several factors will reduce the risk of this disturbance causing nest failure, including:

- the owl is largely nocturnal (owls and thinning activity are temporally separated),
- snags will be left untouched, so cavity nest trees will be left undisturbed,
- the thinning activity will be limited in duration; likely lasting for 1-2 days in a particular area as thinners move through a stand,
- thinning activity will be further limited during July and August by fire season restrictions. These restrictions stipulate that machinery (including chainsaws) will either need to be shutdown by 1 PM, or will not be allowed to operate at all untill fall rains arrive and reduce fire danger,
- adult owls are not likely to abandon a nest that late in the season, with nestlings so close to fledging.

In summary, the proposed action is extremely unlikely to result in measurable impact to flammulated owl nesting success. Any flammulated owl cavity nests detected during project layout will be protected with seasonal buffers during thinning operations. Prescribed fire and thinning activities in winter and early spring will have no effect to flammulated owl as they will be on their winter range, in the southern US or Mexico. The no-action will have no impacts to the flammulated owl, as no potential for disturbance will occur. The gradual loss of open pine forest and available cavities may reduce habitat for this species in the future and remain the species limiting factor.. Components of its habitat, such as grassland and dense thickets will not likely change substantially.

<u>Lewis' woodpecker</u>
Washington State Candidate, Oregon State Sensitive - Critical
The Lewis' woodpecker ranges throughout the western United States. Originally abundant throughout Washington and Oregon state, the species has experienced a dramatic decline due to loss (conversion) of its riparian and pine-oak woodlands, as well as decline in open habitat due to

fire suppression. It is now only locally abundant east of the Cascades in open forests consisting of oak woodland, mixed oak – ponderosa pine forests, and riparian cottonwood corridors that provide them with the combination of tree cavities, and diverse food sources (ODFW, 2006, Marshall et. al, 2006, Lewis et. al, 2002). Populations tend to be year-round residents within the Scenic Area, but may also seasonally migrate to lower elevations or to milder climate during winter. Birds are often colonial. This species will also use orchards, burned stands of Douglas fir-mixed conifer, and can also be found among urban areas adjacent to pine-oak woodland habitat. Lewis' woodpeckers nest in large snags, often adjacent to water courses. This species takes insects on the wing or gleans from vegetation, eating carpenter ants, bees, wasps, mayflies, beetles and grasshoppers, and stashing mast of acorn, pine nuts and berries for winter use. It is an opportunistic feeder; eating insects in spring and summer and fruits and acorns in fall and winter. A year-round resident of pine/oak forests in Klickitat and Wasco counties within the Scenic Area, it is found in habitats within Catherine Creek planning area.

Effects from the Proposed alternative
Threats to the long-term persistence of Lewis' woodpecker include the loss of breeding and wintering habitat in the form of open oak, ponderosa pine, and riparian cottonwood habitat as well as available snags (ODFW, 2006, Lewis et al, 2002). Fire suppression in oak and pine stands has resulted in increased stem densities, reduced shrub and grass understory and increased canopy closure that has degraded breeding habitat for the Lewis' woodpecker (Abele et. al., 2004). To restore these habitats, management recommendations include thinning and prescribed burning (Abele et. al., 2004, Marshall et. al., 1996, Altman, 2000). The proposed action alternative directly addresses and incorporates these recommendation actions and will result in beneficial effects for the long-term persistence of the species and its habitat. Although very tolerant of human presence near nest trees, the proposed action may cause some short-term disturbance of resident individuals during the fall to early spring thinning and prescribed burning actions due to machine noise (chainsaws and ground-based equipment). The season of implementation is largely outside of this species primary breeding period of April to mid-July so no breeding disturbance is expected (Tobalske, 1997). The noise disturbance effects in fall and winter may cause individual birds to move from the area being treated to a different portion of habitat but it is expected that the short duration of activity in a given area, versus the large amount of untreated habitat that birds will be able to move to in adjacent areas, will thus not cause impacts to this species. This species wintertime movement into lower elevation or areas of milder weather further minimizes potential impact from thinning or underburning activity.

Effects from the No-Action alternative
In the short-term, the no-action alternative will have no-effect to the species or habitat, as no extra activity or human presence will occur within the planning area. This alternative contributes to the long-term loss of open breeding and wintering habitat that has caused the species range-wide decline. The increased risk of moderate to high intensity fire in this landscape will further remove habitat for this species, until the open forest and mast-producing trees reestablishes; a time period of 100-200 years depending on the fire severity.

<u>Ash-throated flycatcher</u>
Forest Service Region 6 (Pacific Northwest) sensitive (Washington state only)

This neotropical migrant ranges throughout the SW U.S. and into central America in open arid habitat, with Washington State at the most northern edge of its breeding distribution. Within Washington State, it is limited in distribution to central and south-central Washington; mainly in Klickitat County, with some populations up to Okanogan/Wenatchee area (Cardiff and Dittman, 2002). The ash-throated flycatcher is a secondary cavity nester. In Klickitat County, its habitat association is oak-pine woodland, especially with large diameter trees of both species (Altman, 2000). This species does not breed in dense forested montane habitat. Within these general requirements, main necessities are presence of shrubs or trees with trunks or branches thick enough to serve as nest-cavity substrates, presence of ≥1 woodpecker species to excavate cavities, and relatively dry and open woodland or scrub habitat for foraging. Diet is almost exclusively arthropods, such as spiders, leafhoppers, wasps, flies, beetles, and other prey gleaned from branches.

This species is locally common, with the North American population shown to be increasing (Wahl et. al., 2005). It's limited distribution and concerns for available habitat in Washington led to its monitor status. In Washington, preferred Oregon white oak woodland breeding habitat is increasingly rare and local (Altman, 2000). One study in Klickitat County found ash-throated flycatchers used oak for 90% of its nesting, with average diameter of nest trees being 14" dbh. Nesting landscape habitat was characterized by tall, wide oak trees. Breeding season is approximately from late April to mid-July. Breeders are relatively tolerant of human disturbance at nest without deserting (Cardiff and Dittman, 2002). This species leaves the local area by late July to August to return to its southern wintering grounds.

Effects from the Proposed action alternative
The proposed action alternative directly addresses and incorporates conservation strategies from the recent Partners in Flight publication "Conservation strategy for landbirds of the east-slope of the Cascade Mountains in Oregon and Washington" (Altman, 2000). Recommendation actions will result in beneficial effects for the long-term persistence of this species and its associated habitat. As the implementation window (for both thinning and underburning) is largely outside of this species primary breeding period of April to mid-July, no breeding disturbance is expected, and the proposed action will have no effect to this species.

Effects from the No Action alternative
In the short-term, the no-action alternative will have no-effect to the species or habitat. With no-action, other than continued fire suppression, this alternative will eventually cause a long-term decline in preferred nesting substrate of large (>14") oak trees, as oaks becomes overtopped by encroaching conifers, and is eventually killed. This mortality is chronically occurring within the planning area. The increased risk of moderate to high intensity fire in this landscape will also remove habitat for this bird species, at least until large oaks reestablishes; a time period of 150-200 years depending on the fire severity.

<u>Vaux's swift</u>
Washington State Candidate
This swift is a neotropical migrant that breeds from southwestern Canada through the western United States to Mexico, Central America, and northern Venezuela. Arriving in Washington by May, and leaving around mid August to late September, this species migrates out of the country,

into the southern portion of its range, to winter (Lewis et. al., 2002). They can occur as singles, but are much more commonly noted in communal colonies. The Vaux's swift requires large (>21" dbh) snags and hollow trees for nesting and roosting habitat. This habitat is most commonly found in mature forests, where this species is found at its highest density. This requirement was the reason for their placement on the State's candidate species list, due the limited supply of this habitat feature in second-growth forests (Wahl et. al., 2005). Swifts have taken to using available residential and industrial chimneys as nest and roost sites, especially during migration. Breeding season is around May to early August in the local area. The Vaux's swift forages for insects, in flight, over a wide variety of habitats; urban areas, water, open fields and forested areas. Foraging is typically within 3.4 miles of the nest site (Bull and Collins, 2007).

In late spring and summer, Vaux's swift are present within the planning area while foraging. Large (>21' dbh) trees with hollow centers are generally lacking within the planning area, but could potentially be present and harbor nesting or roosting swifts.

Effects from the Proposed action alternative

The proposed action alternative is expected to have no effect to Vaux's swifts in the short term due to the combination of seasonal restrictions, nest locations, and species behavior. Prescribed underburning activities in the fall to early spring will not occur while the swifts are in the area, thus will have no effect to local swifts. Some thinning activity may occur during July and August, which may overlap the latter part of nesting season, but is unlikely to disrupt breeding success due to their tolerance for nearby human activity as well as location of nests in mid and upper portions of large trees that are high overhead. No nest or roost trees will be disturbed or removed as no large trees are proposed to be thinned within the planning area. Any observations of Vaux's swift concentrations, or potential nest/roost trees, will be documented and protected with appropriate noise and disturbance restrictions. The proposed action will have long-term benefits to swifts through maintenance and development of large overstory trees, as well as creation of snags, that would increase available nest/roost habitat.

Effects from the No-action alternative

The no-action alternative will have no-effect to the Vaux's swift as no potential for disturbance would occur and a low density of large trees would still be available for nesting/roosting. Moderate to high intensity fires resulting from the increased fuel load could have various effects to swift nest/roost habitat depending on the intensity and pattern of burn. Effects would be beneficial if large trees were killed and hollowed out by fire activity, but nearby patches were available to harbor insect prey. Effects would probably be detrimental if most large trees were killed in the local area due to the long amount of time (80-150 years) that would need to take place for large (>20" dbh) trees to regrow and take on the characteristics (hollow, with entrance hole excavated by primary cavity nester) required by nesting swifts.

Species Surveyed but not found within the planning area

Protocol surveys were completed in the spring and summer of 2006 for certain mollusk and amphibian species on the USFS sensitive species list and/or Northwest Forest Plan survey and manage list, as well as one butterfly species on the federal candidate/Washington State endangered list. None of the species were found in or adjacent to the planning area, including

The Columbia Oregonian snail, Columbia duskysnail, The Dalles sideband, the Larch Mountain salamander, and the Mardon skipper butterfly.

Mardon Skipper

Federal Candidate, State Endangered

The mardon skipper is currently known to occur in 4 small disjunct populations within Washington, Oregon and California (Potter, 1999). In the southern W.A. Cascades, the mardon skipper is found in open, fescue grasslands within Ponderosa pine savanna/woodland, at elevations ranging from 1900' to 5100'. Sites vary in size from small, ½ acre or less meadows, to large grassland complexes, and site conditions range from dry, open ridgetops, to areas associated with wetlands or riparian habitats. Within these grassland environments, a variety of nectar source plants are important. The short, open stature of native, fescue bunchgrass stands allows mardon skippers to access nectar and oviposition plants. During the past 150 years, native grasslands have been developed, fragmented, and degraded. Fire historically played an important role in maintaining grassland plant communities. More than 95% of the original prairie grasslands are gone from western Washington. Mardon skippers were likely more widespread and abundant prior to large-scale loss of their open, fescue dominated, grassland habitat.

Protocol surveys from March to June of 2006 did not detect this species within the planning area. This was expected, as the grassland habitat within site is more xeric than areas of known distribution. The implementation of either alternative will have No Impact on mardon skipper butterflies.

Larch Mountain salamander

FS Sensitive, Washington State Sensitive, Oregon State Sensitive (Vulnerable),
CRGNSA Sensitive Site, FS Northwest Forest Plan Survey and Manage species

The Larch Mountain salamander is found solely along a 36 mile stretch of the Columbia River, and in isolated populations to the north in the Washington Cascades. Known Oregon populations are within 14 miles of the Columbia River, roughly between the towns of Troutdale and Hood River within the Columbia River Gorge. In Washington their range extends to about 120 miles north of the Columbia River Gorge. Due to recent intense surveys, their range has recently been expanded north where they have been found in non-talus habitats. Although suitable habitat is patchily distributed, populations can be locally abundant across the majority of their range (Crisafulli, 1999). Within the National Scenic Area in Washington, the range goes from Lawton Creek (Mt. Pleasant) to the Klickitat River (Crisafulli, 1999). Local habitat for this species is almost always talus habitat. Their dependence on this naturally discontinuous habitat type, coupled with the species limited range, makes the species vulnerable to further loss of habitat from human disturbance. They are surface active only during short periods in spring and fall, and are usually deep into the talus during the summer and winter.

Although this species is documented in talus fields within 1 mile of the project area, protocol surveys in March and April of 2006 did not detect this species within the planning area. This was expected, as there are no talus patches that are planned to be treated. The implementation of either alternative will have No Impact on Larch Mountain salamanders or their habitat.

Columbia Oregonian

FS Sensitive, Washington State Candidate

Generally found within 100 meters of streams, seeps, and springs, this snail is known from the Columbia River Gorge from The Dalles to near Rufus. It is found among moist talus, leaf litter and shrubs, or under logs and other debris. This species was originally known from areas that had few trees, but more recent mid-elevation records are from mature hemlock forests with relatively closed canopies. Exotic vegetation in riparian zones reduce the supply of native herbaceous vegetation needed by this species.

This species was not found within the planning area. The implementation of either alternative will have no impact on this species.

Dalles sideband

FS Sensitive, Washington State Candidate

The Dalles sideband is known from the Columbia River Gorge near The Dalles and up the Deschutes River. It inhabits talus or moist rocky areas around streams, seeps and springs within steppe or dry forest plant communities. It is not considered a talus obligate. This species is active only during dawn and dusk during the spring and fall seasons. Large woody debris and rocks provide refugia during summer and late winter. Forest litter and woody debris are considered necessary to provide food and cover while foraging. Loose soil is necessary for egg laying. The Dalles sideband has been found with the Larch Mountain salamander (*Plethodon larselli*).

This species was not found within the planning area. The implementation of either alternative will have no impact on this species.

Columbia Duskysnail

Forest Service Sensitive

This minute aquatic snail species is found in springs and spring outflows, from low to high elevations, in cold, pure, well-oxygenated water. It is found most often in small springs and in slow flows on soft substrates, often composed of mosses. This species is endemic to the Columbia River Gorge, on both sides of the river, and was found west of the Cascade crest. It is currently found sporadically in the central and eastern Columbia River Gorge.

This species was not found within the planning area. The implementation of either alternative will have no impact on this species.

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FS Sensitive, Washington State Candidate

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This species was not found within the planning area. The implementation of either alternative will have no impact on this species.

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This species was not found within the planning area. The implementation of either alternative will have no impact on this species.