

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE

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Establishment Record for  
Smith Butte Research Natural Area  
within Gifford Pinchot National Forest  
Yakima County, Washington



SIGNATURE PAGE

for


RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Smith Butte Research Natural Area


Mount Adams Ranger District, Gifford Pinchot National Forest

Yakima, County, Washington

The undersigned certify that all applicable land management planning and environmental analyses requirements have been met and that boundaries are clearly identified in accordance with FSM 4063.21, Mapping and Recordation and FSM 4063.41.5.e(3) in arriving at this recommendation.

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Date 11/23/15



ESTABLISHMENT RECORD FOR THE  
SMITH BUTTE RESEARCH NATURAL AREA  
WITHIN THE GIFFORD PINCHOT NATIONAL FOREST  
YAKIMA COUNTY, WASHINGTON

## INTRODUCTION

The Smith Butte Research Natural Area (RNA) is a forested cinder cone southeast of Mount Adams on the Gifford Pinchot National Forest. The 220 acre (89 hectares) RNA encompasses all of the steep-sided butte. The shallow, excessively drained soils overlay volcanic cinders. Smith Butte includes the only tract of mature grand fir forest in the area that has not been previously logged. The RNA includes six plant associations in the grand fir zone, with the most common being grand fir (*Abies grandis*)/creeping snowberry (*Symphoricarpos mollis*)/vanillaleaf (*Achlys triphylla*) and grand fir/California hazel (*Corylus cornuta* var. *california*)/vanillaleaf (Topik 1989). A pristine dry meadow near the summit of Smith Butte provides quality habitat for the mardon skipper (*Polites mardon*), a rare species of butterfly that listed as a Regional Forester's Sensitive Species in Region 6. Smith Butte is designated as nesting, roosting, and foraging habitat for the northern spotted owl (*Strix occidentalis caurina*), and is included in a critical habitat unit for this Threatened species. Smith Butte is listed as a proposed RNA within the Gifford Pinchot National Forest Land and Resource Management Plan (1990).

## OBJECTIVES

The system of research natural areas was established with the goal of allowing natural processes to dominate. RNAs preserve natural features and plant communities for research and educational purposes. The objective of RNAs is:

- (1) *to provide baseline areas against which the effects of human activities in similar environments can be measured;*
- (2) *to provide sites for study of natural processes in undisturbed ecosystems;*
- (3) *to provide gene pool preserves for plant and animal species.*

(Franklin et al. 1972).

The objective of Smith Butte RNA is to protect the natural processes represented by the ecological communities found within the RNA for conservation of biodiversity, research, and education purposes. Designation of the RNA will preserve the only mature grand fir zone forest on the eastern edge of the Gifford Pinchot National Forest that has not been entered for timber harvest. Smith Butte RNA will provide opportunities for studying ecological processes in grand fir forest that has not been subject to active management, and serve as a baseline for comparison to managed grand fir stands throughout the region. The meadow within the RNA will also provide a natural reference for comparison with

meadows subject to livestock grazing on the eastern part of the Gifford Pinchot National Forest. The meadow incorporated within Smith Butte RNA also comprises habitat for the mardon skipper butterfly, a species listed as Endangered within Washington State, and listed as a Regional Forester's Sensitive Species within Region 6.

**JUSTIFICATION**

The Forest Service in the Pacific Northwest Region uses state natural heritage programs as a basis for determining RNA needs and priorities. The state of Washington's Natural Heritage Program (WNHP) identifies significant examples of rare and typical terrestrial, marine and aquatic ecosystems, rare geologic features, and unique species. The WNHP supports the establishment of unaltered ecosystems for monitoring, research, and as storehouses of natural diversity.

An evaluation of the need for RNAs identified specific ecological communities as desirable for inclusion in the natural area network in the state of Washington. WNHP identified relatively cold, dry grand fir plant communities among those needing further protection. Smith Butte RNA includes four ecological communities (see Table 1) that are listed in the Natural Heritage Plan with representation priority rankings for the Eastern Cascades Province (Natural Heritage Plan 2005).

Table 1: Ecological Communities: Eastern Cascades Province Priorities for Inclusion in the Natural Areas Network	
Ecological Community	Heritage Plan Status
Grand fir/elk sedge woodland	Representation Priority *: no longer a priority for inclusion in the natural areas system because of existing adequate representation in the system.
Grand fir/vanillaleaf forest	Representation Priority 3: not in immediate jeopardy of being eliminated or degraded in the state, but are not yet adequately represented in the natural areas system.
Douglas fir-grand fir/oceanspray forest	Representation Priority 2: ecosystems are intermediate in priority, generally with few occurrences in a natural condition.
Douglas fir-pinegrass	Representation Priority *: no longer a priority for inclusion in the natural areas system because of existing adequate representation in the system.

The current Natural Heritage Plan does not list within mid-elevation forest zone grasslands (balds). These may be seen as equivalent to the 2001 Plan, Okanogan Highlands Idaho fescue-buckwheat priority 2 (Washington Natural Heritage Plan 2001).

Smith Butte RNA will contain representatives of 1 priority 2, 1 priority 3, and 2 priority \* elements.

Smith Butte is included in a critical habitat unit for the northern spotted owl, a threatened species under the Endangered Species Act. The butte is considered nesting, roosting, and foraging habitat for spotted owls, and owls have been surveyed within the RNA.

Smith Butte also provides habitat for three other bird species: the northern goshawk (*Accipiter gentilis*), the black-backed woodpecker (*Picoides arcticus*), and the pileated woodpecker (*Dryocopus pileatus*). Each of these species is listed as a “candidate species” on the 2005 Washington State Department of Fish and Wildlife Species of Concern List.

Additionally, the meadow near the summit of Smith Butte provides quality habitat for the mardon skipper, a rare species of butterfly. The mardon skipper is listed as an endangered species on the Washington State Department of Fish and Wildlife’s Species of Concern list, and is also a Forest Service Regional Forester’s Sensitive Species in Region 6.

Because Smith Butte is both easily accessible and undisturbed by past timber harvest activities, the site provides good research opportunities. For example, Smith Butte is the site of a long-term study by scientists at the Pacific Northwest Research Station and the University of Washington on disturbance dynamics in the grand fir zone. This study characterizes effects of ongoing western spruce budworm (*Choristoneura occidentalis*) defoliation on northern spotted owl habitat and on changes in potential fire severity.

## **PRINCIPAL DISTINGUISHING FEATURES**

Smith Butte is a volcanic cinder cone on the eastside of the crest of the Cascade Mountains, southeast of Mount Adams. Smith Butte is forested with previously unlogged stands of grand fir, ponderosa pine, and Douglas-fir. A dry meadow near the top of the cinder cone is located on the remains of an ancient volcanic vent, and provides relatively pristine habitat for the mardon skipper butterfly, a Regional Forester’s Sensitive Species. The meadow does not appear to have been significantly impacted by domestic livestock grazing; as such it provides a baseline reference for meadow conditions for the southeastern part of the Gifford Pinchot National Forest.

## **LOCATION**

Smith Butte RNA is located on the eastern edge of the Gifford Pinchot National Forest, in the Mount Adams Ranger District, in Yakima County, Washington (see Figure 1, Smith Butte Research Natural Area Vicinity and Figure 2, Smith Butte Research Natural Area

Ownership). Smith Butte is located at approximately 46°04'N latitude, 121°27'W longitude. The RNA includes portions of Sections 19, 20, 29, and 30, in Township 7 North, Range 11 East, Willamette Meridian. The elevation of the RNA ranges from approximately 3,700 feet (1128 meters) at the base of the butte to 4,300 feet (1311 meters) at the summit.

Boundary

The boundary description is located after the reference list, in Appendix A.

Access

Smith Butte RNA is located just over six air miles northeast of the town of Trout Lake, Washington (see Figure 3, Smith Butte Research Natural Area Access). The area is accessed by following Highway 141 to Trout Lake, and proceeding on the Mt. Adams Highway (FH 17) for approximately two miles to the junction of Forest Service road 8200000 (82). Proceed north for approximately 2.7 miles, to the junction of Forest Service roads 8200000 and 8225000 (8225) at the Pineside Sno-Park. You may either continue north on Forest Service road 82 to the junction with road 8200181 (82-181), or proceed along Forest Service road 8225 to the junction with Forest Service road 82-181. The RNA can be accessed on foot by hiking: north from Forest Service road 82-181, east from road 8225-150, or west from road 82.

Maps and Photos

Smith Butte RNA is located on the USGS 7.5 minute topographic quadrangle entitled King Mountain. The Gifford Pinchot National Forest map is also useful for general access information. The Mt. Adams Ranger District office maintains aerial photos of the area. The RNA is included on the following photos: USDA-F 616031B 1295-93 from 7-25-95 and USDA-F 616033 599-203 from 8-12-00.

**AREA BY TYPES**

Vegetation in the RNA was surveyed in 1992 and 2000 as part of an on-going study by the Pacific Northwest Research Station. Additionally, vegetation in the RNA was informally inventoried in preparation for the drafting of this document. The following determinations of ecological community types were made, based on this information, using a number of different methodologies, as listed. Table 2 presents a crosswalk between the different methodologies. A map depicting plant communities of the RNA, as recorded within the Gifford Pinchot National Forest Vegetation Database (GPVEG), is included as a part of this report (see Figure 4, Smith Butte Research Natural Area Potential Natural Vegetation map).

<u>Küchler Types</u> (Küchler, 1966)		<u>Estimated</u>	
		<u>Acres</u>	<u>Hectares</u>
14	Grand fir-Douglas fir forest ( <i>Abies-Pseudotsuga</i> )	218	88

Unclassified non-forested type – meadow 2.5 1

Society of American Foresters Cover Types (Eyre, 1980)

213 Grand fir (*Abies grandis*) 218 88  
 Unclassified non-forested type – meadow 2.5 1

Plant Associations of the Gifford Pinchot National Forest (Topik, 1989)

Smith Butte RNA includes 218 acres (88 hectares) of forests in the grand fir series. Six grand fir plant associations are represented in the RNA. Plant associations in the RNA are described in the *Plant Association and Management Guide for the Grand Fir Zone* (Topik, 1989). Due to the interspersed nature of the plant communities, estimates of area for individual grand fir associations were not made, but associations are listed in order of abundance, based on 21 plots surveyed in 1992 (Hummel, 1992). Numbers in parentheses are the number of plots in which the listed community was found.

1. (9 plots) Grand fir / creeping snowberry / vanillaleaf  
*Abies grandis* / *Symphoricarpos mollis* / *Achlys triphylla* (ABGR/SYMO/ACTR)
2. (5 plots) Grand fir / big huckleberry / queencup beadlily  
*Abies grandis* / *Vaccinium membranaceum* / *Clintonia uniflora*
3. (2 plots) Grand fir / California hazel / vanillaleaf  
*Abies grandis* / *Corylus cornuta* var. *californica* / *Achlys triphylla*  
 (ABGR/COCO2/ACTR)
4. (2 plots) Grand fir / oceanspray  
*Abies grandis* / *Holodiscus discolor* (ABGR/HODI)  
 (ABGR/VAME/LIBO2)
5. (2 plots) Grand fir / elk sedge  
*Abies grandis* / *Carex geyeri* (ABGR/CAGE)
6. (1 plot) Grand fir / pinegrass  
*Abies grandis* / *Calamagrostis rubescens* (ABGR/CARU)

Because Smith Butte is located in an area transitional between west and east Cascades, ecological communities can be difficult to categorize. To facilitate cross referencing between Küchler (1966), Eyre (1980), Topik (1989), the Washington Natural Heritage Plan (2005), and the 2005 Gifford Pinchot National Forest Vegetation Database (as mapped in Figure 3), we offer the following interpretations:

Table 2: Ecological Community Classification Comparisons				
Küchler, 1966	Eyre, 1980	Topik, 1989	WNHP, 2005	2005 Gifford Pinchot National Forest Vegetation Layer
Grand fir-Douglas fir forest	Grand fir	Grand fir / big	Grand fir/big huckleberry	R6-ECOL-TP-289-87 (Grand fir)



		huckleberry / queencup beadlily		
Grand fir- Douglas fir forest	Grand fir	Grand fir / elk sedge	Grand fir/elk sedge woodland	R6-ECOL-TP-006-88 (Grand fir/Elk Sedge)
Grand fir- Douglas fir forest	Grand fir	Grand fir / creeping snowberry / vanillaleaf	Grand fir/vanillaleaf	R6-ECOL-TP-006-88 (Grand fir /Snowberry/Vanillaleaf)
Grand fir- Douglas fir forest	Grand fir	Grand fir / California hazel / vanillaleaf	Grand fir/vanillaleaf	R6-ECOL-TP-006-88 (Grand fir /Snowberry/Vanillaleaf)
Grand fir- Douglas fir forest	Grand fir	Grand fir / oceanspray	Douglas fir- grand fir/oceanspray	R6-ECOL-TP-289-87 (Grand fir)
Grand fir- Douglas fir forest	Grand fir	Grand fir / pinegrass	Douglas fir/pinegrass	R6-ECOL-TP-289-87 (Grand fir)

## PHYSICAL AND CLIMATIC CONDITIONS

### Physical Conditions

The topography surrounding Smith Butte is relatively flat, with a slight southerly aspect. From its base elevation of 3,700 feet (1128 meters), the sides of the cinder cone rise steeply, with an average slope of approximately 50%. The slopes of Smith Butte are generally smooth and regular. The west side of the RNA has the most moderate slope, with the northwest, east and south sides being somewhat steeper. The southwest side of the butte is broader than the other flanks. The butte has two high points. The summit is located approximately 25 feet (7.6 meters) higher and less than a tenth of a mile (160 meters) east of the other high point. A saddle lies between these two highest points. The highest part of the meadow begins in this saddle, and then slopes to the southeast (see Figure 5, Smith Butte Soil Resource Inventory).

All aspects of the forested slopes are represented in the Smith Butte RNA.

### Climatic Conditions

Smith Butte is located east of the crest of the Cascade Mountains in south central Washington. The area receives typical eastside weather, which is characterized by warm, dry summers and cold, wet winters. The butte is within the snow dominated zone and is covered with snow throughout the winter and early spring. The majority of the annual precipitation falls as snow in winter with some rains occurring in autumn and late spring. Summer precipitation is very low. The prevailing summer winds are from the southwest.

The upper White Salmon River watershed is located in the path of a summer weather pattern that produces lightning. These storms can bring a minimal amount of precipitation or can be rain free. The weather pattern occurs when a low pressure system moves into the region from the south while there is high pressure to the east. This weather pattern typically produces cumulous clouds that move from the southwest to the northeast. The cumulous clouds and associated lightning generally occur to the west of Smith Butte. However, cumulous clouds can build up on the east side of Mount Adams and rotate clockwise around the mountain, bringing lightning to the Smith Butte area (Upper White Salmon River Watershed Analysis, 1998).

Smith Butte RNA is located just over six air miles northeast of Trout Lake, Washington. The Mount Adams Ranger Station in Trout Lake maintains the nearest weather station. Due to the proximity of Trout Lake to the RNA, climatic conditions at the two locations are comparable. However, there is a significant elevational difference between the two areas. Starting at an elevation of 3,700 feet (1128 meters), Smith Butte RNA is notably higher (from 1,740 to 2,340 feet (530 to 713 meters) higher) than Trout Lake, which is at an elevation of 1,960 feet (597 meters). This elevational difference causes additional precipitation and snowfall at Smith Butte, as well as slightly colder temperatures year round. The RNA is also three miles further east, which generally correlates to slightly lower precipitation (Climatological data 1948-1994).

Table 3: Precipitation, Snowfall, and Temperature at Trout Lake, Washington\* (1948-1994)

Month	Average Monthly Precipitation inches (cm)	Average Monthly Snowfall inches (cm)	Average Daily Max Temperature Fahrenheit (Celcius)	Average Daily Min Temperature Fahrenheit (Celcius)
January	8.35 (21.21)	38.05 (96.65)	36.17 (2.32)	22.12 (-5.49)
February	5.89 (14.96)	17.33 (44.02)	42.02 (5.57)	26.01 (-3.33)
March	4.74 (12.04)	9.14 (23.22)	48.61 (9.23)	28.54 (-1.92)
April	2.36 (5.99)	1.16 (2.95)	57.44 (14.13)	32.33 (0.18)
May	1.41 (3.58)	0.01 (0.03)	67.19 (19.55)	38.16 (3.42)
June	1.01 (2.57)	0.00 (0.00)	74.18 (23.43)	44.44 (6.91)
July	0.33 (0.84)	0.00 (0.00)	82.33 (27.96)	47.74 (8.74)
August	0.67 (1.70)	0.00 (0.00)	81.50 (27.50)	46.97 (8.32)
September	1.37 (3.48)	0.00 (0.00)	72.23 (22.35)	40.96 (4.98)
October	3.48 (8.84)	0.12 (0.31)	60.60 (15.89)	34.36 (1.31)
November	7.29 (18.52)	7.54 (19.15)	44.52 (6.96)	29.55 (-1.36)
December	8.09 (20.55)	29.57 (75.11)	37.05 (2.81)	24.51 (-4.16)
Year	44.07 (111.94)	116.56 (296.06)	58.99 (14.99)	34.74 (1.52)

\* Elevation 1,960 feet (597 meters)

## DESCRIPTION OF VALUES

### Flora

The flora of the Smith Butte RNA is representative of the grand fir zone forests on the east side of the Cascade Mountains in Washington State. The grand fir zone plant

communities are among the driest plant series on the Gifford Pinchot National Forest (Upper White Salmon River Watershed Analysis, 1998). With the exception of the meadow, Smith Butte RNA is entirely forested with stands in the grand fir series. The overstory is predominantly grand fir, Douglas-fir, and ponderosa pine. Other tree species, including quaking aspen, lodgepole pine, western larch, Scouler's willow, and western hemlock have extremely limited distribution in the RNA.

Aspect is the main environmental characteristic that defines the plant communities at Smith Butte. The plant communities on Smith Butte tend to be found in mosaic, without discrete boundaries from one community to the next. However, general trends in the occurrence of plant communities can be observed.

Based on data collected from 21 vegetation plots (Hummel, 1992), the most predominant plant communities are grand fir / creeping snowberry / vanillaleaf (ABGR/SYMO/ACTR), and grand fir / big huckleberry / queencup beadlily (ABGR/VAME/CLUN). In general, the ABGR/VAME/CLUN community is most abundant in the northern aspects, and the ABGR/SYMO/ACTR association is more abundant toward the southern aspects.

The ABGR/SYMO/ACTR community is found most commonly from the western (to southwestern) aspect of the butte, through the northern side, and around to the eastern slope.

The ABGR/COCO2/ACTR community is found most commonly from the eastern aspect, through the south slope and around to the southwest side of the butte. The grand fir / oceanspray (ABGR/HODI) plant community can be found in lesser abundance on the southwest and west sides of the butte at lower elevations. The grand fir / elk sedge (ABGR/CAGE) community can also be found as a component of the mosaic of plant communities at lower elevations on the south aspect of Smith Butte. Grand fir / pinegrass (ABGR/CARU) occurs in limited distribution at higher elevations on the butte.

In comparison to aspect, other environmental factors have much more limited affect on the development of the plant communities at Smith Butte. The soils on the butte are generally shallow and excessively drained. Because Smith Butte is somewhat symmetrical, the soils are similar on various aspects of the butte. Likewise, the elevational gradient within the RNA, from 3,700 feet (1128 meters) at the bottom, to just over 4,300 feet (1311 meters) at the summit, is not extreme. However, elevation does play a role in shaping plant communities and in the distribution of some taxa.

Near the summit of the butte, a largely pristine two and a half acre dry meadow is dominated by blue bunch wheatgrass (*Agropyron spicatum*), elk sedge (*Carex geyeri*), and Idaho fescue (*Festuca idahoensis*). Wildflowers include arrowleaf balsaroot (*Balsamorhiza sagittata*), *Erigeron sp.*, nettleleaf horsemint (*Agastache urticifolia*), mariposa lily (*Calochortus subalpinus*), *Viola sp.* (wild violets), and others. At present, the meadow shows almost no impacts from domestic livestock (S. Claggett pers. comm. 2001) and very few exotic species were observed. However, it is probable that sheep

grazed the meadow prior to 1940 (Upper White Salmon River Watershed Analysis, 1998).

A small ponderosa pine plantation is located on the east side of Smith Butte near the toe of the slope. Approximately one acre of the small plantation is within the RNA. The only other evidence of any timber harvesting within the RNA boundary is a few large diameter ponderosa pine and Douglas-fir stumps located near the bottom of the south slope. Fire scar data collected from one of the ponderosa pine stumps indicate an average fire return interval of 15.3 years (Agee, unpublished data, 2001). These trees were likely cut as part of a large logging operation between 1942 and 1945 that cut most of the surrounding sections (unpublished map, 1946, Mt. Adams District Heritage files), leaving Smith Butte with the only intact mature forests in the vicinity.

Limited information is available on stand conditions at Smith Butte prior to Euro-American settlement of the region. Before the advent of fire suppression, natural fires periodically burned throughout the area. Historical accounts suggest that in the eastern portion of the upper White Salmon River watershed, the forests of the late 1800's and earlier had more open conditions and proportionally more fire tolerant species, including Douglas-fir and ponderosa pine, than today. The natural fire regime created forests with single and multistoried canopies of widely spaced, large diameter trees. These canopies tended to have a greater proportion of early seral species, such as ponderosa pine and Douglas-fir, and less grand fir (Upper White Salmon River Watershed Analysis, 1998). Periodic ground fires reduced both the density of understory vegetation and the regeneration of grand fir. At lower elevation, fires favored understories dominated by xerophytic grasses (Upper White Salmon River Watershed Analysis, 1998).

The elevation and existing vegetation at Smith Butte suggest that the butte would not have been completely dominated by open ponderosa pine stands a century ago. Grand fir was likely a significant component of the forest at that time, but may have been somewhat less dominant in the understory and canopy than it is today. Likewise, the patchy landscape conditions created by frequent fires would have resulted in areas of brush and a denser understory in places.

The 1885 land survey describes the corner of Sections 19, 20, 30, and 29, located at an elevation of approximately 3,900' on the southwest slope of Smith Butte. Surveyor's notes say "Timber 1<sup>st</sup> rate pine and fir with very thick undergrowth of same and vine maple, hazel, and laurel." Heading west, the surveyor wrote "along steep west side of Butte through dense fir and pine timber and thick undergrowth" (unpublished notes, 1885 land survey, Mt. Adams District Heritage files). A map of timber types from the 1920's, prior to any logging in the area, depicted mature Douglas-fir less than 150 years old on the west and northwest side of the butte. Grand fir, larch, and Douglas-fir were shown on the north and east slopes, and mature and immature pine on the south side of the butte (Mt. Adams District Heritage files).

Fire suppression in the area began in 1910 with the establishment of the Gotchen Guard Station (Upper White Salmon River Watershed Analysis, 1998). The dense, mature

grand fir forests at Smith Butte developed in the absence of fire. Such forests can be susceptible to large disturbances. These stands can be overstocked and suffer moisture stress from summer drought. These factors result in an increased number of trees of low vigor. Mature grand fir forests are prone to stand replacing disturbances at a frequency of approximately every 150 years (R. Mendez-Treneman, pers. comm., 2001).

The first signs of a western spruce budworm outbreak were observed in the White Salmon River watershed in 1992 (Upper White Salmon River Watershed Analysis, 1998). The outbreak intensified through the mid and late 90s. Budworm host species include grand fir, Douglas-fir, western larch, and Engleman spruce, although other conifer species can be defoliated as well. Grand fir forests are at high risk of budworm epidemics where fire suppression and increasing stand density have resulted in a predominance of host species with low vigor (Upper White Salmon River Watershed Analysis, 1998).

The defoliation of budworm host species (grand fir and Douglas-fir) at Smith Butte has resulted in top damage to suppressed and intermediate crown class trees, as well as a reduction in crown depth, and some mortality. Associated increases in fuels indicate significant increases in predicted surface fire flame lengths (Agee, unpub. report, 2001). Even in the absence of fire, the forests at Smith Butte may be in transition from late to early seral stage plant communities (R. Mendez-Treneman, pers. comm., 2001).

Scientists from the Pacific Northwest Research Station and the University of Washington are studying effects of repeated spruce budworm defoliation on key spotted owl habitat elements at Smith Butte, including changes in canopy closure, and down wood, and associated effects on potential fire behavior. Data collected at permanent plots in 1992 and again in 2000 indicate that the average crown closure has decreased from approximately 80% to 40%, down woody debris in all size classes has doubled, and potential flame lengths have increased (Hummel 2001).

The decreasing canopy closure has resulted in an increase of bull thistle (*Cirsium vulgare*) within the RNA (S. Claggett, pers. comm., 2001). No other noxious weed species are of concern in the RNA.

The flora at Smith Butte has not been systematically inventoried. The list of plant species that follows (Table 4, was compiled primarily from two sources: botanical observations made during the course of the drafting of this Establishment Record, and data from permanent research plots in the RNA that are part of the on-going study by the Pacific Northwest Research Station. It should be noted that although the following list is as complete as possible at this time, some taxa may have been missed during these surveys.

No federal or state sensitive, rare, threatened, or endangered plant species are known or suspected to occur within the RNA.

Plant nomenclature is taken from Hitchcock and Cronquist, 1973.

Table 4: Botanical Species

Scientific Name	Common Name	Plant Associations	
		Grand Fir Series	Meadow
<b>TREES</b>			
<i>Abies grandis</i>	grand fir	X	
<i>Pseudotsuga menziesii</i>	Douglas-fir	X	
<i>Pinus ponderosa</i>	ponderosa pine	X	
<i>Pinus contorta</i>	lodgepole pine	X	
<i>Populus tremuloides</i>	quaking aspen	X	
<i>Larix occidentalis</i>	western larch	X	
<i>Tsuga heterophylla</i>	western hemlock	X	
<i>Salix scouleriana</i>	Scouler's willow	X	
<b>SHRUBS AND SUBSHRUBS</b>			
<i>Acer glabrum</i> var. <i>douglasii</i>	Rocky Mountain maple	X	
<i>Alnus sinuata</i>	Sitka alder	X	
<i>Amelanchier alnifolia</i>	serviceberry	X	
<i>Berberis nervosa</i>	Cascades Oregon grape	X	
<i>Chimaphila menziesii</i>	little pipsissewa	X	
<i>Chimaphila umbellata</i>	prince's pine	X	
<i>Chrysothamnus</i> sp.	rabbit brush		X
<i>Corylus cornuta</i> var. <i>californica</i>	California hazelnut	X	
<i>Holodiscus discolor</i>	ocean spray	X	
<i>Linnaea borealis</i>	twinflower	X	
<i>Pachistima myrsinites</i>	Oregon boxwood	X	
<i>Rhamnus purshiana</i>	cascara	X	
<i>Ribes viscosissimum</i>	sticky current	X	
<i>Ribes sanguineum</i>	red flowering current	X	
<i>Rosa gymnocarpa</i>	baldhip rose	X	
<i>Rubus parviflorus</i>	western thimbleberry	X	
<i>Rubus lasiococcus</i>	dwarf bramble	X	
<i>Sorbus sitchensis</i>	Sitka mountain-ash	X	
<i>Sambucus cerulea</i>	blue elderberry	X	
<i>Symphoricarpos albus</i>	common snowberry	X	
<i>Symphoricarpos mollis</i>	creeping snowberry	X	
<i>Vaccinium membranaceum</i>	big huckleberry	X	
<b>FORBS</b>			
<i>Achillea millefolium</i>	common yarrow	X	X
<i>Achlys triphylla</i>	vanillaleaf	X	
<i>Adenocaulon bicolor</i>	trail plant, pathfinder	X	
<i>Agastache urticifolia</i>	nettleleaf horsemint		X
<i>Agoseris aurantiaca</i>	orange agoseris		X
<i>Aquilegia formosa</i>	red columbine	X	
<i>Anemone oregana</i>	Oregon anemone	X	

<i>Anemone deltoidea</i>	three-leaved anemone	X	
<i>Arenaria macrophylla</i>	bigleaf sandwort	X	
<i>Arnica cordifolia</i>	heartleaf arnica	X	
<i>Balsamorhiza sagittata</i>	arrowleaf balsamroot		X
<i>Calochortus subalpinus</i>	mariposa lily		X
<i>Campanula scouleri</i>	Scouler's harebell	X	
<i>Collinsia sp.</i>	blue-eyed Mary	X	
<i>Collomia mazama</i>	collomia	X	
<i>Convolvulus sp.</i>	morning glory	X	
<i>Corallorhiza maculata ssp. mertensiana</i>	western coral root	X	
<i>Cirsium vulgare</i>	bull thistle	X	
<i>Claytonia perfoliata</i>	miner's lettuce	X	
<i>Clintonia uniflora</i>	queen's cup	X	X
<i>Delphinium sp.</i>	delphinium		X
<i>Disporum hookeri</i>	Hooker's fairy-bells	X	
<i>Erigeron sp.</i>	daisy species		X
<i>Fragaria vesca</i>	woods strawberry	X	
<i>Goodyera oblongifolia</i>	rattlesnake plantain	X	
<i>Galium aparine</i>	catchweed bedstraw	X	X
<i>Galium triflorum</i>	sweetscented bedstraw	X	X
<i>Hieracium albiflorum</i>	western hawkweed	X	X
<i>Hydrophyllum capitatum</i>	dwarf waterleaf	X	
<i>Ipomopsis aggregata</i>	scarlet gilia, sky rocket	X	X
<i>Lactuca muralis</i>	wall lettuce	X	
<i>Lupinus latifolius</i>	common broadleaf lupine	X	X
<i>Mitella sp.</i>	mitrewort	X	X
<i>Nothochelone nemorosa</i>	turtlehead	X	
<i>Osmorhiza chilensis</i>	mountain sweet cicely	X	
<i>Pedicularis racemosa</i>	sickletop lousewort	X	
<i>Penstemon subserratus</i>	penstemon	X	X
<i>Phacelia hastata</i>	silverleaf phacelia	X	
<i>Phlox speciosa</i>	showy phlox	X	
<i>Polemonium pulcherrimum</i>	Jacob's ladder	X	
<i>Polystichum munitum</i>	western swordfern	X	
<i>Pteridium aquilinum</i>	bracken fern	X	X
<i>Pyrola secunda</i>	sidebells pyrola	X	
<i>Pyrola picta</i>	white vein pyrola	X	
<i>Phacelia heterophylla</i>	varileaf phacelia	X	
<i>Rumex acetosella</i>	sheep's sorrel	X	
<i>Smilacina racemosa</i>	false Solomon's seal	X	
<i>Smilacina stellata</i>	starry Solomon-seal	X	
<i>Spergularia sp.</i>	sandspurry	X	
<i>Trientalis latifolia</i>	western starflower	X	
<i>Trillium ovatum</i>	white trillium	X	
<i>Valeriana sitchensis</i>	sitka valerian		X
<i>Vancouveria hexandra</i>	inside-out flower	X	

<i>Verbascum thapsus</i>	common mullein	x	
<i>Viola glabella</i>	pioneer violet		x
<i>Viola nuttallii</i>	prarie violet		x
<i>Viola orbiculata</i>	valley violet		x
<i>Viola sempervirens</i>	redwoods violet		x
<i>Vicia americana</i>	American vetch		x
<b>GRAMINOIDS</b>			
<i>Bromus sp.</i>	brome species	x	x
<i>Calamagrostis rubescens</i>	pinegrass	x	x
<i>Carex geyeri</i>	elk sedge	x	x
<i>Festuca idahoensis</i>	Idaho fescue	x	x
<i>Festuca sp.</i>	fescue species	x	x
<i>Pseudoroegneria spicata</i>	bluebunch wheatgrass		x

### Fauna

The Smith Butte RNA provides habitat for a variety of birds, mammals, amphibians, reptiles and invertebrates.

Smith Butte is within the Gotchen Late Successional Reserve (LSR), which provides habitat for some old-growth associated species. The northern spotted owl is listed as a threatened species under the Endangered Species Act. The Gotchen LSR includes six spotted owl nest sites. Smith Butte RNA is classified as nesting, roosting, and foraging habitat. Smith Butte is included in a spotted owl critical habitat unit, a designation of habitat considered essential for species recovery.

Smith Butte provides habitat used by several other species associated with late-successional forests, including the northern goshawk, the pileated woodpecker, and the black-backed woodpecker. All three of these species are candidates for listing on the Washington Department of Fish and Wildlife's (WDFW) Species of Concern list. Both the northern goshawk and the olive-sided flycatcher (also present at Smith Butte) are listed as federal species of concern (WDFW 2000).

The American marten is also known to use habitat at Smith Butte. This sensitive species requires structural diversity, and is not uncommon in the RNA (R. Mendez-Treneman, pers. comm., 2001). Additionally, the bat community on Smith Butte is quite diverse. Surveys indicate abundant levels of myotis species (R. Mendez-Treneman, pers. comm., 2001).

The meadow near the summit of Smith Butte provides quality habitat for the mardon skipper, a rare species of butterfly. The mardon skipper is listed as an endangered species on Washington State Department of Fish and Wildlife's Species of Concern list and is Regional Forester's Sensitive species in Region 6. The mardon skipper population in Washington State consists of a few hundred individuals present at only nine geographically isolated sites. The habitat at many of these sites has been degraded by non-native plants and human uses. None of the sites have a mandate or funding for



conservation of mardon skipper habitat (Potter et al. 1999). Despite the small size of the meadow at Smith Butte, the relative abundance of mardon skippers provides evidence of the quality of the habitat at this site (A. Potter, pers. comm., 2001). The RNA offers unique opportunities for research on and protection of this rare species.

Other notable invertebrates present in the RNA include two snail species (*Monadenia fideles*, *Haplotrema sp.*), and jumping slugs (*Hemphillia sp.*). The presence of these invertebrates is unusual in sites with as limited moisture availability as Smith Butte. The snail and slug species are decomposers and benefit from the density of large down woody debris in the RNA.

As discussed earlier in this report, plant communities at Smith Butte are undergoing significant changes as a consequence of disturbance caused by the western-spruce budworm outbreak. Changes in faunal communities are expected in response to changes in habitat. The degree of change in faunal species composition depends in large part on the extent of mortality in various layers of the forest canopy. For example, mortality of large diameter trees creates snags, needed by cavity nesters. As canopy cover decreases below hypothesized habitat thresholds, however, the suitability of the area for some species, including the northern spotted owl, may decline as well (Hummel 2001). The temporal effects of such a decline are not well understood. Scientists at the Pacific Northwest Research Station are currently studying these and related habitat issues at Smith Butte.

At present, Smith Butte has a low representation of vertebrates dependent on early seral habitats. As the forest continues to change with the effects of budworm defoliation, an increase in early seral stage species could be possible. Species associated with later seral stages such as the northern spotted owl and the northern goshawk could decline as habitats change (R. Mendez-Treneman, pers. comm., 2001).

Faunal species have not been systematically inventoried in the Smith Butte RNA. Animal species observed during surveys and site visits in the RNA and nearby areas are included in the list that follows. The following terrestrial vertebrates are among those most likely to be encountered in the RNA (R. Mendez-Treneman, pers. comm., 2001). Animal nomenclature is taken from AOU (1998), Jones et al. 2005, and Wilson and Reeder (2005).

### **Potential Fauna of the Smith Butte Research Natural Area**

#### **Scientific Name**

#### **Common Name**

#### **Amphibians and Reptiles**

##### **Anguidae**

*Elgaria coerulea*

northern alligator lizard

##### **Colubridae**

*Thamnophis sp.*

garter snake

<i>Pituophis melanoleucus</i>	gopher snake
<b>Ambystomatidae</b>	
<i>Ambystoma macrodactylum</i>	long-toed salamander
<i>Ambystoma gracile</i>	northwestern salamander
<b>Hylidae</b>	
<i>Pseudacris regilla</i>	Pacific treefrog
<b><u>Mammals</u></b>	
<b>Verpertilionidae</b>	
<i>Estesicus fuscus</i>	big brown bat
<i>Myotis californicus</i>	Californian myotis
<i>Myotis evotis</i>	long-eared myotis
<i>Myotis volans</i>	long-legged myotis
<i>Myotis lucifugus</i>	little brown bat
<b>Erethizontidae</b>	
<i>Erethizon dorsatum</i>	porcupine
<b>Canidae</b>	
<i>Canis latrans</i>	coyote
<b>Ursidae</b>	
<i>Ursus americanus</i>	black bear
<b>Mustelidae</b>	
<i>Mephitis mephitis</i>	striped skunk
<i>Martes americana</i>	American marten
<b>Felidae</b>	
<i>Felix rufus</i>	bobcat
<i>Felix concolor</i>	mountain lion
<b>Cervidae</b>	
<i>Cervus canadensis nelsoni</i>	Rocky Mountain elk
<i>Cervus canadensis roosevelti</i>	Roosevelt elk
<i>Odocoileus hemionus columbianus</i>	black-tailed deer
<b>Rodentia</b>	
<i>Tamias townsendii</i>	Townsend's chipmunk
<i>Tamias minimus</i>	least chipmunk
<i>Tamiasciurus douglasii</i>	Douglas' squirrel
<i>Glaucomys sabrinus</i>	northern flying squirrel
<i>Thomomys talpoides</i>	northern pocket gopher
<i>Peromyscus maniculatus</i>	deer mouse

*Phenacomys sp.*  
*Microtus sp.*

## **Birds**

### **Accipitridae**

<i>Accipiter gentilis</i>	northern goshawk
<i>Buteo jamaicensis</i>	red-tailed hawk
<i>Accipiter striatus</i>	sharp-shinned hawk
<i>Accipiter cooperii</i>	Cooper's hawk

### **Bombycillidae**

<i>Bombycilla cedrorum</i>	cedar waxwing
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### **Caprimulgidae**

<i>Chordeiles minor</i>	common nighthawk
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### **Certhiidae**

<i>Certhia americana</i>	brown creeper
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### **Corvidae**

<i>Cyanocitta stelleri</i>	Steller's jay
<i>Corvus corax</i>	common raven

### **Emberizidae**

<i>Contopus borealis</i>	olive-sided flycatcher
<i>Dendroica coronata</i>	yellow-rumped warbler
<i>Dendroica occidentalis</i>	hermit warbler
<i>Dendroica townsendi</i>	Townsend's warbler
<i>Junco hyemalis</i>	dark-eyed junco
<i>Pipilo erythrophthalmus</i>	rufus-sided towhee
<i>Piranga ludoviciana</i>	western tanager
<i>Vermivora celata</i>	orange crown warbler

### **Fringillidae**

<i>Carduelis pinus</i>	pine siskin
<i>Coccothraustes vespertinus</i>	evening grosbeak
<i>Loxia curvirostra</i>	red crossbill
<i>Pheucticus melanocephalus</i>	black-headed grosbeak

### **Muscicapidae**

<i>Catharus ustulatus</i>	Swainson's thrush
<i>Regulus satrapa</i>	golden crown kinglet
<i>Turdus migratorius</i>	American robin
<i>Ixoreus naevius</i>	varied thrush

**Paridae**

*Poecile actricapillus* black-capped chickadee  
*Poecile gambeli* mountain chickadee

**Phasianidae**

*Bonasa umbellus* ruffed grouse  
*Meleagris gallopavo* wild turkey

**Picidae**

*Colaptes auratus* northern flicker  
*Dryocopus pileatus* pileated woodpecker  
*Picoides albolarvatus* white-headed woodpecker  
*Picoides arcticus* black-backed woodpecker  
*Picoides villosus* hairy woodpecker

**Sittidae**

*Sitta canadensis* red-breasted nuthatch

**Strigiformes**

*Glaucidium gnoma* northern pygmy owl  
*Megascops kennicottii* western screech owl  
*Bubo virginianus* great-horned owl  
*Strix occidentalis caurina* northern spotted owl

**Trochilidae**

*Selasphorus rufus* rufous hummingbird

**Tyrannidae**

*Contopus sordidulus* western wood-pewee

**Vireonidae**

*Vireo cassinii* Solitary vireo

Aquatic

Smith Butte does not include any aquatic resources.

Geology

Smith Butte is one of many cinder cones located just south of Mt. Adams. The area is unique due to its density of cinder cones. The cones are composed of stratified red, gray and black scoriaceous basalt. Cinder cones are defined as steep, conical hills of volcanic fragments that accumulate around a vent. The meadow near the top of Smith Butte is located on the remnants of an ancient vent.

The landscape near the Smith Butte RNA is typified by gently sloping volcanic flows to the south and southwest of Mt. Adams. These volcanic flows are usually glassy and

contain numerous gas bubbles. A potassium-argon date of approximately 100,000 years was taken on a flow on the eastside of Smith Butte. Most of the eruptive sequences in these volcanoes would have been explosive with the material deposited near the volcanic center. However, some of the eruptions were fluid enough to travel up to a few miles from the volcanic center.

A rock quarry on Bunnell Butte, to the north of Smith Butte, provides a good example of the layering in a cinder cone. Bunnell Butte was mined in the 70's and 80's to supply gravel for many of the roads in the area.

### Soils

The soil types found at Smith Butte are relatively young and volcanogenic in origin (Upper White Salmon River Watershed Analysis, 1998). These soils have parent materials consisting of volcanic cinders and ash, overlain by coarse textured, sandy loam. The soils in the RNA are considered to have low fertility (Wade et al. 1992). Smith Butte basalts are of late Pleistocene Age and may include some Holocene flows (Upper White Salmon River Watershed Analysis, 1998).

The Smith Butte RNA includes four soil types described in the 1992 *Soil Resource Inventory* for the Gifford Pinchot National Forest (Wade et al. 1992). Locations of soil types are depicted on the attached soil map (see Figure 4, Soil Resource Inventory).

The vast majority of the RNA falls into soil mapping unit 5B, which describes soils typically found on cinder cones. This soil is found on steep slopes (30-70%) and consists of shallow, sandy loams overlying volcanic cinders. This soil type is considered excessively drained. On the southeastern boundary of the RNA, a small occurrence of soil mapping type 5A is found, which is similar to 5B, but found on less steep slopes (0-30%).

The meadow located near the top of the butte is characterized by soil mapping unit 3. This soil is described as sandy loam to silt loam, and is imperfectly to poorly drained.

Near the eastern boundary of the RNA, a very small occurrence of rocky ground can be found. This area, shown as soil mapping unit 7 in the Soil Resource Inventory is described as "rock outcrop, and talus slopes on rugged landforms." The soils which occur intermittently in these areas are derived primarily from hard andesite and breccias. These shallow to very shallow soils are gravelly and can include ash and pumice.

In contrast to the soils found on Smith Butte, the soils in the surrounding landscape are generally not associated with cinder cones. East of the RNA, the surrounding soil is andic cryumbrepts, medial over loamy skeletal, mixed (soil mapping unit 95). This soil is described as a shallow to moderately deep nonplastic soil derived from residuum and colluvium. Surface soils are gravelly loams, with cobble and sandy loam subsoils.

To the west of the RNA, the soil is andic haplumbrepts, medial over loamy skeletal, mixed, frigid (soil mapping unit 93). This soil is similar to mapping unit 95, but is derived from aeolian cinders and ash. These surface soils are gravelly loams, with cobbly, sandy loam subsoils.

### Lands

The Smith Butte RNA is within and entirely surrounded by the Gotchen Late-Successional Reserve (Gotchen LSR). This LSR is managed by the Gifford Pinchot National Forest to protect and enhance old-growth and late-successional forest ecosystems. The LSR is intended as a source area for late-successional and old-growth forest dependent species in the larger landscape (Upper White Salmon River Watershed Analysis, 1998). Limited stand management is permitted in the LSR to achieve desired forest conditions.

The Smith Butte RNA is approximately one and a half miles from the Yakama Indian Nation. The RNA is also within two and a half miles of forestlands managed by the Washington Department of Natural Resources and private forestland.

### Cultural

There are no known cultural resources of significance located within the Smith Butte RNA. A complete cultural resources inventory has not been conducted in the RNA. However, information is available on the human history of Smith Butte and the surrounding area.

Road 8200181 to the south of the RNA was once part of the "King Mountain Trail," one of several pre-historic travel routes through the forest. An obsidian point was located within 0.25 miles (402 meters) of the RNA, which provides evidence of Native American use of the area (C. Mack, pers. comm., 2001). Currently the area is covered by treaty for collection of traditional plants and animals by the Yakama Nation. The potential for medicinal plant gathering by native peoples exists. An ongoing study by scientists at the Pacific Northwest Research Station investigates how the behavior of medicinal plant harvesters may change as forest conditions change (Hummel, pers. comm., 2001).

The area surrounding Smith Butte was intensively used by sheepherders between 1880 and 1930. Dendroglyphs from this period have been found on aspen trees in areas near the RNA, but not within the RNA. Road 8200060, one half mile to the north of the proposed RNA, was historically used as a transportation route for sheep.

Early maps label the butte "Bird Mountain." Around 1910, the peak was renamed Smith Butte, for William Smith, one of four main sheepherders in the area. William Smith had a camp near the present day intersection of Road 8225110 and Road 8200181, just to the southwest of the RNA (C. Mack, pers. comm. 2001).

The historic level of grazing use of the RNA by sheep is unknown. It is likely that the meadow was grazed during this time period (Upper White Salmon River Watershed Analysis, 1998), and grazing could have been a factor in forming or enlarging the meadow habitat. However, the steep slopes of the butte and absence of water could have limited grazing use.

Between 1942 and 1945 the area surrounding Smith Butte was logged. Railroad lines were used to haul the timber from the forest, and historical evidence of the railroads can be found near the RNA.

## **IMPACTS AND POSSIBLE CONFLICTS**

### Mineral Resources

There are no hard rock mining claims in the Smith Butte RNA. The RNA will be proposed for withdrawal of mineral entry upon formal establishment.

### Grazing

At Smith Butte livestock grazing is not needed to maintain the objectives for which the RNA is being established, *i.e.* grazing is not needed to maintain the terrestrial plant communities within the RNA. Smith Butte RNA receives extremely limited and only incidental grazing by cattle, concentrated near the base of the butte.

The RNA is excluded from the Mount Adams Grazing Allotment, which includes an extensive area surrounding Smith Butte. Multiple factors have historically and currently kept grazing to a minimum on Smith Butte. These factors include the steep slopes of RNA, limited forage within the forested areas of the butte, lack of water, existing down woody material, dense shrub vegetation in places, and the availability of better forage in other locations (J. Esteves, pers. comm., 2001).

Evidence of limited historical and current use of the meadow by cattle does exist. No documentation is available as to this level of use, but it is estimated that the meadow may be visited for a few days a year by a few head of cattle (J. Esteves, pers. comm. 2001).

Currently the grazing allotment is managed to protect the RNA from grazing impacts. Activities that will attract cattle are prohibited within one half mile of the RNA boundary, and permittees are required to drive livestock away from the RNA boundary and remove cattle that stray into the RNA (Mt. Adams Grazing Allotment Management Plan 2006). A threshold of incidental use of the RNA by livestock needs to be established in the RNA Management Plan to ensure that livestock use remains consistent with RNA management objectives.

### Timber

Smith Butte includes approximately two hundred and seventeen acres of mature grand fir forests with scattered remnant old-growth ponderosa pine and Douglas-fir trees. However, designation of the RNA will not impact timber harvest levels because Smith Butte and the surrounding lands are not allocated for timber harvest. The Smith Butte RNA is surrounded by and included within the Gotchén Late-Successional Reserve. Timber harvest is only allowed within the LSR for specified (non-timber) management purposes, such as to promote late-successional characteristics, to reduce fuel loading, or to salvage under certain conditions.

### Watershed Values

Smith Butte RNA is located in the upper White Salmon watershed. There are, however, no significant watershed values present at Smith Butte. There are no wetlands or streams within the RNA boundaries.

### Recreation

Smith Butte RNA receives very limited recreational use. The level of recreational use is unknown, but slight. The area is known to have occasional use by mushroom hunters (J. Nakae, pers. comm., 2001). Limited plant collection within the RNA by herbalists or medicinal plant collection by Native Americans is possible. It is also possible that hunters may occasionally use the butte.

Two sno-parks, the Pineside Sno-park and the Smith Butte Sno-park, are located near the RNA and receive relatively heavy use by cross-country skiers and snowmobilers (J. Nakae, 2001, pers. comm.). The parking area for the Pineside Sno-park is near the junction of roads 8200000 and 8225000, just under three road miles to the southwest of the RNA. The Pineside Sno-park includes multiple loop trails over existing roads. The parking area for the Smith Butte Sno-Park is located at the end of Forest Service road 8225110, approximately a half mile northwest of the RNA. Both snowmobilers and cross-country skiers generally prefer flatter terrain, and stay on the designated roads, which are unplowed. Due to its steep slopes, Smith Butte is generally avoided by cross-country skiers and snowmobilers. No trails exist or are planned on the butte itself.

Casual recreational use has not seriously impacted the RNA to date. Recreational use should be discouraged.

### Wildlife and Plant Values

The forests at Smith Butte are part of a critical habitat unit for the northern spotted owl, a threatened species under the Endangered Species Act (ESA). Additionally, the meadow provides habitat for the mardon skipper, a Regional Forester's Sensitive species in Region 6. Designation of the RNA will not create conflicts with habitat maintenance for these species. Designation of the RNA will not negatively affect habitat for either species.



However, the needs of both species should be considered in drafting the management plan for the RNA.

The Smith Butte RNA does not contain any Threatened, Endangered, Proposed or Sensitive plants. It also does not contain any Survey and Manage botanical species (USDA and USDI 2001).

### Special Management Area

The Smith Butte RNA is surrounded by and included in the Gotchen Late-Successional Reserve. The LSR is managed to “protect and enhance late-successional and old-growth forest ecosystems, which serve as habitat for late-successional and old-growth related species including the northern spotted owl” (USDA and USDI 1994). Designation of the Smith Butte RNA is not likely to conflict with management of the Gotchen LSR.

### Transportation Plans

The Smith Butte RNA does not include any current or historic roads or human trails and none are planned for the area. Establishment of the RNA will not block transportation system development.

## **MANAGEMENT PRESCRIPTION**

Management and protection of Smith Butte RNA will be directed toward maintaining natural and ecological processes. Activities of humans that disturb or modify ecological processes will be discouraged. Smith Butte RNA is included, along with other proposed and designated RNAs, in the 1990 Gifford Pinchot National Land and Resource Management Plan, which states,

*The goal is to manage Research Natural Areas (RNAs) in a natural state for research and education, and/or to maintain biological diversity. They provide opportunities for research, study, observation, monitoring, and those educational activities that retain undisturbed conditions. In effect, they provide a baseline for biological diversity found on the Forest.*

Smith Butte RNA and the other proposed and designated RNAs are listed as Management Area Category – Y in the Gifford Pinchot Land and Resource Management Plan, and include the Management Prescriptions A8, YC, Y8, and W6. Standards and guidelines for these management prescriptions are noted in the Land and Resource Management Plan.

### Fire Management

A detailed fire management plan for the Smith Butte RNA is needed. The 1990 Land and Resource Management Plan for the Gifford Pinchot National Forest directs that “fires may be permitted to burn only if they are within a prescription designated to accomplish

objectives of the RNA.” The Forest Plan further states that fuels within RNAs will not be treated, but that prescribed burning may be authorized as a management practice to control noxious weeds or preserve plant communities.

The Gifford Pinchot National Forest Fire Management Plan (2004) (FMP) states that Human-caused fires, or fires occurring where protection from fire is the objective will be suppressed. The appropriate management response for such fires ranges from aggressive initial attack to a combination of strategies to confine the fire. Naturally ignited wildland fires occurring where fire is an essential process for producing resource benefits will be managed for that use when certain prescriptive elements identified in the forest fire plan have been met (FMP pg. 5). Wildland fire use refers to the management of naturally ignited wildland fires to protect, maintain and enhance resources and to allow fire to function in its natural ecological role to achieve resource management objectives. The FMP tiers to direction in the Forest Plan that provides guidance for the achievement of resource objectives through the use of fire. Fire use is a strategy on the Gifford Pinchot National Forest although, currently, because of organizational capability and/or land-based constraints, there are limited areas where naturally ignited fire can be used (FMP pg. 6). The range of appropriate management response used on the GPNF will be based on objectives, relative risk (external influences), complexity and defensibility of management boundaries (pg 20). Consistent with Forest Service policy, Gifford Pinchot National Forest fire managers will make an initial attack fire suppression response on all human caused wildland fires, or where a Fire Management Plan has not been approved to allow fire use for resource benefit (pg 6). A fire management plan for Smith Butte RNA will be developed as part of the RNA Management Plan for Smith Butte.

One of the objectives of the Smith Butte RNA is to provide sites for study of natural processes in undisturbed ecosystems. According to Evers et al. (unpublished report), natural fire regimes do not exist anywhere in the mid-Columbia area today. Though Smith Butte has not been actively managed through timber harvest or other stand altering activities, fire suppression has acted as a form of passive management that has led to forested stand conditions outside of the historical range of variation. Prior to Euro-American settlement, periodic ground fires burned in the region. These fires would have reduced regeneration of grand fir, creating a more open understory and favoring regeneration of fire tolerant species. Since the advent of fire suppression, such ground fires have been extinguished, resulting in more grand fir regeneration (Upper White Salmon River Watershed Analysis, 1998). The unnaturally dense stands that have developed under fire suppression, tend to have a lower component of fire-tolerant species, notably ponderosa pine and Douglas-fir. Additionally such dense grand fir stands can have reduced vigor and be more susceptible to insect and disease outbreaks.

Reintroduction of fire to the landscape supports the management goal of promoting ecological processes within the RNAs. Fire has a significant ecological role in the grand fir zone. Fire is a natural stand dynamic that helps maintain forest health. Lighter fires can also reduce fuel loading and help prevent future stand-replacing fires. Frequent fires promote the regeneration of early seral species.

The mature grand fir forest at Smith Butte is surrounded by forest stands with more recent disturbance due to timber harvest. Historically, the upper White Salmon River watershed may have been subject to stand replacing fires every 100-200 years (Upper White Salmon River Watershed, 1998), but the fire return interval for smaller fires would have been much more frequent, estimated at between 15 and 50 years (R. Mendez-Tremenan, pers. comm., 2001).

In the area surrounding Smith Butte, large fires have historically burned to the northwest of the butte (in 1880), to the east (in 1885), and to the southwest (in 1905, 1910, and 1918). However, none of these fires burned through the forests on Smith Butte or stands immediately adjacent to the RNA.

There are several issues to be considered in fire management planning for the Smith Butte RNA. In the last decade, mortality due to the spruce budworm outbreak has caused a significant increase in fuel loading throughout the grand fir zone in the southern portion of the Gifford Pinchot National Forest. At Smith Butte, measurements of fuel loading for coarse woody debris (greater than three inches in diameter) indicate that fuels in this size class have nearly doubled in the last eight years, from 17.96 tons per acre in 1992 to 34.90 tons per acre in 2000 (Hummel 2001). Such increases in fuel loading increase the potential for lethal surface fires and may contribute to increases in torching potential.

In response to the high fuel loading caused by budworm defoliation and associated mortality, Mount Adams Ranger District staff have proposed management actions to reduce fire risk and maintain late-successional forests in the Gotchen LSR. Due to Smith Butte's status as a candidate RNA, management treatments were not proposed for Smith Butte.

In addition to the heavy fuel loading in the region, the location of Smith Butte is also an important consideration for fire management planning. Smith Butte is located near the eastern boundary of the Gifford Pinchot National Forest. The Smith Butte RNA is approximately one and a half miles from the Yakama Indian Nation and within two and a half miles of state and private forestlands. Furthermore, the RNA is entirely surrounded by the Gotchen LSR, an area managed to protect and enhance late-successional habitat and species. A Smith Butte RNA fire plan needs to consider risk factors to all adjacent lands.

The biological needs of the mardon skipper present a further consideration with regard to fire management. Fire may help maintain the meadow habitat important to the mardon skipper. However, allowing the entire meadow to burn in one event would have a negative impact on mardon skipper populations at the site (A. Potter, pers. comm., 2001).

The ecological benefits of fire in the Smith Butte RNA need to be considered within the context of the above issues, particularly fuel loading, fire return interval, and the location of the Smith Butte RNA to both the Gotchen LSR, the Yakama Indian Nation, and state and private lands. These issues need to be addressed more completely in the management plan for the RNA.

## Vegetation and Pest Management

The overall management direction for all RNAs is to preserve their naturally occurring physical and biological processes. Western spruce budworm defoliation is a natural disturbance within the forest. However, the severity and length of the epidemic is related to the structure and health of the forest in the absence of fire. The relationship between the plant communities and fire needs further management consideration (as stated above), particularly with regard to increased fuel loading, and reintroduction of fire into the ecosystem.

Bull thistle (*Cirsium vulgare*) is the only known significant noxious weed infestation in the RNA at this time. The Mt. Adams Ranger District has ongoing plans for manual eradication of bull thistle. No herbicide applications are planned. Noxious weed control will be addressed more completely in the management plan for the Smith Butte RNA.

## Grazing

Smith Butte RNA receives extremely limited and only incidental grazing by cattle, concentrated near the base of the butte. Smith Butte RNA will be excluded from the Mount Adams Grazing Allotment, which includes an extensive area surrounding Smith Butte.

## **ADMINISTRATION RECORDS AND PROTECTION**

Administration and protection of Smith Butte RNA will be the responsibility of the Gifford Pinchot National Forest. The District Ranger at the Mount Adams District has direct responsibility.

The Director of the Pacific Northwest Research Station will be responsible for any studies or research conducted in the area, and requests to conduct research in the RNA should be referred to that office. The RNA Scientist in the Research Station is designated as the lead contact person for all such requests. The Director will evaluate research proposals and coordinate all studies and research in the area with the District Ranger. All plant and animal specimens collected in the course of research conducted in the area will be properly preserved and maintained within university or federal agency herbaria and museums, approved by the Pacific Northwest Research Station.

Records for the Smith Butte RNA will be maintained in the following offices:

Forest Supervisor, Gifford Pinchot National Forest, Vancouver, Washington,  
District Ranger, Mount Adams Ranger District, Trout Lake, Washington,  
Director, Pacific Northwest Research Station, Portland, Oregon,  
Forest Sciences Laboratory, Pacific Northwest Research Station, Corvallis, Oregon.

## **ARCHIVING**

The Pacific Northwest Research Station will be responsible for maintaining the Smith Butte RNA research data file and list of herbarium and species samples collected. The Forest Sciences Lab in Corvallis, Oregon maintains a research database and lists of species for all RNAs in the region. Computerized files for the RNA will be maintained at the Forestry Sciences Lab.

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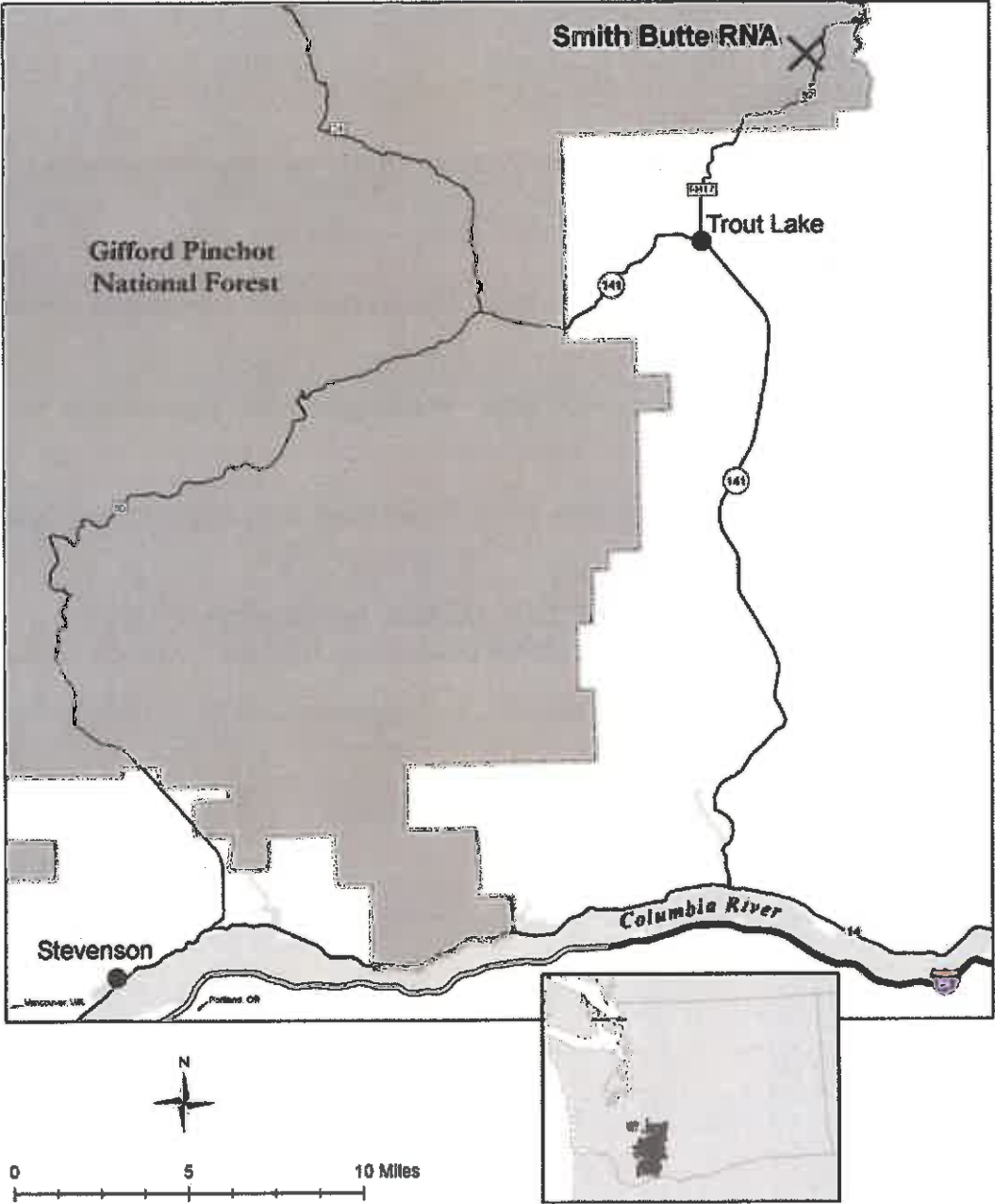
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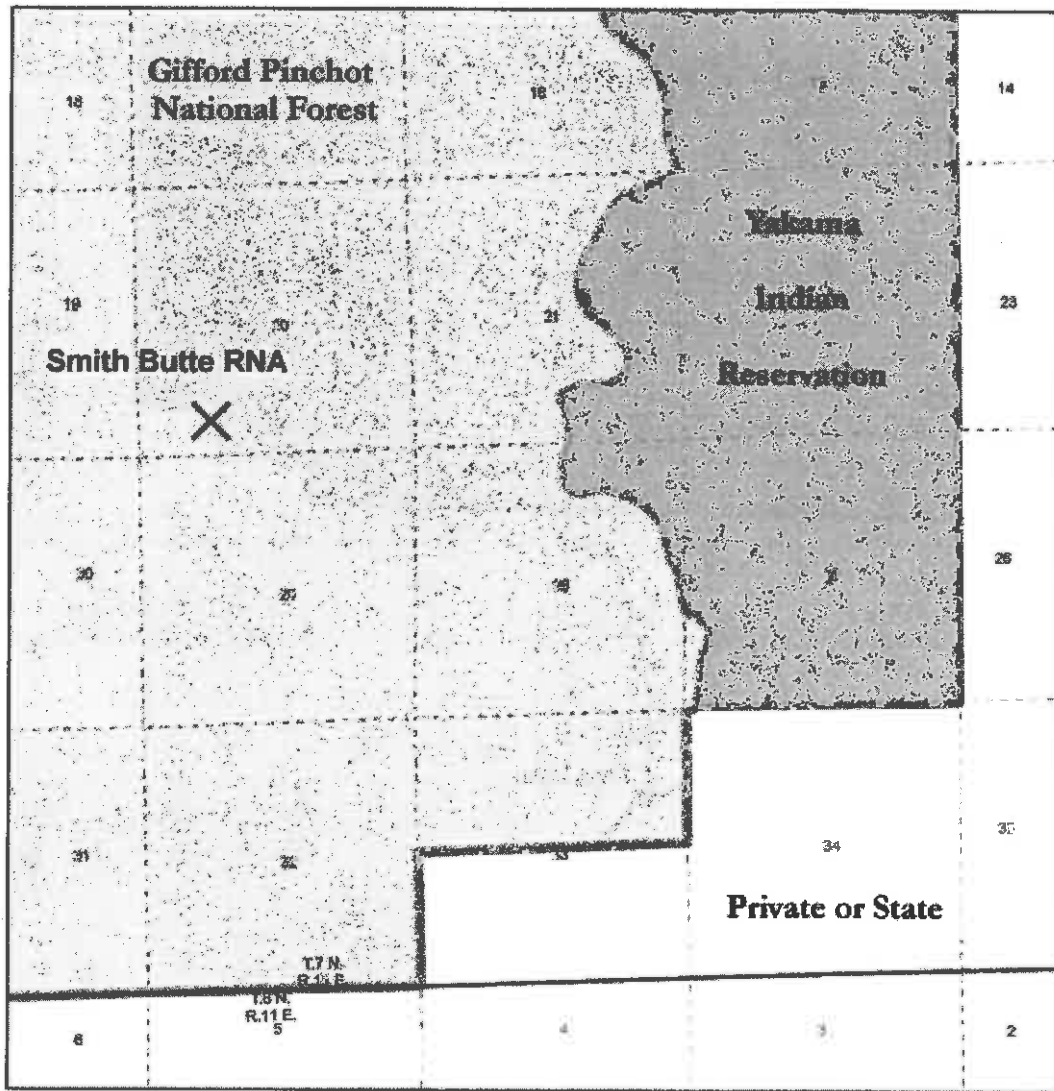
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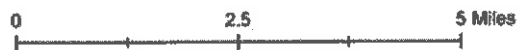
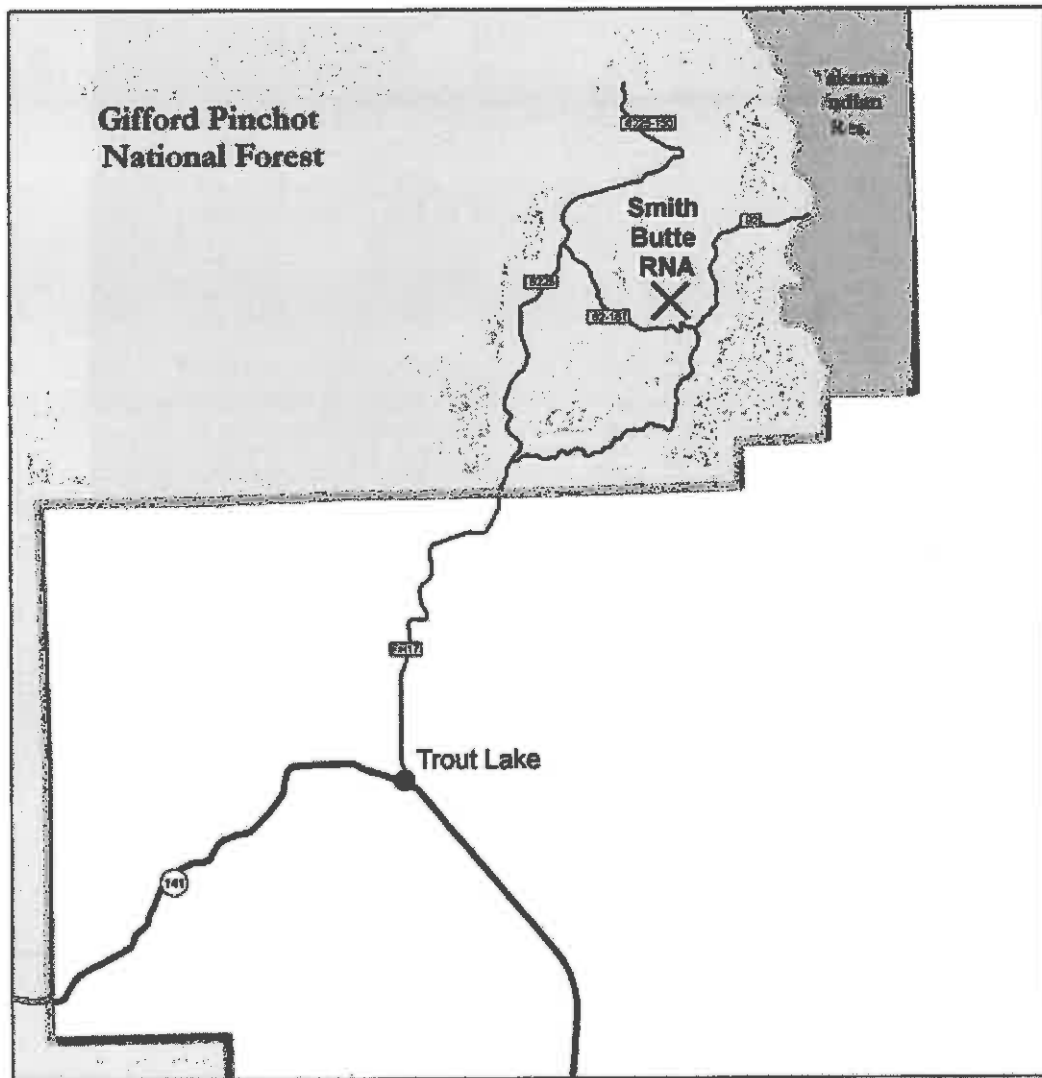
**Figure 1: Smith Butte Research Natural Area  
General Vicinity**



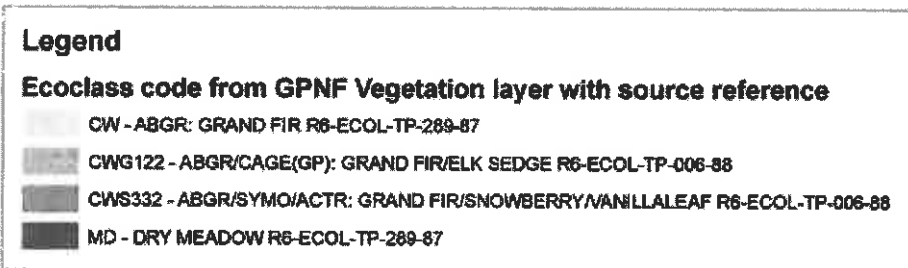
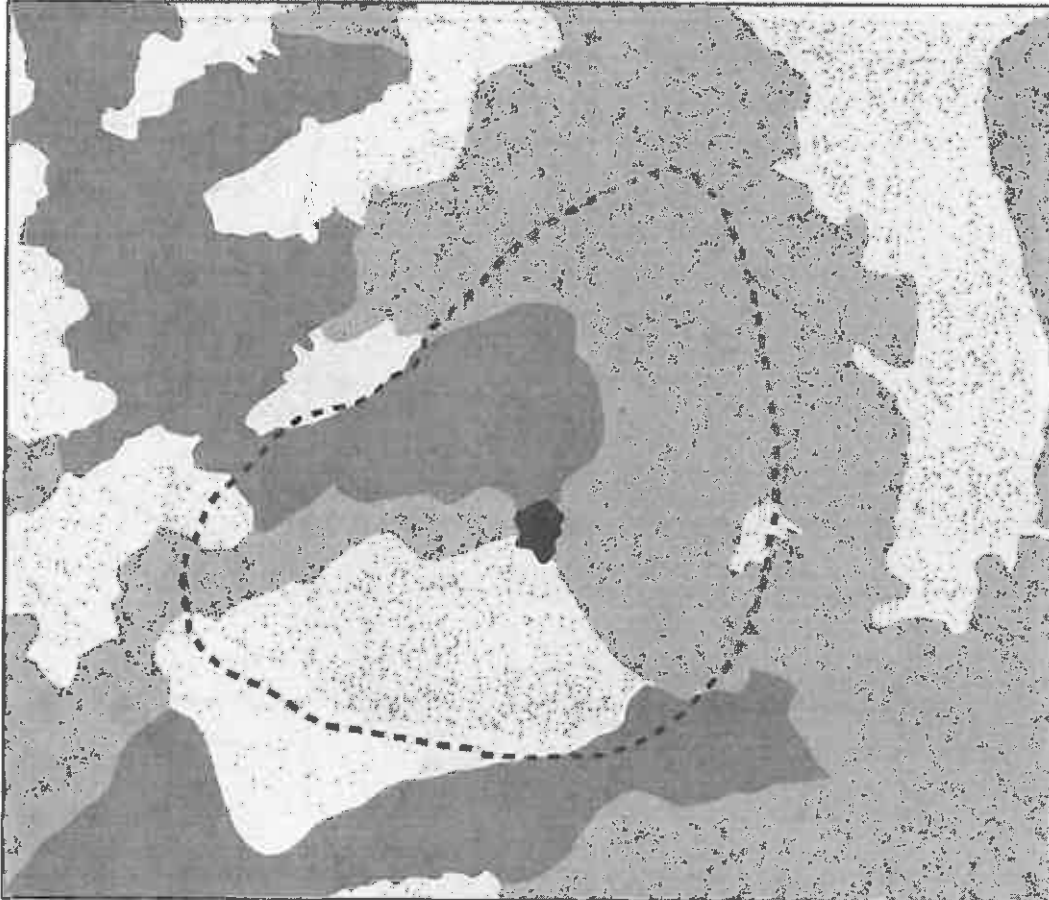
**Figure 2: Smith Butte Research Natural Area Land Ownership**



**Figure 3: Smith Butte Research Natural Area Access**

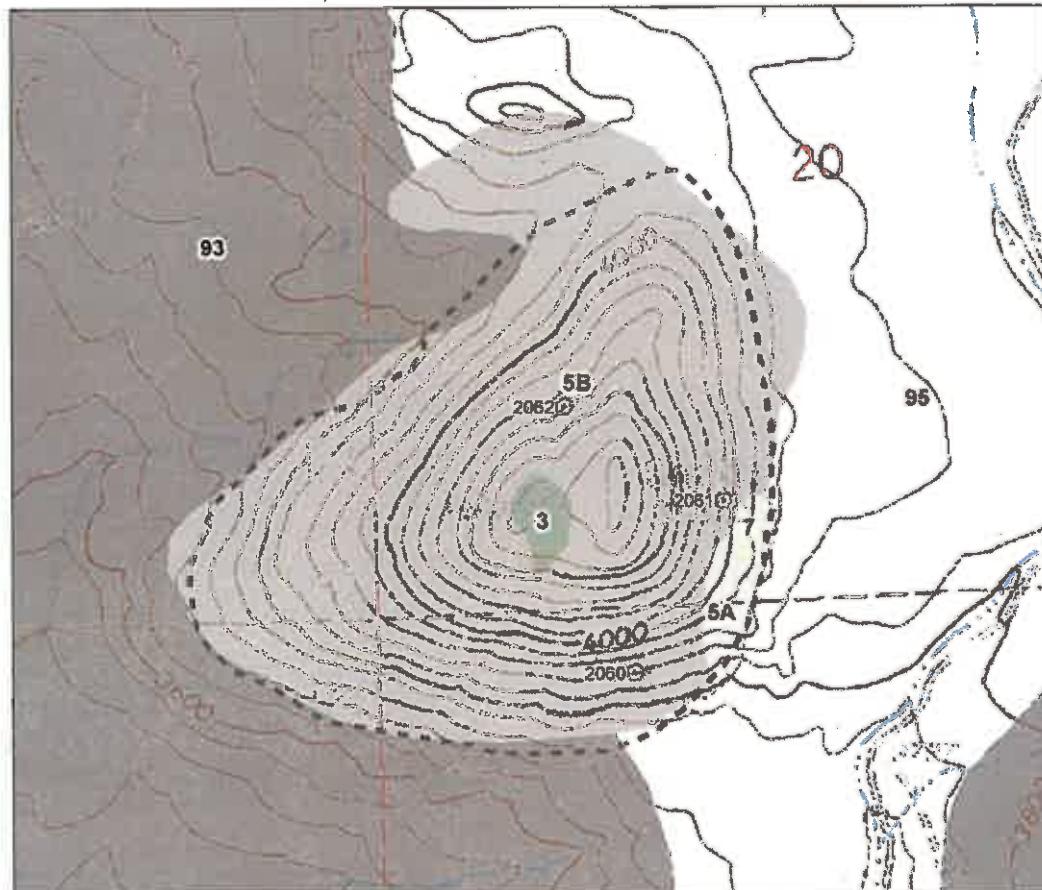


**Figure 4: Smith Butte Research Natural Area  
Potential Natural Vegetation**



1 inch equals  
approx. 0.15 mile

**Figure 5: Smith Butte Research Natural Area  
Soil Resource Inventory (SRI)**



**Legend**

**Ecology Plots - STOPNO**

260 •

**Soil Mapping Unit**

- 3 - Meadow
- 5A - Cinder cone, shallow sandy loam, gentle slope
- 5B - Cinder cone, shallow sandy loam, steep slope
- 7 - Rock outcrop/talus
- 93 - Shallow-mod. deep nonplastic soil derived from aeolian cinders and ash
- 95 - Shallow-mod. deep nonplastic soil derived from residuum and colluvium



1 inch equals  
approx. 0.15 mile

**Appendix A: Smith Butte Research Natural Area Boundary Description, prepared by Donald Karsch, PLS, Gifford Pinchot National Forest, 7/24/2001.**

The proposed Smith Butte Research Natural Area is within the Mt. Adams Ranger District of the Gifford Pinchot National Forest, Yakima County, State of Washington. This area is comprised of portions of Sections 19, 20, 29, and 30; Township 7 North, Range 11 East, Willamette Meridian. All coordinate values are UTM, based on the NAD 1927 datum. Actual called ground features will control the angle points and boundary positions. The RNA is more particularly bounded and described as follows:

Beginning at AP 1, a point at the southeasterly corner of a harvest unit in the NE ¼ of Section 30, T7N, R11E, W.M. said point being 150 meters (500 feet) easterly of the intersection of Forest Service Roads 8225110 and 8200181, (618048.9375, 5103067.000); thence northeasterly along the easterly edge of the harvest unit to AP 2, a point at the northeast corner of said harvest unit, (618211.625, 5103349.500); thence northeasterly approximately 120 meters (400 feet) to AP 3, a point at the southeasterly corner of a second harvest unit (618295.125, 5103404.500); thence northeasterly along the southeast edge of the harvest unit to AP 4, a point at the northeast corner of the harvest unit (618592.250, 5103583.000); thence northeasterly to AP 5, a point in a small draw between Smith Butte and an unnamed knob, (618785.0625, 5103818.000); thence northeasterly, ascending the draw to AP 6, a point which is the most northerly point of the Smith Butte RNA (619101.875, 5103955.000); thence southerly along the toe of the east slope of Smith Butte, the following angle points and UTM Coordinates: AP 6A (619199.750, 5103907.000), AP 7 (619256.000, 5103817.500), AP 8 (619284.0625, 5103619.500), AP 9 (619297.5625, 5103492.000), AP 10 (619303.6875, 5103307.000), AP 11 (619237.5625, 5103197.000), AP 12 (619087.1250, 5102934.500) a point that is 100 feet north of and perpendicular to the centerline of a sharp curve in Forest Service Road 8200181; thence southwesterly to AP 13, a point that is 100 feet north of and perpendicular to the centerline of curve in Forest Service Road 8200181 (618913.9375, 5102888.500); thence westerly along a line that is 100 feet northerly of and parallel to the centerline of Forest Service Road 8200181 to AP 14, a point that is 100 feet northerly of and perpendicular to the center line of Forest Service Road 8200181 to AP 14, a point that is 100 feet northerly of and perpendicular to the center line of Forest Service Road 8200181, (618128.0625, 5102979.500); thence northwesterly approximately 90 meters (300 feet) to the point of beginning at the southeasterly corner of the harvest unit. Said Smith Butte Research Natural Area contains approximately 897,420 square meters (220 acres), more or less.



# **DECISION NOTICE/ FOREST PLAN AMENDMENT And Finding of No Significant Impact**

Smith Butte Research Natural Area  
Gifford Pinchot National Forest, Mt. Adams Ranger District  
Yakima County, Washington  
T7N, R11E, Sections 19, 20, 29, and 30, Willamette Meridian

## **BACKGROUND**

An environmental assessment (EA) that discusses the designation of the Smith Butte Research Natural Area (RNA) on the Mt. Adams Ranger District is available for public review at the Forest Supervisor's Office, Gifford Pinchot National Forest in Vancouver, Washington.

The Smith Butte area was identified in the Gifford Pinchot National Forest (GPNF) Land and Resource Management Plan (LRMP) (USDA Forest Service 1990), as a "proposed" RNA based on the unique nature of the area, and recognition that designation of this area as an RNA would make an important contribution to the Natural Heritage network.

The proposed RNA consists of approximately 220 acres on the east side of the Mt. Adams Ranger District. Smith Butte itself is a volcanic cinder cone. From a base elevation of 3,700 feet, the sides of the Smith Butte cinder cone rise steeply, with an average slope of approximately 50 percent. Smith Butte was proposed for designation as a RNA in the Gifford Pinchot National Forest Land and Resource Management Plan (Forest Plan, 1990) in order to fill an element in the State of Washington Natural Heritage Program. The proposed RNA has been managed as a regular RNA since 1990. This project to "establish" the RNA is to formalize the designation and protect this area permanently.

The system of RNAs was established with the goal of allowing natural processes to dominate. RNAs preserve natural features and plant communities for research and educational purposes. The objectives of RNAs are (Franklin et al. 1972):

- to provide baseline areas against which the effects of human activities in similar environments can be measured;
- to provide sites for study of natural processes in undisturbed ecosystems;
- to provide gene pool preserves for plant and animal species.

The purpose of establishing the RNA in Smith Butte area is to contribute to a series of RNAs designated to "illustrate adequately or typify for research or education purposes, the important forest and range types in each forest region, as well as other plant communities that have special or unique characteristics of scientific interest and importance" (36 CFR 251.23). As the only mature grand fir zone forest on the eastern edge of the Gifford Pinchot National Forest that has not been entered for timber harvest, the proposed RNA in Smith Butte area contributes to this series of RNAs as representative of relatively cold, dry, grand fir plant communities that are not



currently adequately represented within the Natural Area system (Washington Natural Heritage Plan 1999).

In addition, the RNA contains an example of a relatively pristine dry meadow that hosts the mardon skipper butterfly (*Polites mardon*), a Forest Service sensitive species and a Washington State endangered species. An evaluation by the Regional RNA Committee of the need for RNAs, pursuant to direction in Forest Service Manual (FSM) 4063.04b, identified these types as suitable and desirable for inclusion in the national network. Establishment of the RNA in Smith Butte area provides long-term protection and recognition of this type.

A complete establishment record has been completed for the proposed Smith Butte RNA and is on file at the Mt. Adams Ranger District.

## **DECISION and DECISION RATIONALE**

We are deciding to select the Alternative A (the "Observation" alternative) as described in the *Smith Butte Research Natural Area Environmental Assessment* (Gifford Pinchot National Forest, 2013), with a modification. Specifically, we are deciding to amend the Forest Plan to officially designate the 220 acres located at T7N, R11E, Section 20 on the east side of the Mt. Adams Ranger District as a Research Natural Area.

The Observation alternative will allow ecological processes to proceed without active management intervention on Smith Butte, but in the presence of continuing fire suppression (under conditions specified in the Gifford Pinchot Fire Management Plan, 2004) as a form of passive management. A specific fire management plan for the Smith Butte RNA will be developed as part of the larger RNA Management Plan. Consistent with current Forest Service policy, Gifford Pinchot National Forest fire managers will make an initial attack fire suppression response on all human caused wildland fires, or where a Fire Management Plan has not been approved to allow fire use for resource benefit (Fire Management Plan, pg 6). The fire management plan will be designed to facilitate the potential use of prescribed fire or natural ignitions only if and when it is deemed necessary to facilitate or restore natural ecological processes. This alternative would allow invasive species control.

A RNA Management Plan will be developed in accordance with Forest Plan direction. In summary, RNA management would not include the objective of restoring the forested vegetation to prehistoric conditions (pre-fire suppression). Management of the area will discourage recreation use. The RNA will not be shown on maps intended for sale to the general public, and no special forest products permits would be issued for the RNA. Camping, plant collection, and berry picking will be prohibited, with the exception of traditional use by Native Americans with treaty rights. Off road vehicle use will continue to be prohibited. Smith Butte will be withdrawn from mineral entry after formal establishment.

The Regional Forester and Station Director shall establish a level of acceptable, casual, or incidental livestock use that can be tolerated and is consistent with the management prescription. This level shall be enforced through direction given in the annual operating instructions for the Mt. Adams Allotment, which encompasses Smith Butte, and through compliance monitoring. Timber harvest and firewood cutting will continue to be prohibited. Prescribed fire or fuels

treatment activities will not be permitted within the RNA. Fire management would comply with direction provided in the Gifford Pinchot National Forest Fire Management Plan (2004), and would emphasize the use of the appropriate suppression response; action resulting in the lowest suppression cost and least net loss to the resource while in compliance with land management direction would determine the appropriate suppression response.

We are modifying Alternative A to include control of woody vegetation encroachment into the meadow, as described in Alternative B, Active Management. Doing so meets the RNA objective of providing gene pool preserves for plant and animal species, by allowing long-term maintenance of habitat for the mardon skipper butterfly on Smith Butte. Control of woody vegetation encroachment is defined here as the removal of trees or woody shrubs, less than six inches in diameter, using hand loppers or hand saw, which will require no additional environmental analysis or public review.

Gifford Pinchot National Forest staff has re-examined the rationale to ensure that the environmental effects of establishing the area as an RNA have not changed since 1990 when the Forest Plan was established. This analysis is documented in the environmental assessment (EA). We selected Alternative A, as modified, because it provides long-term protection and recognition of the grand-fir type on the east side of the Gifford Pinchot National Forest, and provides opportunities for long-term observation of the development of the grand-fir type.

The purpose of establishing the Smith Butte RNA is to contribute to a series of RNAs designated to "illustrate adequately or typify for research or education purposes, the important forest and range types in each forest region, as well as other plant communities that have special or unique characteristics of scientific interest and importance" (36 CFR 251.23). As the only mature grand fir zone forest on the eastern edge of the Gifford Pinchot National Forest that has not been entered for timber harvest, the Smith Butte RNA contributes to this series of RNAs as representative of relatively cold, dry, grand fir plant communities that are not currently adequately represented within the Natural Area system. In addition, the proposed RNA contains an example of a relatively pristine dry meadow that hosts the mardon skipper butterfly (*Polites mardon*), a Forest Service sensitive species and Washington State endangered species. Establishment of the Smith Butte RNA provides long-term protection and recognition of this type.

This decision is a non-significant amendment to the Gifford Pinchot Land and Resource Management Plan. Formal designation of the RNA by the Regional Forester would amend the Forest Plan under the provisions of the 1982 planning regulations in accordance with 36 CFR 219.17(b)(3).

The regulations for forest planning under the 1982 National Forest Management Act (36 CFR Part 219) provide procedures for the Responsible Officials to amend a Forest Plan. The regulations state: "If the change resulting from the amendment is determined not to be significant for the purposes of the planning process, the Forest Supervisor may implement the amendment following appropriate public notification and satisfactory completion of NEPA procedures" (36 CFR 219.10(f)). The proposal to amend the Forest Plan was described in a scoping letter mailed to the public in 2005 and again in 2013.

Additional guidance on amending Forest Plans is provided in the Forest Service Manual 1900- Planning. Section 1926.51 of the manual describes non-significant amendments as:

- Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management;
- Adjustments of management area boundaries or management prescriptions resulting from further on-site analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management;
- Minor changes in standards and guidelines; and/or
- Opportunities for additional management practices that would contribute to achievement of the management prescriptions.

The RNA in the Smith Butte area would be designated Management Area Category Y in the Forest Plan, Prescription Y8. Proposed and designated RNAs in the Forest Plan are listed as Management Area Category – Y, and include the Management Prescriptions A8, YC, Y8, and W6. Standards and guidelines for these management prescriptions are noted in the Forest Plan. These standards and guidelines apply to proposed RNAs that are actively being evaluated for RNA status through the Forest Planning process (LRMP IV-138). Presently the area is being managed in accordance with this prescription so designation would not impact other programs or activities; therefore, officially designating the area would not be a significant amendment to the Forest Plan.

The Smith Butte RNA will be managed in compliance with all relevant laws, regulations, and Forest Service Manual direction regarding RNA, and in accordance with the management direction identified in the Forest Plan.

## **OTHER ALTERNATIVES CONSIDERED**

Two other alternatives considered were Alternative B (the “Active Management” alternative) and Alternative C (the “No Action” alternative). Alternative B would establish the RNA with an emphasis on active management designed to restore forest condition presumed to have existed in the absence of fire suppression. Such activities could have included prescribed fire; vegetation manipulation to reduce forest fuel loading (in preparation for prescribed fire); and control of woody vegetation encroachment into the meadow located on the summit. Management of the area would have discouraged recreation use. The No Action alternative would continue the management of Smith Butte as a proposed RNA in the short-term, but remove Smith Butte from consideration as a proposed RNA during the next Forest Plan revision.

Alternative B was not selected because it compromises one of the primary attributes of the proposed Smith Butte RNA: its status as the sole example of a mature, unmanipulated grand fir type forest on the eastern Gifford Pinchot National Forest. Alternative C was not selected because it would only provide short-term protection of the Smith Butte area. The team evaluating the establishment strongly felt that this area was still deserving of the designation and research attention that the Forest Plan proposed.

We have therefore selected Alternative A to establish Smith Butte as an RNA.

## **PUBLIC INVOLVEMENT**

The proposal of this RNA establishment was first initiated in 1998. It was re-initiated in 2005. Public scoping was conducted starting on March 7, 2005. Scoping letters were sent out to 43 recipients, including Federal and State agencies, the Yakama Indian Nation, recreational groups, environmental groups, and interested citizens. Four public scoping comments were received in response, all supportive of the designation. An additional scoping opportunity was offered in August 2013 because a significant amount of time had passed since the original scoping. Five public scoping comments were received, generally supportive.

A draft Environmental Assessment was sent out for a 30-day public comment period, beginning October 22, 2013. Seven comment letters were received based on the draft EA. The comments received were supportive of RNA establishment. Comments emphasized the need to actively discourage recreational use of the RNA, and address management of fire risk within the RNA and on adjacent lands. Based on the selected alternative, a detailed RNA management plan addressing these issues would be developed subsequent to the establishment of the RNA.

## **FINDING OF NO SIGNIFICANT IMPACT**

We find that this action is consistent with the Forest Plan, as amended by the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (USDA, USDI 1994).

We have determined through the EA that the proposed action is not a major Federal action that would significantly affect the quality of the human environment, therefore, an environmental impact statement is not needed. This determination is based on the following factors (40 CFR 1508.27):

### *Context:*

Although this is an addition to the national system of RNA, we find that both short-term and long-term physical and biological effects are limited to the local area. This decision officially designates 220 acres as an RNA on a 1.3 million acre forest.

### *Intensity:*

1. Adverse and beneficial impacts have been assessed and found to be not significant. The analysis considered not only the direct and indirect effects of the projects but also their contribution to cumulative effects (Fire Risk Management, EA, page 13; Wildlife Species of Concern, EA, pages 14, 17, 18; Management on RNA Objectives, EA, pages 15, 16; Hydrology and Aquatic Species of Concern, EA, Page 17; Botanical Species of Concern and Invasive Plants, EA, page 18, 19; Cultural Resource, EA, page 18; Recreation, EA, page 19). My finding of no significant environmental effects is not biased by the beneficial effects of the action. No significant cumulative or secondary effects were identified.

2. We find there will be no significant effects to public health and safety. No public health and safety issues were raised during scoping (EA, Appendix A, Response to Comments). Public access and use of the RNA is not encouraged and officially designating the RNA will not change recreational use.
3. We find there will be no significant effects on unique characteristics or ecologically critical areas, including historic or cultural resources, park lands, prime farmlands, rangelands, wetlands, or Wild and Scenic Rivers. No heritage resource properties which meet the criteria for inclusion in the National Register of Historic Places were documented in the Area of Potential Effect (APE) (EA, page 18; Heritage Resource Report). There are no other unique characteristics or ecologically critical areas in the area. Because these features do not exist within the RNA boundaries, there would be no effect to park lands, farmlands, or rangelands, wetlands or Wild and Scenic Rivers (EA, pages 19-21).
4. The effects on the quality of the human environment are not likely to be highly controversial. No comments were received from the public concerning the scientific controversy over the impacts of the project (EA, Appendix A, Response to Comments).
5. The Forest Service has experience designating lands as RNAs and we find that the effects are not uncertain, and do not involve unique or unknown risk.
6. We find this action is one of several similar actions undertaken on National Forest System lands and is not likely to establish a precedent for future actions with significant effects, or represent a decision in principle. The decision implements the Gifford Pinchot Forest Plan, as amended (EA, page 4).
7. We find the cumulative impacts are not significant. Cumulative impacts are addressed in Chapter 3 of the EA (Fire Risk Management, EA, page 13; Wildlife Species of Concern, EA, pages 15; Management on RNA Objectives, EA, pages 16).
8. We find the action will have no significant adverse effect on districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places. No heritage resource properties which meet the criteria for inclusion in the National Register of Historic Places were documented in the Area of Potential Effect (APE) (EA, page 18; Heritage Resource Report).
9. We have considered the degree to which the actions will adversely affect endangered or threatened species or their habitat that have been determined to be critical under the Endangered Species Act of 1973. There are no threatened, endangered or proposed plant or fish species located in the area affected by the designation; therefore there would be no effect to any federally-listed plant or fish species (EA, pages 17, 18). The only federally-listed wildlife species potentially present is the northern spotted owl. Designation of the RNA will not negatively affect habitat for spotted owl in the short term. In the long term, RNA designation could affect spotted owl habitat since it would preclude minor vegetation treatments that may be needed to maintain habitat, such as

treatments to reduce the effects of continued spruce budworm defoliation, or reduce the potential for stand replacing fires. It is unknown however, whether or not treatment would be needed in the future. Designating Smith Butte as a RNA under this alternative would have no effect on spotted owls in terms of ESA consultation.

10. We find the actions will not violate Federal, State, and local laws or requirements for the protection of the environment. Applicable laws and regulations were considered in the EA. The action is consistent with the Gifford Pinchot National Forest Land and Resource Management Plan as amended (EA, page 21).

## **NATIONAL FOREST MANAGEMENT ACT/ FOREST PLAN CONSISTENCY**

As required by the National Forest Management Act, this decision is tiered to the Final Environmental Impact Statement that was completed to inform the *Gifford Pinchot National Forest Land and Resource Management Plan* (1990) as amended by the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (1994) (EA, page 4).

There will be no adverse effects to Forest Service, Region 6 **sensitive species** (EA, pages 17, 18).

We have considered the effects to **management indicator species** (MIS) as disclosed in the EA (EA, page 17). MIS on the Gifford Pinchot National Forest include pileated woodpecker and other cavity excavating and late-successional species, pine marten, elk, deer, wood duck, and goldeneye duck, as well as habitat for cutthroat/steelhead and bull trout. There will be no impact to any of the management indicator species.

The project is consistent with the **Aquatic Conservation Strategy** (ACS) objectives. A complete ACS evaluation that includes a description of the existing condition, important physical and biological components of the watersheds within the planning area, and how the action maintains the existing condition or moves it within the range of natural variability was included in the EA (EA, page 17). As a result of that analysis we find that the designation “meets” or “does not prevent attainment” of the Aquatic Conservation Strategy objectives.

## **OTHER LAWS AND REGULATIONS**

We find this action does not violate other Federal, State, or local laws designed for the protection of the environment. Laws that were considered include the Clean Water Act, the Endangered Species Act, the Sustainable Fisheries Act (EA, page 21).

## **ADMINISTRATIVE REVIEW/ OBJECTION PROCESS**

The final Environmental Assessment (EA) and a draft of this decision was published for a 45-day objection period under 36 CFR 219, Subpart B which began on February 12, 2015. The objection process included in Subpart B of 36 CFR 219 gives an individual or entity an opportunity for an independent Forest Service review and resolution of issues

before the approval of the plan amendment. Only supportive emails were received during this time.

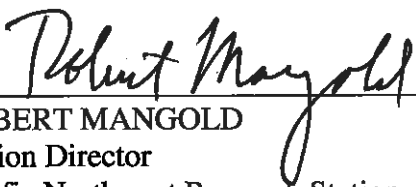
**IMPLEMENTATION DATE**

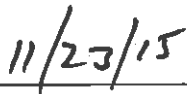
Implementation of this decision may occur following the objection period. If no objections are received, implementation may occur immediately upon a final signed decision. If an objection is received, the timing of implementation may not occur until resolution of the objection has occurred.


**CONTACT**

For additional information concerning this draft decision or the Forest Service objection process, contact Erin Black, South Zone Planning Team Leader, during normal office hours (weekdays, 8:00 a.m. to 4:30 p.m.) at the Mt. Adams Ranger District office, Phone: (509) 395-3411; e-mail: ekblack@fs.fed.us.

**APPROVED BY:**

  
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ROBERT MANGOLD  
Station Director  
Pacific Northwest Research Station

  
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Date

  
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JAMES PENA  
Regional Forester  
Pacific Northwest Region

  
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Date