SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Wechee Butte Research Natural Area

Deschutes National Forest

Deschutes County, Oregon

The undersigned certify that all applicable land management planning and environmental analysis requirements have been met and that boundaries are clearly identified in accordance with FSM 4063.21 Mapping and Recordation, and FSM 4063.41, Establishment Record Content, in arriving at this recommendation

Prepared by _____ Date 4/19/15
Richard E. Brainerd, Senior Botanist, Carex Working Group, LLC

Reviewed by _____ Date 4/24/15
Robin Vora, RNA Program Manager, Deschutes National Forest Service

Recommended by _____ Date 4/27/15
Kevin Larkin, District Ranger, Bend-Fort Rock Ranger District

Recommended by _____ Date 4/28/15
John Allen, Forest Supervisor, Deschutes National Forest

Concurrence of _____ Date 5/5/15
Robert Mangold, Station Director, Pacific Northwest Research Station

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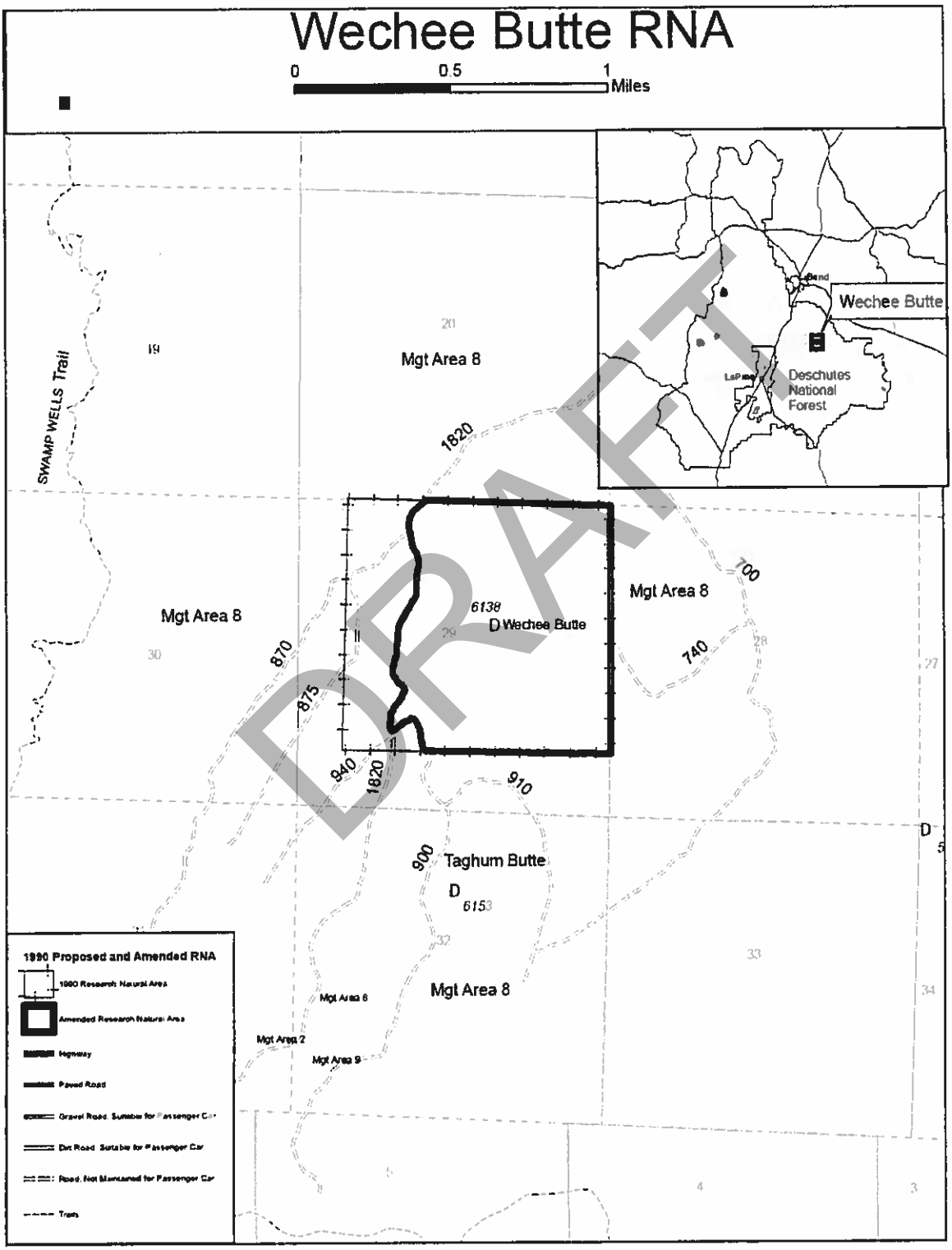
LOCATION AND BOUNDARY MAP

Figure 1. Location and boundary map of Wechee Butte Research Natural Area, Deschutes National Forest.



LEGAL DESCRIPTION

WECHEE BUTTE RESEARCH NATURAL AREA BOUNDARY DESCRIPTION

The boundary of the RNA begins at the NE section corner of Sec. 29, Township 20 South, Range 13 East, Willamette Meridian, in Deschutes County, Oregon and follows the section line west to where it intersects Forest Road 1820, thence southerly along the road to the intersection with the 900 road, thence easterly along the 900 road to a point where it intersects a line which runs east to the East line of section 29, thence north to the point of beginning. The section corner positions and the angle point coordinates were generated using GIS. The positions are given in the Oregon State Plane Coordinate System, South Zone, NAD 1983, and are to the nearest foot (0.3048 meter). Bearings are listed to the nearest 10 seconds and distances to the nearest foot (0.3048 meter). If this area is formally surveyed in the future, the GIS coordinates provided here may change slightly to meet the intended conditions on the ground (e.g. road intersection, formal section corner). The resulting area is approximately 333 acres (134.8 ha), more or less.

NARRATIVE

Point 1
Beginning at the map position of the NE corner of Section 29, T.20 S., R.13 E. which has a coordinate value of: N. 784942, E. 4739769;

Thence N.88°36'10"W., 3115 ft. on the assumed Section line to;

Point 2
A point with a coordinate value of: N. 785018, E. 4736654; which is the on the assumed section line and is 100 feet (30.48 meters) East of the centerline of Forest Road 1820;

Thence Southerly paralleling and perpendicular to and 100 feet (30.48 meters) Easterly from the centerline of said road to;

Point 3
A point with a coordinate value of: N. 781173, E. 4736385; 100 feet (30.48 meters) Northeasterly from the intersection of the centerlines of Forest Roads 1820 and 1820-900;

Thence generally North Easterly then South Easterly, paralleling and 100 feet (30.48 meters) perpendicular to the centerline of Forest Road 1820-900, to;

Point 4
A point with a coordinate value of: N. 780774, E. 4736661; 100 feet (30.48 meters) from and perpendicular to Forest Road 1820-900.

Thence, S.89°18'20"E., 3129 feet (953.7 meters) to

Point 5
A point on the assumed East line of Section 29 with a coordinate value of: N. 780736, E. 4739790.

Thence Northerly, along the assumed section line, 4206 feet (1282 meters), to the point of beginning.

Description written by Bill Ham,
Boundary Manager, Sept. 27, 2009

ESTABLISHMENT RECORD FOR THE WECHEE BUTTE RESEARCH NATURAL AREA WITHIN DESCHUTES NATIONAL FOREST, DESCHUTES COUNTY, OREGON

A. INTRODUCTION

Wechee Butte Research Natural Area (RNA) occupies approximately 333 acres (135 ha) within the Deschutes National Forest, in the High Lava Plains physiographic province (Franklin and Dyrness 1973) and the East Cascades Ecoregion, Pumice Plateau Forest subregion of Oregon (Oregon Natural Heritage Program 2003. The RNA is located on the Central Oregon pumice plateau, an area of numerous small cinder cones, extensive pumice deposits, and young lava flows. Almost 300 acres (121 hectares) of the RNA is occupied by Wechee Butte, a forested cinder cone that rises 360 feet (110 meters) above the surrounding terrain. The cinder cone contains a crater whose northern rim is breached to the northwest. The bottom of the crater lies approximately 120 feet (37 meters) below the northeast rim of the cone and 10 feet (3 meters) below the southwest rim.

The forest within the RNA has not been subject to tree harvest or other human manipulation. Most of the RNA is dominated by lodgepole pine (*Pinus contorta*). Pure stands of ponderosa pine (*Pinus ponderosa*) exist on the southern exposures, the crater rim and on upper slopes of the cone. On northern aspects at midslope whitebark pine (*Pinus albicaulis*) and white fir x grand fir hybrid (*Abies concolor x grandis*) occur as non-dominant species in lodgepole and ponderosa pine dominated stands.

B. JUSTIFICATION

JUSTIFICATION STATEMENT

Wechee Butte fulfills a unique RNA network need for representation of an entire undisturbed cinder cone at mid-elevation with ponderosa pine-lodgepole pine climax (Oregon Natural Heritage Program 2003). It also fills a cell need for additional representation of a lodgepole pine/bitterbrush (*Purshia tridentata*)/western needlegrass (*Achnatherum occidentale*) community and a ponderosa pine/greenleaf manzanita (*Arctostaphylos patula*) community.

PRINCIPAL DISTINGUISHING FEATURES

Wechee Butte RNA contains an entire forested cinder cone. Lodgepole pine-bitterbrush plant communities occur as pole stands throughout the area, including within the crater, and as dense lodgepole thickets on the northeast slope of the cinder cone. At midslope

on east and west aspects, this lodgepole community transitions into a ponderosa pine-manzanita (*Arctostaphylos patula*) community, with nearly pure ponderosa pine stands occurring on the south slopes and on the south crater rim. A mixed conifer forest, comprised of lodgepole pine, ponderosa pine, whitebark pine and white fir exists at midslope on the north side of the cone The herbaceous layer throughout the RNA is sparse. Surface soils range from sandy loam to red cinders, with a few outcroppings of volcanic bedrock. Slopes vary from 5 to 10 percent in areas surrounding the cone to as much as 40 percent near the crater rim

OBJECTIVE

The objective of the Wechee Butte RNA is to protect the ecological processes represented by the biotic communities found within the RNA, to provide a reference area for determining long-term intrinsic ecological changes, and to serve as a benchmark for comparison with intensively used or managed sites supporting similar vegetation.

C. LAND MANAGEMENT PLANNING

Wechee Butte RNA was included as a proposed RNA in the Land and Resource Management Plan (LRMP) of the Deschutes National Forest (USDA Forest Service 1990a) and the Final Environmental Impact Statement (FEIS) for the LRMP (USDA Forest Service 1990b).

The boundaries of the RNA have been amended to exclude roads and an area that was harvested for timber in the 1980's. The original acreage of the RNA proposed in the 1990 LRMP was 437 acres (177 hectares). The amended acreage is 333 acres (135 hectares).

D. MANAGEMENT PRESCRIPTION

The Headwaters Cultus River RNA is included, along with other established and proposed RNAs, in the Deschutes National Forest Plan in Management Area 2, Research Natural Areas (USDA Forest Service 1990a). Management of the RNA will be directed toward maintaining natural ecological processes and conditions. Activities such as logging, livestock grazing and mining will be prohibited. Recreational use will not be encouraged. No new roads or trails will be constructed. Management actions commensurate with RNA objectives may be taken to control or eradicate noxious weeds or exotic species, including the use of herbicides or biological control organisms. Any pest management activities will be as specific as possible against target organisms and will be designed to induce minimal impact to ecosystem processes. The standards and guidelines for management of MA-2 are described in the Forest Plan pages 4-92 to 4-93.

E. APPENDICES

Documentation for natural diversity elements can be found in Appendix E page 71 of the FEIS for the Deschutes National Forest LRMP (USDA Forest Service 1990b). Cells represented by Wechee Butte RNA are documented in the Oregon Natural Heritage Plan, Chapter 10, page 99 (Oregon Natural Heritage Program 2003).

ECOLOGICAL EVALUATION

A. PHYSICAL SITE DESCRIPTION AND CLIMATIC CONDITIONS

LOCATION

Wechee Butte RNA is located in the Deschutes National Forest on the Bend-Fort Rock Ranger District in Deschutes County, Oregon (Figure 1). The approximate center of the RNA is at latitude 43° 48' 45" North and longitude 121° 11' 41" West (Map datum: NAD 1983). The RNA is located in Section 29 of Township 20 South, Range 13 East, Willamette Meridian, approximately 18 air miles (29 kilometers) south-southeast of Bend, Oregon and 6 miles (10 kilometers) north of East Lake.

AREA

Total area for Wechee Butte RNA is approximately 333 acres (135 hectares).

ELEVATION RANGE

Elevations within the RNA range from about 5625 feet (1715 meters) at the northeast corner of the RNA to 6138 feet (1871 meters) at the summit of the cinder cone.

ACCESS

Wechee Butte RNA can be accessed from Forest Service Road 1820 which runs along the western edge of the RNA. There is a 100 foot (30.5 meter) buffer between FS Road 1820 and the RNA boundary. From the intersection of US Highways 97 and 20 in Bend, Oregon, take U.S. Highway 97 south 5.1 miles (8.2 kilometers) to the Baker Road/Knott Road interchange. Turn left (east) on Knott Road and go 1.4 miles (2.3 kilometers) to China Hat Road. Turn right on China Hat Road and go 11.1 miles (19.1 kilometers) to Forest Service Road 1820. Turn right (south) on FS Road 1820 and go 8.2 miles (13.2 kilometers) to a point 100 feet (30.5 meters) west of the northwest corner of the RNA. From this point FS Road 1820 runs 100 feet (30.5 meters) west of the western boundary of the RNA for approximately 0.75 mile (1.2 kilometer). The RNA can be accessed by travelling east on foot from FS Road 1820.

CLIMATIC DATA

The central Oregon climate is characterized by warm summers and cold winters. Most of the limited precipitation falls as snow during the winter with some rainfall occurring in the spring. Frost can occur in any month of the year. The frost-free season is very short with the average growing season approaching only 100 days. Summers are typically dry with high daytime temperatures and cool nighttime temperatures. Winds during the summer are typically light and from the northwest. During spring and fall, very strong easterly winds may occur, increasing fire hazards. Winter snowstorms generally come from the southwest with occasional frigid storms from the northwest.

Pine Mountain Observatory, Oregon, is the closest recording National Oceanographic and Atmospheric Administration (NOAA) weather station, and is located approximately 14 miles (22.5 kilometers) to the east at an elevation of 6348 feet (1935 meters) above sea level. The Pine Mountain Observatory station has a mean annual temperature of 40.8° F (4.9° C) and receives average annual precipitation of 11.07 inches (28.1 cm). Nearly half of the annual precipitation falls between November and February. Summer high temperatures regularly reach into the 80's F (27-31° C), while winter lows often drop into the 20's F (-6.6 to -1.6° C). Monthly climatic data for Pine Mountain Observatory are illustrated in Figures 2 and 3.

Figure 2. Average monthly temperature and precipitation data for Pine Mountain Observatory, Oregon between 1961 and 1990. Weather records for the Pine Mountain Observatory were only recorded from April 1, 1968 to September 30, 1981, approximately 13 years (National Oceanic Atmospheric Administration 2000).

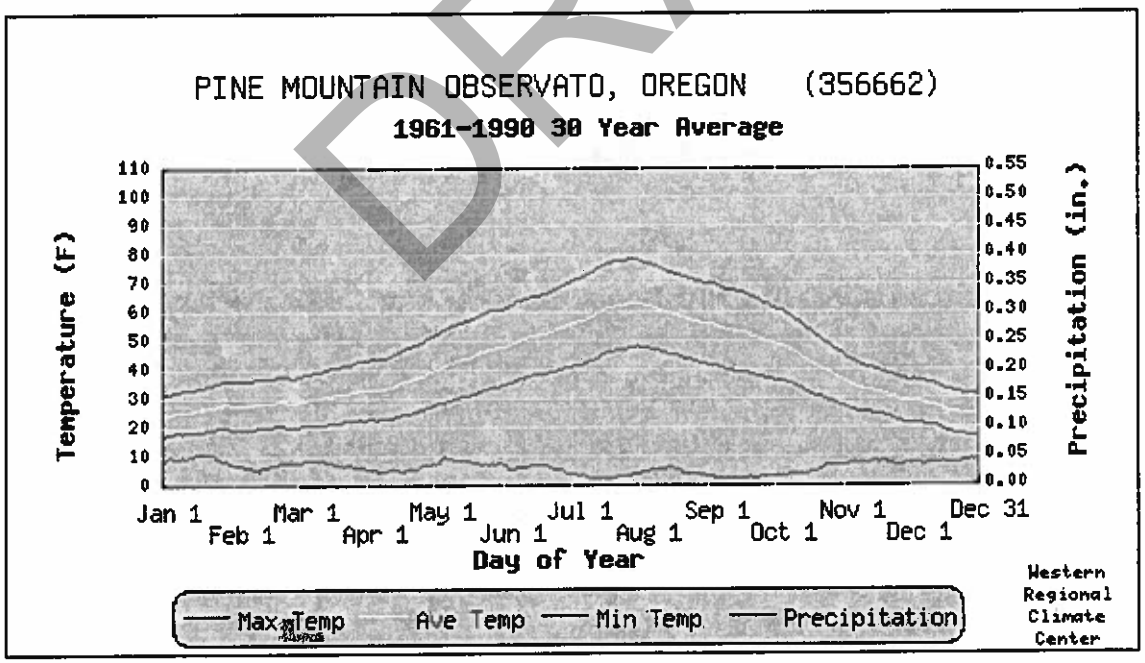
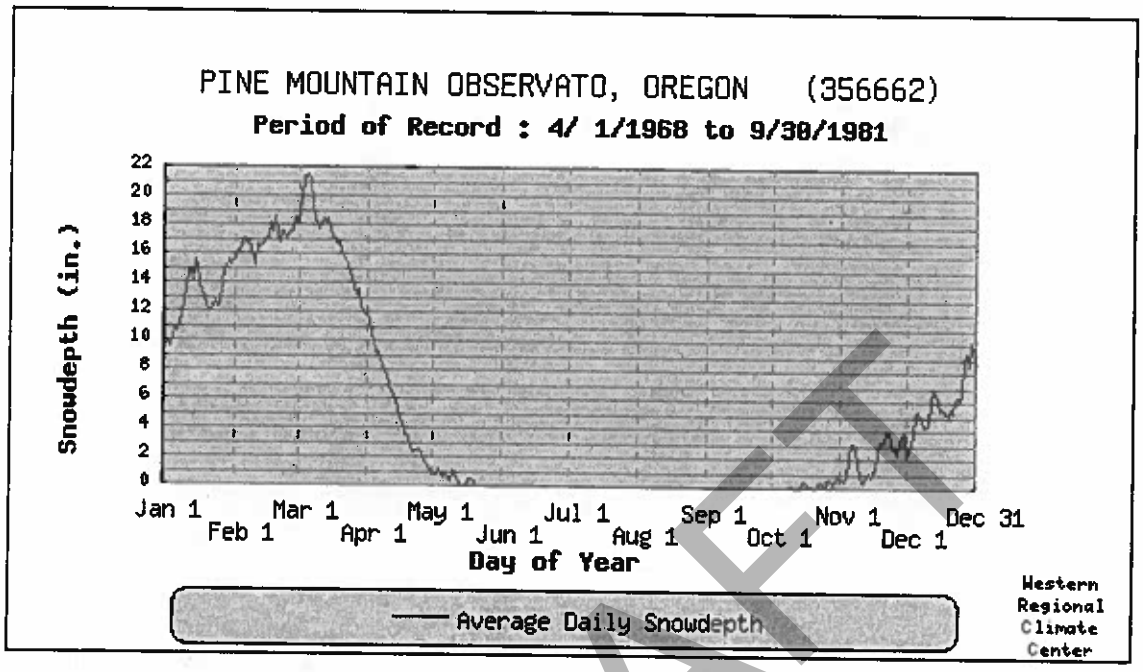


Figure 3. Average daily snow depth data for Pine Mountain Observatory, Oregon between 1968 and 1981. Weather records for the Pine Mountain Observatory were only recorded from April 1, 1968 to September 30, 1981, approximately 13 years (National Oceanic Atmospheric Administration 2000).



B. ECOLOGICAL DESCRIPTION

ECOREGION

Wechee Butte RNA is located in the Humid Temperate Domain, Marine Division/Marine Regime Mountains, Cascade Mixed Forest – Coniferous Forest Province, Eastern Cascades Section (Bailey 1994).

Thorson et al. (2003) placed Wechee Butte RNA in the Northwestern Forested Mountains, Western Cordillera, East Cascades Ecoregion, Pumice Plateau Forest subregion of Oregon.

VEGETATION TYPES

The vegetation of Wechee Butte RNA has not been studied or mapped in detail. Two plant association groups are mapped by the Deschutes National Forest within the RNA: Lodgepole Pine (*Pinus contorta)* Dry and Ponderosa Pine *(Pinus ponderosa)* Dry (Figure 4, Table 1).

Figure 4. Plant association groups of Wechee Butte Research Natural Area.

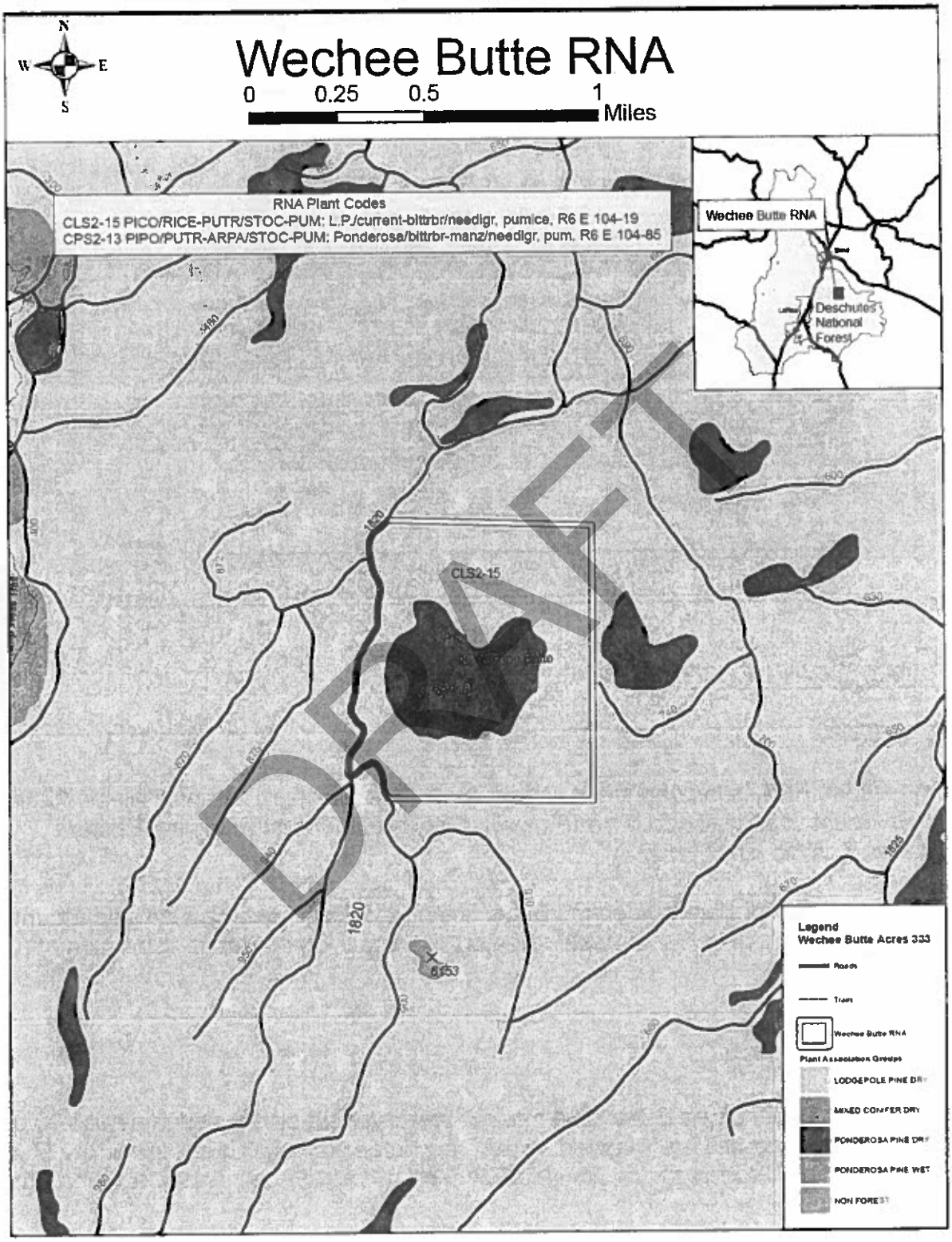


Table 1. Plant association groups and acreages within Wechee Butte Research Natural Area.

Plant Association Group	Acres	Hectares
Lodgepole Pine Dry	243	98.5
Ponderosa Pine Dry	90	36.5

The DNF LRMP FEIS (USDA Forest Service 1990b) identified two lodgepole pine plant associations and one ponderosa pine plant association within the RNA: Lodgepole pine/bitterbrush (*Purshia tridentata*)/western needlegrass (*Achnatherum occidentale*), Lodgepole pine/wax currant (*Ribes cereum*)-bitterbrush/western needlegrass, and Ponderosa pine/bitterbrush-greenleaf manzanita (*Arctostaphylos patula*)/western needlegrass. The current plant association guide for the Deschutes National Forest (Simpson 2007) groups the two lodgepole pine associations into the Lodgepole pine/bitterbrush/western needlegrass association and the ponderosa pine association is included in the Ponderosa pine/greenleaf manzanita association.

The Lodgepole pine/bitterbrush/western needlegrass association is restricted to ash and pumice soils with poor cold air drainage (Simpson 2007). Lodgepole pine forms open forest to savanna and the shrub layer is dominated by bitterbrush. Western needlegrass is the primary herbaceous plant. Squirreltail (*Elymus elymoides*), Ross' sedge (*Carex rossii*) and broadpetal strawberry (*Fragaria virginiana*) also occur regularly. Within Wechee Butte RNA this plant association occurs on the cinder cone on the north slope, lower portions of the east and west slopes, in the crater, and on the surrounding flats.

The Ponderosa pine/greenleaf manzanita association occurs mostly on Mazama ash (Simpson 2007). Overstory layers are dominated by ponderosa pine though lodgepole pine can be present in frost pockets or where there is a mixed fire regime. Greenleaf manzanita, bitterbrush and snowbrush (*Ceanothus velutinus*) dominate the understory. Herbaceous cover is sparse and is commonly comprised of western needlegrass, squirreltail, Ross' sedge, and broadpetal strawberry. Within the RNA this plant association is found on the summit, south side and upper portions of the east and west sides of the cinder cone.

Mapping of existing vegetation utilizing satellite imagery shows six vegetation classes within the RNA (Table 2).

Table 2. Existing vegetation classes and acreages within the Wechee Butte Research Natural Area.

Vegetation Class	Acres	Hectares
Lodgepole pine	233.1	94.3
Ponderosa pine	57.4	23.2
Lodgepole-Ponderosa mix	35.6	14.4
White fir x Grand fir hybrid	0.6	0.2
Grass	5.5	2.2
Rocks/sparse vegetation	0.8	0.3

Forests of the Central Oregon Pumice Zone are typically comprised of lodgepole and ponderosa pine. These forests have developed on immature, coarse-textured and droughty pumice soils. At Wechee Butte RNA lodgepole pine constitutes approximately 80 percent of all trees, ponderosa pine about 20 percent, and whitebark pine and white fir x grand fir hybrid less than 1 percent each. Lodgepole pine appears to be the major climax species throughout the RNA, based on reproductive success. Forest composition within the RNA changes with slope, aspect, topography and soil type. These factors affect available moisture and temperature ranges. Changes in forest communities appear to be closely related to the moisture holding capacity of the soils and minimum night-time temperatures during the growing season (USDA Forest Service 1990b).

Ecologically, plant communities encountered in the Wechee Butte RNA are typical of the pumice plateau of south-central Oregon. This area is characterized by a short growing season, low summer precipitation and wide diurnal temperature fluctuations. Lodgepole pine stands are generally situated on nearly level terrain or in depressions where cold air drainage from surrounding slopes produces substantially lower nighttime temperatures. In these situations, where the soil is well drained, lodgepole pine is considered to be a topoedaphic climax due to its greater resistance to low temperatures. Ponderosa pine occupies drier sites than lodgepole pine and often does better on coarser textured soils. Studies indicate that the distribution of ponderosa pine is closely correlated with available soil moisture, soil texture, and temperature (USDA Forest Service 1990b).

The lodgepole pine/bitterbrush/needlegrass community occurs in the relatively flat areas of the RNA surrounding the butte and in the crater, with slopes from 5 to 10 percent, and on the lower 2/3 on the east side and the lower 1/3 on the west side of the cinder cone, with slopes up to 35 percent. In the flats surrounding the cone, lodgepole pine occurs in an all-age stand with an average basal area of 100 feet^2/acre (23.0 meters^2/hectare), average tree height of 60 feet (18.3 meters), and average diameter at breast height (dbh) of 10 inches (25 centimeters). The largest lodgepole pines reach 100 feet (30.5 meters) in height and 14 inches (36 centimeters) dbh. Large ponderosa pines are scattered throughout this community with average basal area of 30 feet^2/per acre (6.9 meters^2/hectare. The largest ponderosa pines measure 100 feet (30.5 meters) tall and 40 inches (102 centimeters) dbh. A small amount of ponderosa pine and whitebark pine is present as regeneration up to 20 feet (6.1 meters) in height. No mature whitebark pines

have been located in the RNA. The shrub layer in this community is dominated by bitterbrush which has been heavily browsed by deer. Wax currant is scattered throughout the unit. The herb layer is sparse and dominated by broadpetal strawberry. Other common but sparse understory species include tailcup lupine *(Lupinus caudatus*), western yarrow (*Achillea millefolium*), fireweed *(Chamerion angustifolium),* prince's pine *(Chimaphila umbellata),* squirreltail (*Elymus elymoides*), and long-stolon sedge (*Carex inops* ssp. *inops*). Lodgepole pine forms dense thickets in the north-eastern portion of the RNA with average basal area of 140 feet^2/acre (13.0 meters^2/hectare). In this area trees average 40 feet (12.2 meters) in height and 5 inches (13 centimeters) dbh, with the largest measuring 60 feet (18.3 meters) tall, and 8 inches (20 centimeters) dbh. Understory vegetation is identical to that just described, but less abundant. On the lower 2/3 of the east slope of the butte the stand is dominated by a nearly even mix of ponderosa pine and lodgepole pine. The shrub layer contains some green-leaf manzanita but most has died. The herb layer is extremely sparse. The crater supports a dense pole stand of lodgepole averaging 60 feet (18.3 meters) tall and 8 inches (20 centimeters) dbh, with the largest trees reaching II0 feet (33.5 meters) tall and 12 inches 30 centimeters) dbh. A few large ponderosa pines occur in the crater, no shrub layer exists, and dominant understory species are broadpetal strawberry and Nevada bluegrass *(Poa secunda* ssp. *juncifolia*). On the lower third of the west side of the butte ponderosa pine and whitebark pine are found only as regeneration. There is no shrub layer and the herb layer is dominated by broadpetal strawberry, with prince's pine, tailcup lupine, Holboell's rockcress (*Arabis holboellii*), and broadseed rockcress (*Arabis platysperma*) also present.

A lodgepole pine/wax currant-bitterbrush/western needlegrass community occurs on the moister north side of the butte, on 30 to 35 percent slopes. Average basal area of lodgepole pine is 110 feet^2/acre (25.3 meters^2/hectare, and the trees average 60 feet (18.3 meters) in height and 6 inches (15 centimeters) dbh. The largest trees are 70 feet (21.3 meters) tall and 9 inches (23 centimeters) dbh. A few ponderosa pines of all ages are present with the largest reaching 100 feet (30.5 meters) in height and 30 inches (76 centimeters) dbh. A few whitebark pine saplings and one white fir x grand fir hybrid are present in this area. Bitterbrush is absent and the only shrub component is sticky currant (*Ribes viscosissimum*), which is found nowhere else in the RNA. Broadpetal strawberry is dominant in the herbaceous layer over sparse prince's pine and fireweed. Unique to this unit are three woods wintergreen species, sidebells pyrola (*Orthilia secunda*), toothleaf pyrola (*Pyrola dentata*) and whitevein pyrola (*Pyrola picta*).

A ponderosa pine/bitterbrush-greenleaf manzanita/western needlegrass community occupies the rim and south slope of the cinder cone, the top 1/3 of the east slope, and the top 2/3 of the west slope of the butte, on slopes up to 30 percent. On the crater rim the basal area of ponderosa pine ranges from 80 feet^2/acre (18.4 meters^2/hectare) on the south rim to 120 feet^2/acre (27.5 meters^2/hectare) on the northeast rim. All ages of ponderosa pine are represented with a few pole-sized lodgepole also present. On the summit of the butte numerous ponderosa pines attain heights up to 100 feet (30.5 meters) and diameters of 36 inches (91 centimeters). Many of these large trees have broken or dead tops and multiple stems. The shrub layer in this area is composed entirely of greenleaf manzanita and bitterbrush, with the bitterbrush varying from weak subordinate

to strong co-dominant. Common herbs are smallflowered blue-eyed Mary *(Collinsia parviflora)*, dwarf purple monkey-flower *(Mimulus nanus)*, and Nevada bluegrass. The east and west slopes of the cone have very little understory vegetation and a large amount of dead manzanita.

The vegetation of this RNA corresponds with the National Vegetation Classification System at the floristic classification level of alliance. (Federal Geographic Data Committee 2008)

DESCRIPTION OF VALUES

Wechee Butte RNA represents an entire, undisturbed, mid-elevation forested cinder cone with ponderosa pine and lodgepole pine climax vegetation in the East Cascades Ecoregion, Pumice Plateau Forest subregion.

Vegetation in the RNA provides good representation of the following plant communities:

- Lodgepole pine/bitterbrush/western needlegrass
- Ponderosa pine/bitterbrush-greenleaf manzanita/western needlegrass

The flora and fauna of Wechee Butte RNA have not been systematically inventoried; however, some plant species were documented during informal site visits (USDA Forest Service 1990a) and a list of wildlife species that potentially use the area has been compiled (see below).

Flora List

The flora of Wechee Butte RNA has not been systematically studied. Table 3 lists plant species that have been observed in the RNA.

Table 3. Plant species list for Wechee Butte Research Natural Area. Nomenclature follows the PLANTS Database (USDA NRCS 2009), the Oregon Flora Project (2009), and Flora North America (1993+).

Scientific name	Common name
Trees	
Abies concolor x grandis	white fir x grand fir hybrid
Pinus albicaulis	whitebark pine
Pinus contorta var. *latifolia*	lodgepole pine
Pinus ponderosa var. *ponderosa*	ponderosa pine

Shrubs

Arctostaphylos patula	greenleaf manzanita
Purshia tridentata	bitterbrush
Ribes cereum var. *cereum*	wax currant
Ribes viscosissimum	sticky currant

Forbs

Achillea millefolium	common yarrow
Arabis holboellii	Holboell's rockcress
Arabis platysperma	broadseed rockcress
Arceuthobium americanum	lodgepole pine dwarf mistletoe
Chamerion angustifolium var. *canescens*	fireweed
Chimaphila umbellata	pipsissewa
Claytonia perfoliata	miner's lettuce
Collinsia parviflora	small-flowered blue-eyed Mary
Cryptantha ambigua	obscure cryptantha
Eriogonum umbellatum	sulfur buckwheat
Erysimum capitatum var. *capitatum*	rough wallflower
Fragaria virginiana var. *platypetala*	broadpetal strawberry
Lupinus caudatus	tailcup lupine
Mimulus nanus	dwarf purple monkeyflower
Orthilia secunda	sidebells pyrola
Penstemon humilis var. *humilis*	low beardtongue
Phacelia hastata	whiteleaf phacelia
Pterospora andromedea	pinedrops
Pyrola dentata	toothleaf pyrola
Pyrola picta	whitevein pyrola

Graminoids

Achnatherum occidentale	western needlegrass
Carex inops ssp. *inops*	long-rhizome sedge
Carex rossii	Ross' sedge
Elymus elymoides	squirreltail
Festuca idahoensis	Idaho fescue
Poa secunda ssp. *juncifolia*	Nevada bluegrass

Fauna List

The fauna of Wechee Butte RNA has not been systematically studied or inventoried. Table 4 lists potentially occurring terrestrial vertebrates (Oregon State University 2009). No information on invertebrates is available for the RNA.

Table 4. Potential fauna list for Wechee Butte RNA (Oregon State University 2009). Key: E = exotic (non-native) species; * = taxa with Oregon Natural Heritage Information Center status (Oregon Natural Heritage Information Center 2007, 2009).

Scientific name	Common name
Amphibians	
Scaphiopodidae	
Spea intermontana	Great Basin spadefoot
Bufonidae	
*Bufo boreas**	Western toad
Hylidae	
Pseudacris regilla	Pacific chorus frog
Reptiles	
Anguidae	
Elgaria coerulea	Northern alligator lizard
Phrynosomatidae	
Phrynosoma douglasii	Short-horned lizard
*Sceloporus graciosus**	Sagebrush lizard
Sceloporus occidentalis	Western fence lizard
Uta stansburiana	Side-blotched lizard
Scincidae	
Eumeces skiltonianus	Western skink
Colubridae	
Coluber constrictor	Racer
Hypsiglena torquata	Night snake
Masticophis taeniatus	Striped whipsnake
Pituophis catenifer	Gopher snake
Thamnophis elegans	Western terrestrial garter snake
Thamnophis sirtalis	Common garter snake
Viperidae	
*Crotalus oreganus**	Western rattlesnake
Boidae	
Charina bottae	Rubber boa

Birds

Cathartidae	
Cathartes aura	Turkey vulture
Accipitridae	
Accipiter cooperii	Cooper's hawk
*Accipiter gentilis**	Northern goshawk
Accipiter striatus	Sharp-shinned hawk
Aquila chrysaetos	Golden eagle
Buteo jamaicensis	Red-tailed hawk
Circus cyaneus	Northern harrier
Falconidae	
Falco mexicanus	Prairie falcon
Falco sparverius	American kestrel
Charadriidae	
Charadrius vociferus	Killdeer
Columbidae	
Columba livia (E)	Rock pigeon
Zenaida macroura	Mourning dove
Strigidae	
Aegolius acadicus	Northern saw-whet owl
Asio flammeus	Short-eared owl
Asio otus	Long-eared owl
*Athene cunicularia**	Burrowing owl
Bubo virginianus	Great horned owl
Glaucidium gnoma	Northern pygmy-owl
Megascops kennicottii	Western screech-owl
*Otus flammeolus**	Flammulated owl
Caprimulgidae	
*Chordeiles minor**	Common nighthawk
Phalaenoptilus nuttallii	Common poorwill
Apodidae	
Chaetura vauxi	Vaux's swift
Trochilidae	
Archilochus alexandri	Black-chinned hummingbird
Calypte anna	Anna's hummingbird
Selasphorus rufus	Rufous hummingbird

Stellula calliope	Calliope hummingbird
Picidae	
Colaptes auratus	Northern flicker
*Melanerpes lewis**	Lewis's woodpecker
*Picoides albolarvatus**	White-headed woodpecker
Picoides pubescens	Downy woodpecker
Picoides villosus	Hairy woodpecker
Sphyrapicus nuchalis	Red-naped sapsucker
Sphyrapicus thyroideus	Williamson's sapsucker
Tyrannidae	
*Contopus cooperi**	Olive-sided flycatcher
Contopus sordidulus	Western wood-pewee
Empidonax hammondii	Hammond's flycatcher
Empidonax oberholseri	Dusky flycatcher
Empidonax occidentalis	Cordilleran flycatcher
*Empidonax traillii**	Willow flycatcher
Empidonax wrightii	Gray flycatcher
Myiarchus cinerascens	Ash-throated flycatcher
Sayornis saya	Say's phoebe
Tyrannus verticalis	Western kingbird
Laniidae	
*Lanius ludovicianus**	Loggerhead shrike
Vireonidae	
Vireo cassinii	Cassin's vireo
Vireo gilvus	Warbling vireo
Corvidae	
Corvus brachyrhynchos	American crow
Corvus corax	Common raven
Cyanocitta stelleri	Steller's jay
Gymnorhinus cyanocephalus	Pinyon jay
Nucifraga columbiana	Clark's nutcracker
Perisoreus canadensis	Gray jay
Pica hudsonia	Black-billed magpie
Alaudidae	
Eremophila alpestris	Horned lark
Hirundinidae	
Hirundo rustica	Barn swallow
Petrochelidon pyrrhonota	Cliff swallow
Riparia riparia	Bank swallow

Stelgidopteryx serripennis	Northern rough-winged swallow
Tachycineta bicolor	Tree swallow
Tachycineta thalassina	Violet-green swallow
Paridae	
Poecile gambeli	Mountain chickadee
Aegithalidae	
Psaltriparus minimus	Bushtit
Sittidae	
Sitta canadensis	Red-breasted nuthatch
Sitta carolinensis	White-breasted nuthatch
Sitta pygmaea	Pygmy nuthatch
Certhiidae	
Certhia americana	Brown creeper
Troglodytidae	
Catherpes mexicanus	Canyon wren
Salpinctes obsoletus	Rock wren
Troglodytes aedon	House wren
Regulidae	
Regulus calendula	Ruby-crowned kinglet
Regulus satrapa	Golden-crowned kinglet
Turdidae	
Catharus guttatus	Hermit thrush
Catharus ustulatus	Swainson's thrush
Ixoreus naevius	Varied thrush
Myadestes townsendi	Townsend's solitaire
Sialia currucoides	Mountain bluebird
*Sialia mexicana**	Western bluebird
Turdus migratorius	American robin
Mimidae	
Oreoscoptes montanus	Sage thrasher
Bombycillidae	
Bombycilla cedrorum	Cedar waxwing
Sturnidae	
Sturnus vulgaris (E)	European starling
Parulidae	

Dendroica coronata	Yellow-rumped warbler
Dendroica nigrescens	Black-throated gray warbler
Dendroica petechia	Yellow warbler
Geothlypis trichas	Common yellowthroat
*Icteria virens**	Yellow-breasted chat
Oporornis tolmiei	Macgillivray's warbler
Vermivora celata	Orange-crowned warbler
Vermivora ruficapilla	Nashville warbler
Wilsonia pusilla	Wilson's warbler
Thraupidae	
Piranga ludoviciana	Western tanager
Cardinalidae	
Passerina amoena	Lazuli bunting
Pheucticus melanocephalus	Black-headed grosbeak
Emberizidae	
Chondestes grammacus	Lark sparrow
Junco hyemalis	Dark-eyed junco
Melospiza lincolnii	Lincoln's sparrow
Melospiza melodia	Song sparrow
Passerculus sandwichensis	Savannah sparrow
Passerella iliaca	Fox sparrow
Pipilo chlorurus	Green-tailed towhee
Pipilo maculatus	Spotted towhee
Pooecetes gramineus	Vesper sparrow
Spizella breweri	Brewer's sparrow
Spizella passerina	Chipping sparrow
Icteridae	
Agelaius phoeniceus	Red-winged blackbird
Euphagus cyanocephalus	Brewer's blackbird
Icterus bullockii	Bullock's oriole
Molothrus ater	Brown-headed cowbird
*Sturnella neglecta**	Western meadowlark
Xanthocephalus xanthocephalus	Yellow-headed blackbird
Fringillidae	
Carduelis pinus	Pine siskin
Carduelis psaltria	Lesser goldfinch
Carduelis tristis	American goldfinch
Carpodacus cassinii	Cassin's finch
Carpodacus mexicanus	House finch
Coccothraustes vespertinus	Evening grosbeak
Loxia curvirostra	Red crossbill

Passeridae	
Passer domesticus (E)	House sparrow

Mammals

Soricidae	
Sorex merriami	Merriam's shrew
*Sorex preblei**	Preble's shrew
Sorex vagrans	Vagrant shrew
Talpidae	
Scapanus orarius	Coast mole
Vespertilionidae	
*Antrozous pallidus**	Pallid bat
*Corynorhinus townsendii**	Townsend's big-eared bat
Eptesicus fuscus	Big brown bat
*Lasionycteris noctivagans**	Silver-haired bat
*Lasiurus cinereus**	Hoary bat
*Myotis californicus**	California myotis
*Myotis ciliolabrum**	Western small-footed myotis
*Myotis evotis**	Long-eared myotis
Myotis lucifugus	Little brown myotis
*Myotis volans**	Long-legged myotis
*Myotis yumanensis**	Yuma myotis
Leporidae	
*Lepus californicus**	Black-tailed jack rabbit
Sylvilagus nuttallii	Nuttall's cottontail
Sciuridae	
Marmota flaviventris	Yellow-bellied marmot
Neotamias amoenus	Yellow-pine chipmunk
Neotamias minimus	Least chipmunk
Neotamias senex	Allen's chipmunk
*Sciurus griseus**	Western gray squirrel
Spermophilus beldingi	Belding's ground squirrel
Spermophilus canus	Merriam's ground squirrel
Spermophilus lateralis	Golden-mantled ground squirrel
Tamiasciurus douglasii	Douglas' squirrel
Geomyidae	
Thomomys mazama	Western pocket gopher
Thomomys talpoides	Northern pocket gopher

Heteromyidae	
Dipodomys ordii	Ord's kangaroo rat
Microdipodops megacephalus	Dark kangaroo mouse
Perognathus parvus	Great Basin pocket mouse
Cricetidae	
Lemmiscus curtatus	Sagebrush vole
Microtus longicaudus	Long-tailed vole
Microtus montanus	Montane vole
Microtus richardsoni	Water vole
Myodes gapperi	Southern red-backed vole
Neotoma cinerea	Bushy-tailed woodrat
Ondatra zibethicus	Muskrat
Onychomys leucogaster	Northern grasshopper mouse
Peromyscus crinitus	Canyon mouse
Peromyscus maniculatus	Deer mouse
Peromyscus truei	Pinon mouse
Reithrodontomys megalotis	Western harvest mouse
Muridae	
Mus musculus (E)	House mouse
Dipodidae	
Zapus princeps	Western jumping mouse
Erethizontidae	
Erethizon dorsatum	Common porcupine
Canidae	
Canis latrans	Coyote
Urocyon cinereoargenteus	Common gray fox
Vulpes vulpes	Red fox
Ursidae	
Ursus americanus	Black bear
Procyonidae	
Procyon lotor	Common raccoon
Mustelidae	
*Martes americana**	American marten
Mustela erminea	Ermine
Mustela frenata	Long-tailed weasel
Taxidea taxus	Ameican badger
Mephitidae	

Mephitis mephitis	Striped skunk
Spilogale gracilis	Western spotted skunk
Felidae	
Lynx rufus	Bobcat
Puma concolor	Mountain lion
Cervidae	
Cervus canadensis	Elk
Odocoileus hemionus	Mule deer
Antilocapridae	
Antilocapra americana	Pronghorn

Geology

Wechee Butte Research Natural Area is located on the north flank of Newberry Volcano which lies at the intersection of the Cascade Range and High Lava Plains geologic physiographic provinces. The modern High Cascade Range is a constructional feature of north-south trending volcanic eruptive centers that extends from northern California to southern British Columbia and has been very active for the past four million years to the present (Orr and Orr 1999). The eruptive centers that comprise the Cascade Range in Central Oregon are numerous stratovolcanoes, shield volcanoes, cinder cones, silicic domes, tuyas, and maars (MacLeod and Sherrod 1992; MacLeod et al. 1995). The High Lava Plains is a middle to late Cenozoic volcanic upland and is characterized by thin Miocene to Pleistocene lava flows of basalt and a belt of silicic eruptive centers (Meigs et al. 2009). Newberry Volcano is a Quaternary rear-arc shield volcano and covers an area of approximately 1158 square miles (3000 square kilometers) and the main volcano rises approximately 3280 feet (1000 meters) above the surrounding landscape (Donnelly-Nolan 2009). The oldest basalt and basaltic andesite lavas from Newberry Volcano are less than a half million years old. The summit caldera formed about 80,000 years ago during an explosive rhyolitic to andesitic ash-flow (Donnelly-Nolan 2009). The north and south flanks are covered mainly by basalt to basaltic andesite of late Pleistocene and Holocene age. The east and west flanks of the volcano are dominated by pyroclastic flow deposits. Since the collapse, the caldera is very active and has slowly been rebuilding itself with more silicic vulcanism (Donnelly-Nolan 2009).

Wechee Butte RNA is underlain by primitive Newberry basalt and basaltic andesitic lava flows. The center of the RNA is a 360 foot (110 meter) high basaltic cinder cone of unknown age with a peak elevation of 6138 feet (1,871 meters). The entire RNA is covered by 7,700 year old ash from Mount Mazama (Bacon 1983).

Soils

Surface soils of Wechee Butte RNA are comprised primarily of a moderately thick layer of ash and pumice from Mt. Mazama and typically have a pumiceous loamy sand texture. Subsurface soils are generally a thin residuum weathered from older ash sources on residual bedrock or red cinders.

Topography

Wechee Butte RNA is occupied by a 300 acre (121 hectare) cinder cone in the midst of gently sloping lodgepole pine forest. The cinder cone rises approximately 360 feet (110 meters) above the surrounding terrain. There is a crater in the top of the cone and the rim is breached to the northwest. The base of the crater lies approximately 120 feet (37 meters) below the summit of the butte on the northeast rim, and 10 feet (3 meters) below the southwest rim. All aspects are represented on the cone, and the surrounding land has a slight northeasterly incline. Slopes within the RNA range from 5 to 40 percent with the sides of the cone ranging from 25 to 40 percent.

Aquatic/Riparian

There are no aquatic or riparian habitats present within the RNA.

Rare, Threatened, Endangered, or Sensitive Species

No threatened, endangered, or sensitive plant or animal species have been documented within Wechee Butte RNA. Green-tinged paintbrush (*Castilleja chlorotica*), a Forest Service Region 6 Sensitive Species (USDA Forest Service 2009) is documented from approximately one mile east of the RNA, at the western edge its distribution in the area. Habitats in the RNA do not appear to be rocky enough to be suitable for this species.

Several special status wildlife species potentially inhabit or use the RNA for breeding or foraging (Table 5). The establishment of the RNA should have no adverse effects on populations of any of these species if they are present.

Table 5. Rare, threatened, endangered or sensitive species potentially occurring in Wechee Butte RNA (Oregon Natural Heritage Information Center 2007, 2009; USDA Forest Service 2009). Key: C=Proposed federal candidate; SOC=Federal species of concern; SC=State of Oregon Sensitive-Critical; SV=State of Oregon Sensitive-Vulnerable; SU=State of Oregon Status Unknown; 2=ORNHIC List 2; 3=ORNHIC List 3; 4=ORNHIC List 4.

Species	Federal	FS	Oregon	ORNHIC
Amphibians				
Bufo boreas				4
Reptiles				
Sceloporus graciosus	SOC		SV	4
Crotalus oreganus				4
Birds				
Accipiter gentilis	SOC		SV	4
Athene cunicularia	SOC		SC	4
Otus flammeolus			SV	4
Chordeiles minor			SC	4
Melanerpes lewis	SOC	Sensitive	SC	2
Picoides albolarvatus	SOC	Sensitive	SC	2
Contopus cooperi	SOC		SV	4
Empidonax traillii	SOC		SV	4
Lanius ludovicianus			SV	4
Sialia mexicana			SV	4
Icteria virens	SOC		SC	4
Sturnella neglecta			SC	4
Mammals				
Sorex preblei	SOC			3
Antrozous pallidus	SOC		SV	2
Corynorhinus townsendii	SOC	Sensitive	SC	2
Lasionycteris noctivagans	SOC		SV	4
Lasiurus cinereus			SV	4
Myotis californicus			SV	4
Myotis ciliolabrum	SOC			4
Myotis evotis	SOC			4
Myotis volans	SOC		SV	4
Myotis yumanensis	SOC			4
Brachylagus idahoensis	SOC	Sensitive	SV	2
Lepus californicus				4
Sciurus griseus			SU	4
Martes americana				4

List of Rare Elements and Rare Plant Communities

Two plant communities at Wechee Butte RNA have been identified as rare by Oregon Natural Heritage Information Center (Kagan et al. 2004).

- Lodgepole pine/bitterbrush/western needlegrass (Heritage Program Rank: G3S3 - either very rare and local throughout its range or found locally in a restricted range; uncommon, with 21-100 occurrences)
- Ponderosa pine/greenleaf manzanita (Heritage Program Rank: G3S2 – globally uncommon, imperiled within Oregon because of rarity, with 6-20 occurrences or few remaining acres)

C. RESOURCE INFORMATION

MINERALS

There were no active locatable mining claims within or adjacent to the Wechee Butte RNA as of November 25, 2009, based on a search of the BLM LR2000 public website (USDI Bureau of Land Management 2009). There are no known locatable minerals in the area of the RNA. There are no Forest Service mineral material pits or quarries located in the RNA. Wechee Butte could be mined for cinder but is not likely to be developed because of the numerous other cinder pits that already exist in the area.

There are no known significant mineral resources within the area. The Deschutes National Forest may pursue an application to the Bureau of Land Management to formally withdraw the area within the RNA from mineral entry. While the RNA is within land open to leasing for oil and gas and for geothermal energy, there are no active leases or applications for leases.

GRAZING

There are no active grazing allotments within or adjacent to Wechee Butte RNA. Grazing within the RNA will not be allowed.

PLANTS

Timber harvesting, timber salvage and firewood cutting are not permitted within RNA's on the DNF (USFS 1990a). Timber resources within the RNA are not included in the DNF timber base. Harvest of special forest products from within the RNA is not permitted, although activities associated with light recreational use, such as berry picking, are permitted as long as they do not impair research or educational values of the RNA.

WATERSHED VALUES

There are no significant watershed values present in Wechee Butte RNA. There are no streams or wetlands located within the RNA.

RECREATION USE

There are no developed recreation facilities or trails within Wechee Butte RNA and none will be constructed. Potential recreational uses include light dispersed recreation such as hunting, off-highway vehicle use, automobile travel for pleasure on FS Road 1820 and horseback riding. Motor vehicle use, including use of all-terrain vehicles, is prohibited within the RNA. The Swamp Wells horse trail about 2 miles (3.2 kilometers) northwest of the RNA receives light use. No impacts of recreation use are evident in the RNA. Recreation use should not be encouraged, but will be permitted as long as it does not conflict with the purpose for establishing the RNA.

WILDLIFE

Establishment of the Wechee Butte RNA would have no detrimental effects on wildlife habitats or wildlife species, including any special status species that may use the area.

TRANSPORTATION/ROAD SYSTEM

There are no roads within Wechee Butte RNA and none are planned to be built. The RNA will be closed to motor vehicles. Forest Service Road 1820 parallels the western boundary of the RNA and Forest Service Road 1820-900 parallels the boundary of the southwest corner of the RNA; there is a 100 foot buffer between the roads and the RNA boundary. There are no conflicts with the DNF Transportation Plan.

D. HISTORICAL INFORMATION

RESEARCH/EDUCATIONAL USE AND INTEREST: HISTORY OF ESTABLISHMENT

No research or educational activities have been undertaken within Wechee Butte RNA.

Wechee Butte was identified as a potential RNA in the 1970's by Area Ecologist William Hopkins (USDA Forest Service 1990b). In the 1978 DNF Land Management Plan (USDA Forest Service 1978) Wechee Butte was listed as one of 16 areas selected as possible candidates to meet identified RNA needs, and one of 11 selected to be protected until more detailed studies could be made. As part of the planning effort for the 1990 LRMP the 16 areas were reviewed. Seven areas, including Wechee Butte, were selected as

potential RNA's in the 1990 LRMP (USDA Forest Service 1990a, 1990b). William Hopkins field checked Wechee Butte prior to inclusion in the 1990 LRMP (USDA Forest Service 1990b).

CULTURAL/HERITAGE

There are two known prehistoric cultural sites within Wechee Butte RNA. The site numbers are 06010301520 and 06010301521. Information about these sites is on file at the Deschutes National Forest Supervisor's Office. Except for about one acre, the entire RNA has been surveyed for cultural resources.

DISTURBANCE HISTORY

The pumice plateau lodgepole pine forests of the East Cascades ecoregion originate from periodic catastrophic fire, windthrow or insect epidemics, or a combination of these processes, resulting in patches of more or less even-aged trees (Eckert et al. 2008). The frequency of stand replacement fires in these forests ranges from 50 to 80+ years. Following fire, dense stands regenerate and due to competition stress are susceptible to bark beetle outbreaks. Tree mortality caused by bark beetles leads to heavy fuel loads and high likelihood of another stand replacing fire. In stands of greater than 80 years of age, bark beetle outbreaks are the primary forest disturbance. Even low intensity fires can cause significant mortality because of lodgepole pine's thin bark.

Ponderosa pine forests often experience more frequent but low intensity fires with return intervals between 5 and 35 years (Eckert et al. 2008). Large trees with thick bark are resistant to these low intensity fires and experience low mortality (Eckert et al. 2008).

Dry lodgepole pine forest has been classified as Fire Regime 4 with stand-replacing fires with a return interval of 35 to 100+ years (Waltz et al. 2009). Seral communities that arise from or are maintained by stand-replacement fires, such as lodgepole pine, are an important component in this fire regime. Natural ignitions within this regime that result in large fires may be relatively rare. Dry ponderosa pine forest has been classified as Fire Regime 1 with low severity fires with return intervals of 0-35 years. Large stand-replacing fire can occur under certain weather conditions, but are rare events (i.e. every 200+ years).

In 1992 a seven acre lightning-caused fire burned in lodgepole pine on the upper third of the east side of Wechee Butte. The fire was suppressed by Deschutes National Forest fire crews.

OCCURRENCE OF EXOTIC SPECIES

No exotic plant or animal species have been documented within Wechee Butte RNA.

E. OTHER INFORMATION

PERMANENT RESEARCH PLOTS AND/OR PHOTO POINTS

There are no permanent research plots or photo points established within the Wechee Butte RNA.

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CONTRIBUTING FOREST SERVICE PERSONNEL

Robin Vora, Assistant Natural Resource Staff Officer; Establishment Record Project Leader
Bart Wills, Forest Geologist; geology, minerals
Bill Ham, Land Surveyor, Deschutes/Ochoco National Forests; boundary description
Caleb Hennekey, Heritage Stewardship Group; cultural resources
Charmane Powers, District Botanist/Ecologist; Bend-Fort Rock Ranger District; plants, noxious weeds, fire history, recreation
Dana Simon, Data Services Specialist, Ochoco National Forest; Northern Spotted Owl mapping
Deb Mafera, IDT Leader for the Invasive Plant Project; noxious weeds
Geoff Babb, Fire Ecologist; fire history and fire regime
Gery Ferguson, Planner; NEPA and scoping
Jim Lowrie, Wildlife Biologist, Bend-Fort Rock Ranger District; wildlife
Katie Grenier, Forest Botanist; plants
Lauri Turner, Forest Wildlife Biologist; wildlife
Leslie Moscoso, Recreation Operations Supervisor; recreation
Marvin Lang, Recreation Forester; fire history, recreation

Mike Simpson, Ecologist; plant associations, vegetation cover types
Mose Harris IV, FOIA Coordinator; NEPA and scoping
Paul Claeyssens, Supervisory Archaeologist; cultural resources
Peter Sussman, Forest Soil Scientist; soils
Rachel Armstrong, Customer Service Area 3; GIS mapping
Scott E. McBride, Special Uses, Lands and Minerals Administrator; minerals
Susan Skakel, Planning and Environmental Coordination; forest planning and NEPA

POTENTIAL RESEARCH PROJECTS

The Wechee Butte RNA provides an opportunity to study ponderosa pine and lodgepole pine together in a natural setting with a variety of volcanic soils, aspects, slopes, and resultant microclimates. Studies might include comparison of dominance of the two species on different sites, dry sites, immature soils or the effects of soil moisture on each species. The abundance of dwarf mistletoe (*Arceuthobium americanum*) in many of the climax lodgepole pine stands suggests research possibilities involving this parasitic plant. Additional research might involve comparisons of the edaphic climax of ponderosa pine and the topoedaphic climax of lodgepole pine in the RNA.

F. EVALUATION OF SPECIFIC MANAGEMENT RECOMMENDATIONS ON THE RESEARCH NATURAL AREA

POTENTIAL OR EXISTING CONFLICTS

No existing conflicts have been identified for the Wechee Butte RNA. Off road vehicle use could impact habitats within the RNA, particularly on the slopes of the cinder cone. All vehicle use is prohibited within the RNA. Recreational use should not be encouraged and may be restricted in the future is it impacts the natural ecological processes occurring in the RNA.

SPECIAL MANAGEMENT AREA

Establishment of the RNA does not impact any congressionally designated areas. Lands surrounding Wechee Butte RNA are designated Management Area 8 – General Forest (USDA Forest Service 1990a).

G. Photographs

Figure 5a. View of Wechee Butte from the south.

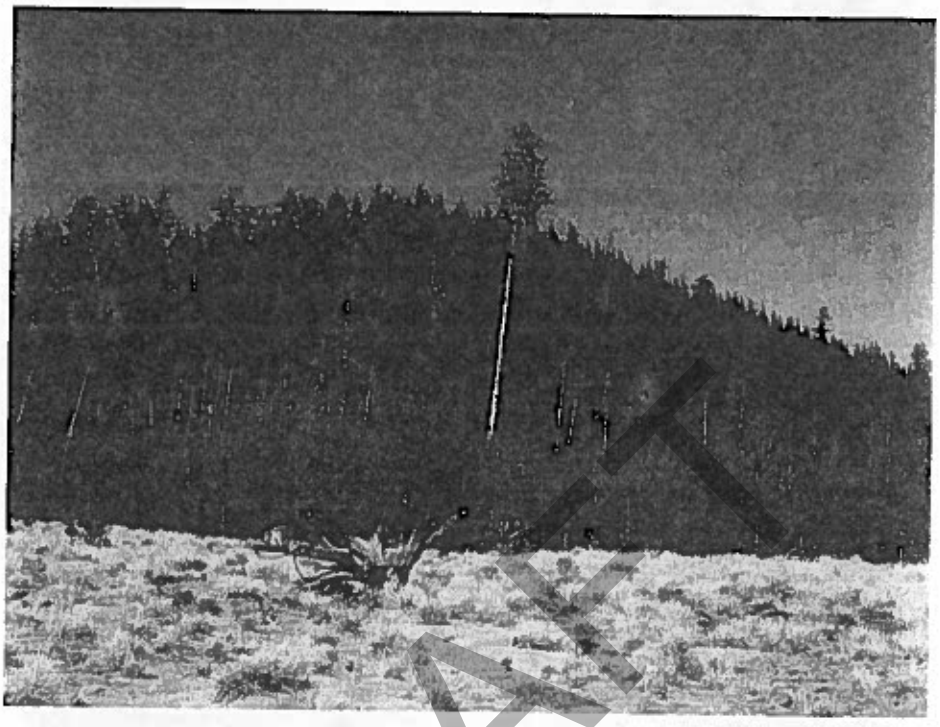


Figure 5b. Ponderosa pine forest on the slope of Wechee Butte.

Figure 5c. Old growth ponderosa pine on south slope at Wechee Butte.

DECISION NOTICE / DESIGNATION ORDER

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

Wechee Butte Research Natural Area
Deschutes National Forest, Bend/Ft. Rock Ranger District
Deschutes County, Oregon
T.20S., R.13E., Section 29, Willamette Meridian

BACKGROUND

An environmental assessment (EA) that discuss the designation of the Wechee Butte Research Natural Area (RNA) on the Bend/Ft. Rock Ranger District is available for public review at the Forest Supervisor's Office, Deschutes National Forest in Bend, Oregon.

The Wechee Butte area was identified in the Deschutes National Forest 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 by filling a need for natural heritage elements.

The newly established RNA will consist of approximately 306 acres on the east side of the Bend/Ft. Rock Ranger District. The area is about 18 miles southeast of Bend and six miles north of East Lake (see map Appendix A). The Wechee Butte area was proposed for designation as an RNA in the Deschutes National Forest Land and Resource Management Plan (Forest Plan, 1990) in order to fill an element in the State of Oregon 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 the Wechee 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). The area provides representation of:

- Undisturbed forested cinder cone at mid-elevation with ponderosa pine-lodgepole pine climax.

In addition, the RNA provides regional cell representation of both lodgepole pine/bitterbrush/western needlegrass and ponderosa pine/greenleaf manzanita plant communities.

An establishment record is being completed for the proposed Wechee Butte RNA and a draft is currently on file at the Bend/Ft. Rock Ranger District. The establishment record is to be completed prior to the final Decision Notice.

DECISION and DECISION RATIONALE

It is our decision to select the Proposed Action as described in the *Designation of the Wechee Butte Research Natural Area Environmental Assessment* (Deschutes National Forest 2015). Specifically, we are deciding to amend the Forest Plan to officially designate the 306 acres located at T20S, R13E, Section 29 on the east side of the Bend/Ft. Rock Ranger District as a Research Natural Area.

The purpose of establishing the Wechee 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).

Deschutes 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. A complete Ecological Evaluation is included in the Establishment Report. We selected the Proposed Action because it provides long-term protection and recognition of undisturbed natural heritage elements such as the undisturbed cinder cone at mid-elevation with pondoera pine-lodgepole pine climax, and provides opportunities for long-term observation of the development of these areas.

The selected alternative will allow ecological processes to proceed without active management intervention in the area as described in the EA pp. 8-10. This decision includes a modification to the boundary of the RNA as shown on the map in Appendix A of this Decision Notice. The modified boundary will reduce the size of the RNA from 366 acres to 306. The reduction in RNA (MA-2) will be realized through an increase in General Forest (MA-8). The modified boundary will be easier to describe and manage as it follows a four-digit road and section lines. The boundary will allow roadside management activities such as hazard tree removal along Forest Road 1820. Within the boundary is the entire forested cinder cone.

This decision is a non-significant amendment to the Deschutes 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 Wechee Butte area would be designated Management Area 2 (MA-2) in the Forest Plan. Proposed and designated RNAs in the Forest Plan are listed as Management Area 2. Standards and guidelines for this management area 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. Presently the area is being managed in accordance with this management area 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 Wechee 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

One other alternative was considered. The No Action alternative would continue the management of the proposed RNA as a proposed RNA in the short-term. Long-term management would be determined during the next Forest Plan revision.

No Action was not selected because it would not address the purpose and need to contribute to a series of RNAs and in particular to designate an area that fills a need for representation of natural heritage elements identified in the 2003 Natural Heritage Plan. No Action would only provide short-term protection of the 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.

PUBLIC INVOLVEMENT

The proposal of this RNA establishment was first initiated in 2009. Scoping letters were sent out to the Forest's mailing list including Federal and State agencies, the Confederated Tribes of the Warm Springs, environmental groups, and interested citizens. The project was also listed on the quarterly Schedule of Projects and posted to the Forest Service NEPA project web page. Two public scoping comments were received in response, both supportive of the designation.

A draft Environmental Assessment was made available for a 30-day public comment period, beginning October 17, 2014. Three comment letters were received based on the draft EA. The comments received were supportive of RNA establishment. Specific comments are addressed in Appendix A of the final EA.

FINDING OF NO SIGNIFICANT IMPACT

We find that this action is consistent with the Forest Plan, as amended by the Regional Forester's Forest Plan Amendment #2 (Eastside Screens).

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 306 acres as an RNA on a 1.6 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 (EA pages 11-27). 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 or the comment period (EA, page 6 and 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 RNA (EA, page 26; 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, page 27).

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 pages 35-37).

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 Deschutes Forest Plan, as amended (EA, page 4, 8-10).

7. We find the cumulative impacts are not significant. Cumulative impacts are addressed in Chapter 3 of the EA (EA pages 11-27).

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 RNA (EA, page 26; 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 11-12). There would be no effect to gray wolf because there will be no change in existing condition. No other federally listed species or habitat are present.

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 Deschutes National Forest Land and Resource Management Plan as amended.

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 *Deschutes National Forest Land and Resource Management Plan* (1990).

There will be no impacts to Forest Service, Region 6 Sensitive Species (EA, pages 15 - 20).

We have considered the effects to management indicator species (MIS) as disclosed in the EA (EA, pp. 21-25). MIS on the Deschutes National Forest include goshawk, Cooper's hawk, sharp-shinned hawk, great gray owl, great blue heron, golden eagle, waterfowl, woodpeckers, red-tailed hawk, osprey, American marten, deer, and elk. There will be no impact to any of the management indicator species and therefore no contribution to negative trends in viability on the Deschutes National Forest.

The Eastside Screens do not apply to this action because it is not a timber sale and no modification to the vegetation is proposed.

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, National Historic Preservation Act, and the National Forest Management Act.

ADMINISTRATIVE REVIEW/ OBJECTION PROCESS

The final Environmental Assessment (EA) has been made available for review at the Deschutes National Forest website: http://www.fs.usda.gov/project/?project=28898. Additional information regarding this plan amendment can be obtained from Beth Peer, Environmental Coordinator, at 541-383-4769, or email bpeer@fs.fed.us.

A draft Decision Notice was provided to the public for administrative review under 36 CFR 219, Subpart B. The objection process included in Subpart B of 36 CFR 21 gives an individual or entity an opportunity for an independent Forest Service review and resolution of issues before the approval of the plan amendment. The opportunity to file an objection ran from February 27 until April 13, 2015.

No objections were filed. Therefore, implementation of this decision may occur when the once it is signed.

CONTACT

For additional information concerning this draft decision or the Forest Service objection process, contact Beth Peer, Bend/Ft. Rock Ranger District Environmental Coordinator, during normal office hours (weekdays, 8:00 a.m. to 4:30 p.m.) at the Bend/Ft. Rock Ranger District office, Phone: (541) 383-4769; e-mail: bpeer@fs.fed.us. For more information on the RNA program, contact Robin Vora, RNA Program Manager, Phone: (541)383-5766; e-mail: rvora@fs.fed.us

Robert Mangold — 5/5/15

ROBERT MANGOLD
Station Director
Pacific Northwest Research Station

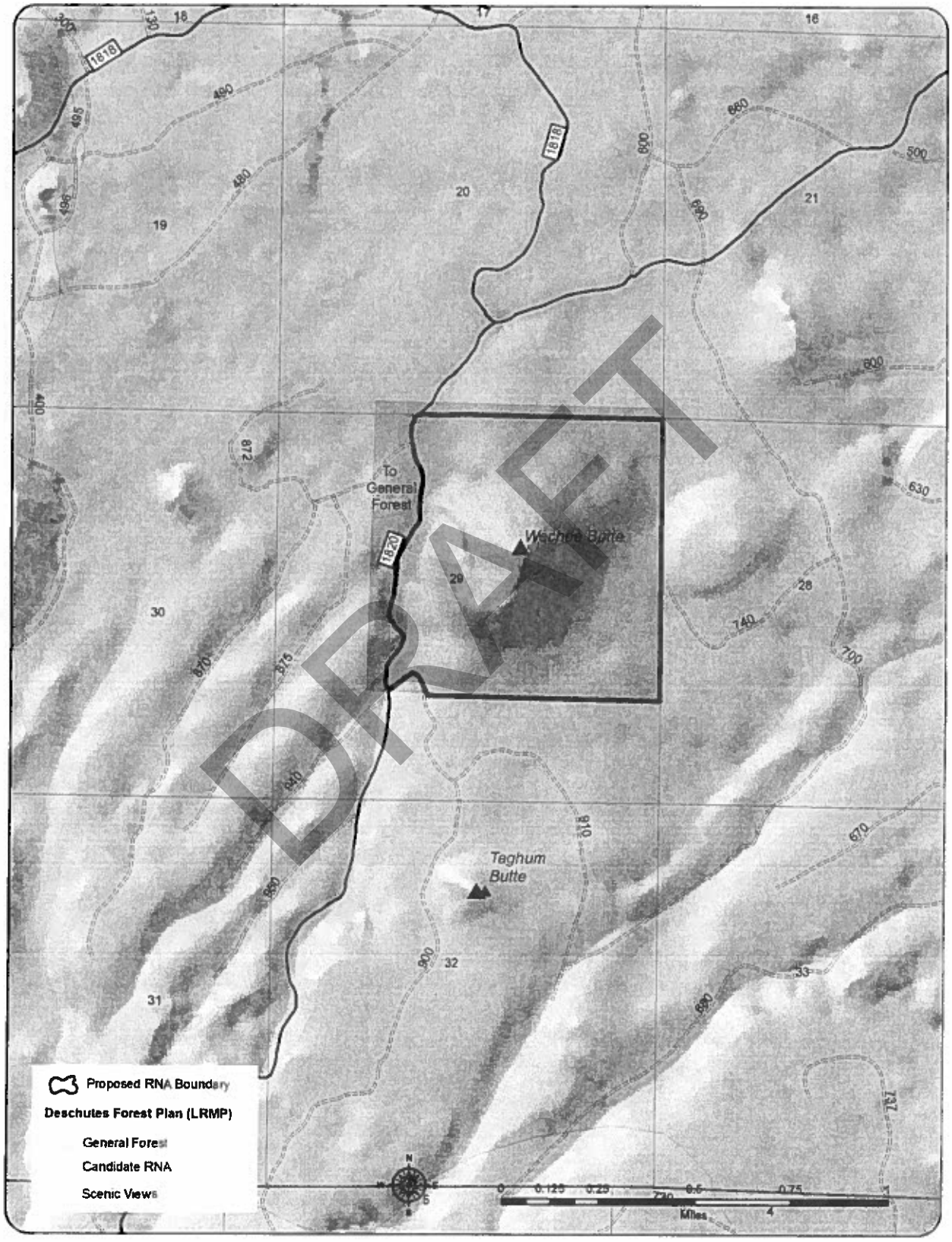
Date

James M. Peña — 5/8/15

JAMES PEÑA
Regional Forester
Pacific Northwest Region

Date

Appendix A – Boundary map of the Wechee Butte RNA



USDA

United States
Department of
Agriculture

Forest
Service

February 2015

Environmental Assessment

Designation of the Wechee Butte Research Natural Area

Deschutes National Forest Service
Bend/Ft. Rock Ranger District
Deschutes County, Oregon

Township 20 South, Range 13 East, Section 29

Responsible Official: James M. Peña
Regional Forester
Pacific Northwest Region

For more Information: Robin Vora, RNA Program Manager
rvora@fs.fed.us
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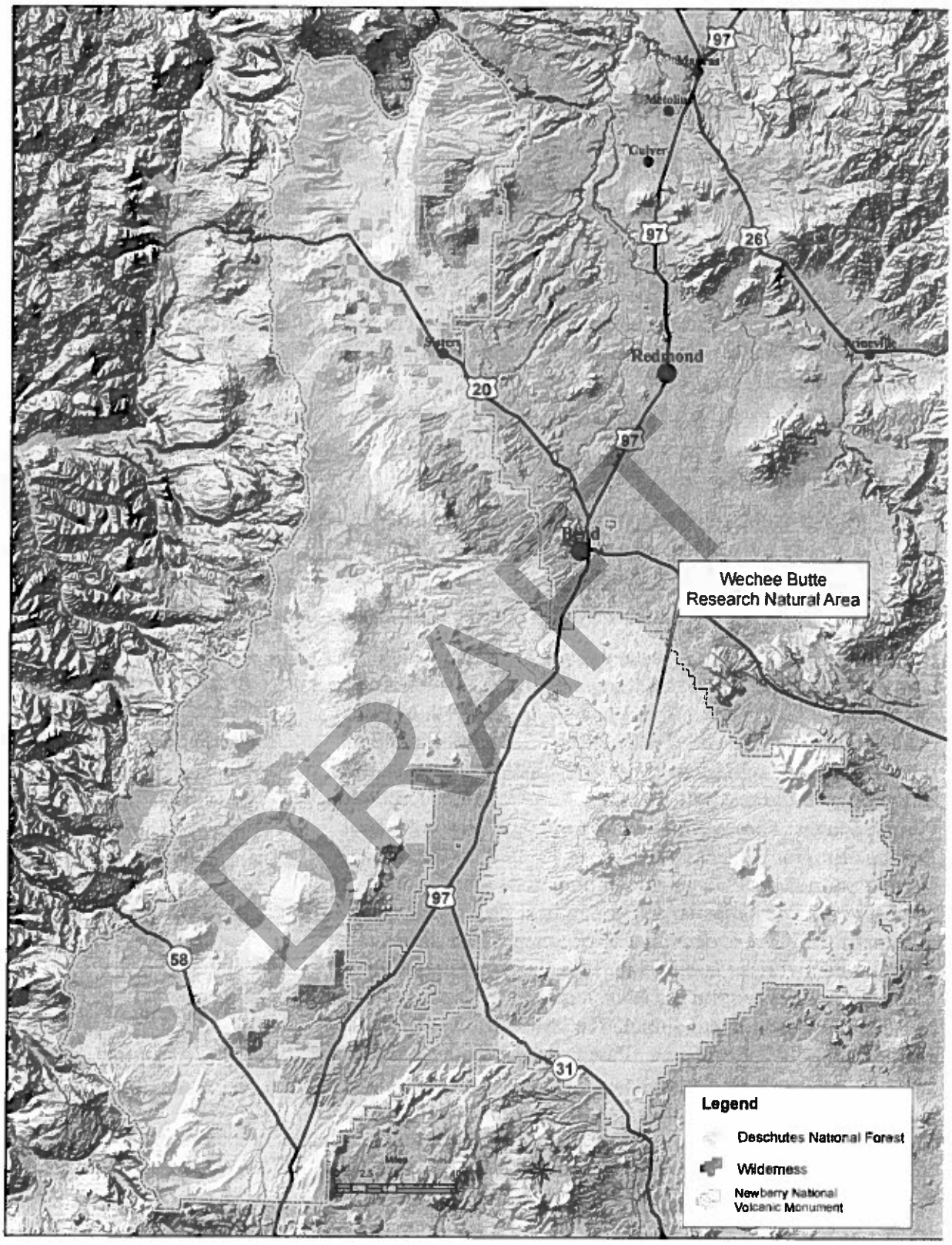

Figure 1: Vicinity of the Planning Area

Chapter 1: Purpose of and Need for Action

Introduction and Planning Area Description

This environmental assessment evaluates the proposal formally establish the Wechee Butte Research Natural Area (RNA). The proposed Wechee Butte RNA is identified in the 1990 Deschutes National Forest Land and Resource Management Plan (LRMP) (USDA Forest Service 1990a) and is described in Appendix E of the 1990 Final Environmental Impact Statement (FEIS) for the LRMP (USDA Forest Service 1990b). The proposed RNA is within and completely surrounded by National Forest System lands. Establishment and designation involves: 1) completion of an environmental assessment to approve the candidate RNA with final boundaries and 2) amendment or adoption of existing LRMP Standards and Guidelines to guide management.

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:

- 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 (Franklin et al. 1972).

The Wechee Butte RNA is located in the Deschutes National Forest on the Bend-Fort Rock Ranger District approximately 18 miles southeast of Bend, Oregon and six miles north of East Lake (Figure 1 and Figure 2). The RNA occupies about 366 acres within the High Lava Plains physiographic province (Franklin and Dyrness 1973) and the East Cascades Ecoregion, Pumice Plateau Forest subregion of Oregon (Oregon Natural Heritage Program 2003). The RNA is located on the Central Oregon pumice plateau, an area of numerous small cinder cones, extensive pumice deposits, and young lava flows. A large portion of the RNA is occupied by Wechee Butte, a forested cinder cone that rises 360 feet above the surrounding terrain. Most of the forest within the RNA has not been subject to tree harvest or other human manipulation. Most of the RNA is dominated by lodgepole pine. Pure ponderosa pine stands are present on the southern exposures, the crater rim, and on upper slopes of the cone. On northern aspects at mid-slope whitebark pine and white fir / grand fir hybrid occur as non-dominant species in lodgepole and ponderosa pine-dominated stands. A full description of the Wechee Butte RNA is found in the Establishment Record of the RNA (USDA Forest Service 2010).

Research Natural Areas are part of a national network of ecological areas designated for research, monitoring, education, and to maintain biological diversity (USDA Forest Service manual 4063). For more information on the research arm of the Forest Service, visit www.fs.fed.us/research.

RNA needs in the Pacific Northwest were originally identified by Pacific Northwest Research Station scientists in the 1960s and early 1970s following national agency direction (Dyrness et al. 1975). Extensive surveys for RNAs were conducted in Central Oregon by Deschutes National Forest Ecologist Dr. Bill Hopkins and other staff in the 1970s and 1980s and

recommendations were further evaluated by Sarah Greene of the PNW Research Station. Public involvement in the selection of the candidate RNAs occurred during the preparation and approval of the Deschutes LRMP in the late 1980s (USDA Forest Service 1990a). The Wechee Butte RNA was identified in the 1990 Deschutes LRMP as a "proposed" RNA based on the unique nature of the area, and recognition that designation of this area as a research natural area would make an important contribution to the Natural Heritage network. A draft Establishment Record (ER) has been prepared providing specific background, justification, objectives, and management prescriptions per USDA Forest Service manual 4063.41. (USDA Forest Service 2010). The ER will be finalized concurrent with the NEPA process. The conversion from candidate to established RNA is accomplished by amending the Deschutes National Forest LRMP through a Decision Notice and Designation Order.

Purpose of and Need for Action

The purpose of establishing the RNA in the Wechee 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

The Wechee Butte RNA would fill a need for representation of the following natural heritage elements identified in the 2003 Oregon Natural Heritage Plan (Oregon Natural Heritage Program 2003):

- Undisturbed forested cinder cone at mid-elevation with ponderosa pine-lodgepole pine climax

In addition, the RNA provides regional cell representation of both lodgepole pine/bitterbrush/western needlegrass and ponderosa pine/greenleaf manzanita communities.

Field monitoring showed that all of the important ecological features for which Wechee Butte RNA was originally proposed were still present in 2008 except a small portion on the western side and southern end that were logged in the 1980s.

There is a need to modify the boundaries of the proposed RNA to provide a boundary that can be better described and recognized, and to provide for the ability to conduct roadside management activities such as hazard tree removal. The proposed boundary would also eliminate the portion of the RNA that was logged in the 1980s.

Proposed Action

The proposed action is to formally establish the Wechee Butte RNA, to revise the boundary of the RNA, and to manage it according to the direction provided in the Deschutes LRMP (LRMP 4-92 to 4-93). Formal designation of the RNA by the Regional Forester would amend the Deschutes LRMP pursuant to 36 CFR 219.4 (1982 planning regulations).

The proposed RNA would be designated Management Area 2 (MA-2). The proposed RNA is presently being managed in accordance with this allocation's direction so designation would not impact other programs or activities. Specifics are given in Chapter 2.

Decision Framework

The Regional Forester for the Pacific Northwest Region of the USDA Forest Service is the responsible official for this project. The responsible official will review the environmental

assessment and the entire project record and will decide whether or not to select the proposed action. In making the decision, the responsible official will take into consideration the specific objective of providing for research and educational opportunities, as well as preserving the unique ecological characteristics that are representative of the area.

The final decision will be to either:

- Amend the Deschutes LRMP to establish the RNA in the Wechee Butte area (Proposed Action), or
- Decline to establish the area as an RNA, resulting in removal of Wechee Butte as a proposed RNA from the Forest Plan during the next Forest Plan revision, or
- Conclude that significant impacts would result from the proposed action which would warrant the preparation of an environmental impact statement.

Public Involvement

Public participation in this project began when a scoping letter and map were mailed to members of the public and to Tribal governments on March 12, 2009. The project also appeared in the Deschutes National Forest Schedule of Projects starting in March 2009 and has appeared quarterly since this initiation. An article "Forest Service Proposes Four Areas of Study" was also published in *The Bulletin* (Bend, Oregon) newspaper on March 22, 2009. The project appears on the Deschutes National Forest's project web page as well: http://data.ecosystem-management.org/nepaweb/project_list.php?forest=110601.

Two telephone calls were received. Both commenters were supportive of the proposed action. The Proposed Action is not highly controversial as evidenced by the number and tone of the responses received from the public during the scoping phase of the process.

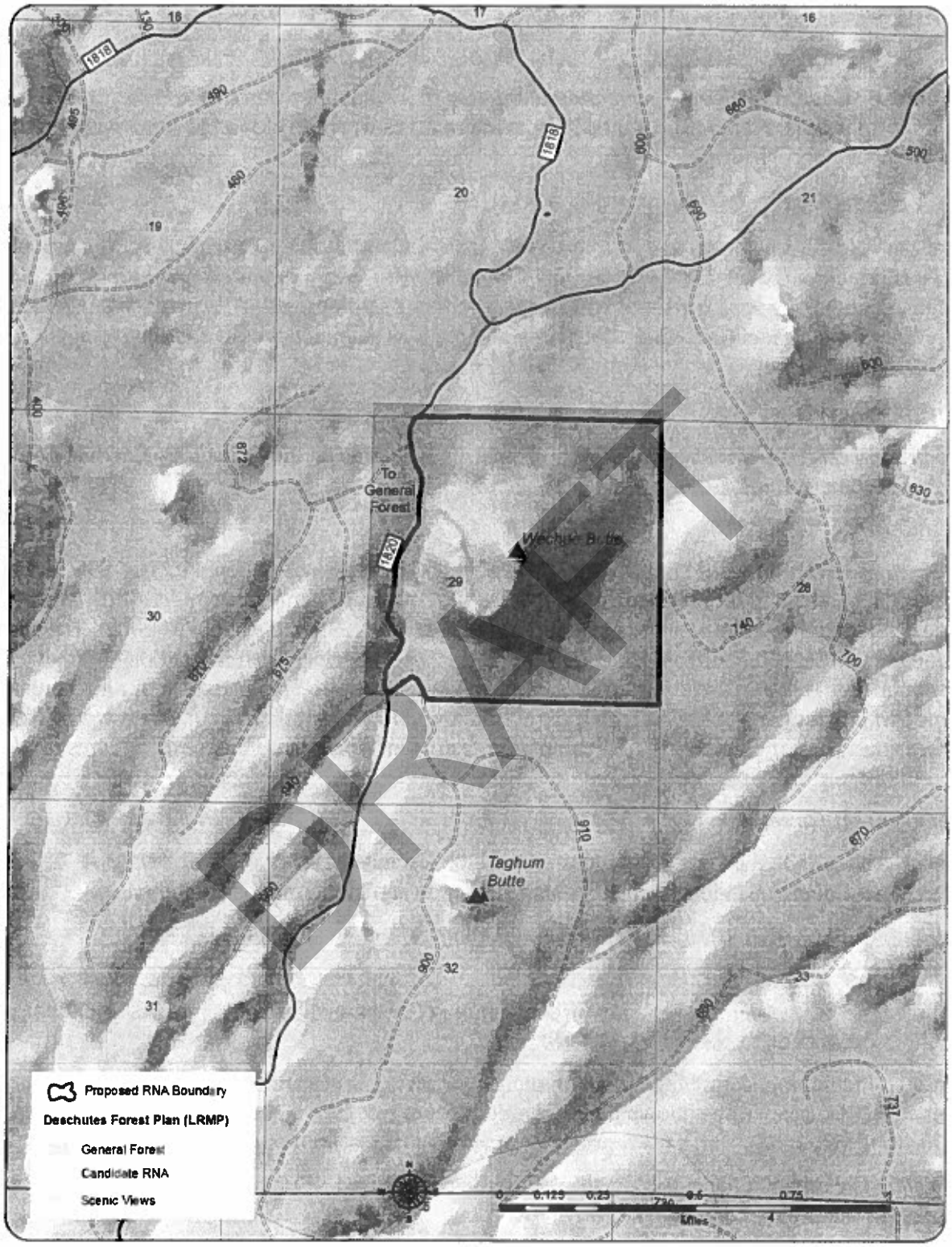

Figure 2: Map displays Deschutes LRMP allocations, including candidate RNA boundary and the proposed boundary for the Wechee Butte Research Natural Area. The area west of Forest Road 1820 and north of the northern section line of Section 29 would revert to General Forest.

Chapter 2: Alternatives

No unresolved conflicts concerning alternative uses of available resources were identified during the scoping process. Therefore, no additional alternatives were developed beyond the No Action and Proposed Action.

No Action

Under the No Action alternative, the candidate area would continue to be managed as a proposed RNA as directed in the Deschutes National Forest LRMP. The boundary of the proposed RNA, which encompasses approximately 366 acres, would not be modified. All current management direction of the Deschutes LRMP Management Area 2 as amended would continue to apply until the LRMP is revised.

Proposed Action

The proposed action would establish approximately 306 acres on the Deschutes National Forest as the Wechee Butte RNA.

Boundary

The Proposed Action would modify the RNA boundary from what is shown in the 1990 LRMP to one that can be better described and identified. The western boundary would follow Forest Road 1820 and the southwest corner boundary would follow Forest Road 1820-900. The actual boundary will be 100 feet from the centerline of the Forest Service system road that is shown as the boundary. This allows for hazard tree removal and permits the maintenance of a fuel break if needed to protect the RNA. The remainder of the northern and southern boundaries would follow the sections lines of Section 29. The boundary results in a net a net increase of 60 acres of General Forest.

Management Direction

The RNA would be managed as MA-2 in the 1990 Deschutes LRMP (LRMP 4-92 to 4-93). There would be no change from the existing standards and guidelines as listed here:

Standards and Guidelines in Deschutes LRMP adopted for Wechee Butte RNA:

Recreation

M2-1: No physical improvements for recreation purposes such as campgrounds or buildings will be permitted.

M2-1: Picnicking, camping, collecting plants, gathering cones and herbs, picking berries, and other public uses will be allowed, though not encouraged, as long as they do not modify the area to the extent that such uses threaten impairment of research or educational values.

M2-3: The area will be closed to all off-highway motorized vehicle use if use of these vehicles threatens natural conditions.[1]

Timber

[1] Travel management regulations have since prohibited off-highway motorized vehicle use except on designated routes or areas. No such routes or areas exist in the RNA.

M2-4: Timber harvest is not allowed in an RNA. No control of insect or disease should be instituted (see M2-22).

M2-5: Firewood cutting is not permitted.

M2-6: Timber harvesting will not be allowed in catastrophic situations.

Range

M2-7: Grazing is only allowed when authorized to preserve some representation of the vegetation for which the RNA was created.

M2-8: Where RNAs are located adjacent to or within grazing allotments, the boundaries will be marked and physical barriers constructed around the area to prohibit livestock entry if needed. [Note: there are no grazing allotments within or near the proposed RNA].

M2-9: Vegetation manipulation will not be allowed in catastrophic situations.

Wildlife

M2-10: Management practices may be authorized to control excessive non-game animal populations and only in cases where these populations threaten the preservation of some representation of vegetation for which the RNA was originally created.

Minerals

M2-11: Areas are to be withdrawn for mineral entry for mining claims.

M2-12: Geothermal leases will be issued with No Surface occupancy Stipulations. Leases must be approved by the Experiment Station Director.

M2-13: Pits and quarries will require approval of the Research Station Director and the Forest Supervisor.

Visual

M2-14: Management activities and research facilities should meet the visual quality level on the Visual Quality Objective Map. [Note: the Visual Quality Objective Map shows a visual quality level of Partial Retention].

Transportation

M2-15: No new roads or trails will be permitted within these areas, except those considered essential to research, protection, or educational uses.

M2-16: Any transportation facilities such as roads and trails provided for in this MA will have minimum impacts on the area ecosystems and must be located and managed to best fulfill the area's management objectives. Management of the transportation facilities could include closing facilities to all but the designated research personnel. Helispots and special uses such as telephone lines are not allowed.

Wildfire

M2-17: Unless plans approved by the Station Director provide for letting natural fires burn, aggressive containment using low impact methods should be used. High impact methods will be used only to prevent a total loss of the RNA. Mop up should be minimized with natural burnout being the preferred method.

Prescribed Fire

M2-18: Prescribed fire will be used only as specified in approved RNA management goals.

Fuel Loading

M2-19: Fuels will be allowed to accumulate at natural rates.

Special Uses

M2-20: Special uses will be allowed if they support the management objectives of the area and are approved by the Research Station Director and the Forest Supervisor.

Forest Health

M2-21: Monitor the area to detect pest problems which could destroy the RNA or cause damage to adjacent lands. Reintroduction of fire should be considered to reduce possible insect epidemic conditions.

M2-22: Action should be taken when the damage has the potential to modify ecological processes to the point that the area has little value for observation and research.

M2-23: Follow Forest-wide standards/guidelines for forest health.

Eastside Screens

The proposed RNA area falls within the area covered by the Regional Forester's Forest Plan Amendment #2 (Eastside Screens) of 1995 which provides direction for timber sales. Because timber sales are not allowed within the RNA, the direction contained in the Eastside Screens would not be pertinent.

Comparison of the Alternatives

Table 1: Comparison of the Alternatives

	No Action Alternative (1990 LRMP Proposed RNA)	Proposed Action (Establish RNA)
Acres of Proposed RNA at Wechee Butte	366	0
Acres of Established RNA at Wechee Butte	0	306
Short-term Management (< 10 years)	Continue Management Direction of proposed RNA under LRMP MA-2 S&Gs until Forest Plan revision.	Continue Management Direction of established RNA with existing LRMP S&Gs for MA-2.
Long-term Management (> 10 years)	To be determined during forest plan revision.	

Chapter 3: Environmental Consequences

This chapter discusses the potential effects on the human environment resulting from the implementation of the no action or proposed action alternatives. This analysis tiers to the Deschutes National Forest Land and Resource Management Plan Final Environmental Impact Statement and Record of Decision (USDA Forest Service 1990b).

Management Allocations

The proposed RNA boundary modifications will not have a measurable effect on Forest Plan goals, objectives, or outputs when considered in context of the Deschutes National Forest. The RNA would total 306 acres which is less than one of half of one percent of the Forest.

The proposed boundary modification would result in a net increase of 60 acres in Management Area 8 General Forest, and a net decrease of 60 acres in Management Area 2 Research Natural Areas (Figure 2). This modification would change the potential management actions that could be undertaken in these areas including timber harvest, fire management and suppression, and recreation. The impact of such actions in an area of this size would be minimal when considered on a landscape level. The boundary modification is in response to the need for a boundary that can be better described.

Forest Plan Amendment – Assessment of Significance

The following items describe non-significant amendments (Forest Service Manual 1926.51):

- 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 projects or activities that will contribute to achievement of the management prescriptions.

The conversion from a proposed RNA to an established RNA would not alter the currently described goals for the area, the boundary modifications are minor, no standards and guidelines will change, and the area will permanently be subject to the management prescription for RNAs.

Threatened, Endangered, and Sensitive Fish

A Biological Evaluation (BE) was prepared in compliance with the requirements of Forest Service Manual 2630.3, FSM 2670-2671, FSM W.O. Amendments 2600-95-7, and the Endangered Species Act of 1973.

There are no aquatic environments associated with the proposed RNA. The nearest aquatic environment is a wetland/spring at Swamp Wells, 2.5 miles north. The nearest fish habitat is located at East Lake, over 5 miles to the south.

For aquatics there are no threatened or endangered species or designated critical habitat within the proposed RNA therefore the action will have no effect on any aquatic threatened or

endangered aquatic species.

The Forest Service Region 6 Sensitive Species List (USDA 2011) was reviewed for species that may be present on the Deschutes National Forest. There are no listed sensitive aquatic species located within the proposed RNA or within 5 miles.

Summary of Conclusions for Sensitive Fish Species

1. The No Action Alternative serves as a baseline for all sensitive species.
2. Implementation of the Proposed Action will have no impact on any Sensitive aquatic species on the Deschutes National Forest.

Threatened, Endangered, and Sensitive Plants

A Biological Evaluation has been prepared to determine potential effects from the proposed action on threatened, endangered, and sensitive plant species in compliance with direction in the FSM 2672.4. Species considered are those on the current Regional Forester's Sensitive Species List (USDA Forest Service 2011) that are documented or suspected to occur on the Deschutes National Forest (see Appendix A of the Plant BE).

Summary

Whitebark pine (*Pinus albicaulis*) is a Candidate species for Federal listing as Threatened or Endangered. The Proposed Action to officially designate Wechee Butte as a Research Natural Area would have a beneficial effect on this species. There are no adverse effects to whitebark pine from the proposed action.

There are no other Sensitive plants are known to occur in the Wechee Butte RNA. If Sensitive plants are found in the future, the establishment of Wechee Butte RNA would be a beneficial effect to those species and their habitat.

Existing Condition

The proposed Wechee Butte Research Natural Area (RNA) occupies approximately 333 acres (135 ha) within the Deschutes National Forest, in the High Lava Plains physiographic province and the East Cascades Ecoregion, Pumice Plateau Forest subregion of Oregon (Oregon Natural Heritage Program 2003). The RNA is located on the Central Oregon pumice plateau, an area of numerous small cinder cones, extensive pumice deposits, and young lava flows. Almost 300 acres (121 hectares) of the RNA is occupied by Wechee Butte, a forested cinder cone that rises 360 feet (110 meters) above the surrounding terrain. The cinder cone contains a crater whose northern rim is breached to the northwest. The bottom of the crater lies approximately 120 feet (37 meters) below the northeast rim of the cone and 10 feet (3 meters) below the southwest rim.

Most of the RNA is dominated by lodgepole pine (*Pinus contorta*). Pure ponderosa pine (*Pinus ponderosa*) stands are present on the southern exposures, the crater rim, and on upper slopes of the cone. On northern aspects at mid-slope, whitebark pine (*Pinus albicaulis*) and white fir / grand fir hybrid (*Abies concolor* X *grandis*) occur as non-dominant species in lodgepole and ponderosa pine-dominated stands. A full description of the Wechee Butte RNA is found in the Establishment Record of the RNA (USDA Forest Service 2010).

Whitebark pine (*Pinus albicaulis*), a candidate for Federal listing as Threatened or Endangered, occurs within the proposed Wechee RNA.

The U.S. Forest Service Regional Forester lists 69 Sensitive plant species as suspected or documented to occur on the Deschutes National Forest Sensitive (Appendix A): 36 vascular plants (18 documented to occur), 26 bryophytes (11 documented), 2 lichens (1 documented) and 5 fungi (4 documented).

A pre-field review was completed to determine if any of the 69 Sensitive plant species occur within the RNA. The following sources were used in this review:

1. U.S. Forest Service NRIS-TESP-Invasives Database which is where U.S. Forest Service Sensitive plant locations are entered and tracked.
2. Wechee Butte RNA Plant Species List (USDA Forest Service 2010).

The flora has not been systematically studied but all known plant species lists were compiled into the Establishment Record (USDA Forest Service 2010).

Environmental Consequences

Under both the No Action and Proposed Action, the Wechee Butte RNA would continue to be managed as a Research Natural Area. Research Natural Areas are part of a national network of ecological areas designated for research, monitoring, education, and to maintain biological diversity (USDA Forest Service manual 4063). RNAs are managed to allow natural processes to occur and to minimize human disturbance (USDA Forest Service manual 4063.3).
The Proposed Action would guarantee that the RNA would be managed to maintain biological diversity into perpetuity. Management of RNAs is beneficial to plants and their habitats.

Direct and Indirect Effects to TES Plants

There are no mapped Sensitive plant populations within the proposed Wechee Butte RNA. However, whitebark pine, a Federal Candidate for listing as Threatened or Endangered, is known to occur in the RNA.

There are no direct or adverse indirect effects to whitebark pine from the proposed action. Establishment of the Wechee Butte RNA would benefit whitebark pine because the area would continue to be managed to maintain biological diversity with limited human disturbance, thus protecting this species and its habitat within the RNA.

Cumulative Effects

Implementation of the proposed action for the Designation of the Wechee Butte River RNA will not result in any direct or indirect adverse effects and, therefore, will not result in any cumulative effects to whitebark pine.

Threatened, Endangered, and Sensitive Wildlife

A Biological Evaluation has been prepared in compliance with the requirements of Forest Service Manual (FSM) 2630.3., FSM 2670-2671, FSM W.O. Amendments 2600-95-7, and the Endangered Species Act (ESA) of 1973. A Biological Assessment (BA) will be prepared in compliance with the requirements of Forest Service Manual (FSM) 2630.3, FSM 2672.4 and the Endangered Species Act of 1973 (Subpart B: 402.12, Section 7 Consultation, as amended) on actions and programs authorized, funded, or carried out by the Forest Service to assess their potential for effect on threatened and endangered species and species proposed for federal listing

(FSM 2670.1). This EA includes a summary of the BE which is located in the project file.

Those species thought to occur presently or historically on the Deschutes National Forest and analyzed in this document include the gray wolf.

Table 2: Threatened and Endangered Species Summary

Species	Status	Habitat	Presence
Northern Spotted Owl	Federal Threatened, MIS	Old Growth Mixed Conifer Forests	No
Gray Wolf	Federal Endangered	Generalist	Yes
Oregon Spotted Frog	Federal Proposed Threatened, Regional Forester Sensitive	Stream, Marsh	No
Northern Spotted Owl Critical Habitat			No
Oregon Spotted Frog Proposed Critical Habitat			No

Table 3: Summary of Conclusion of Effects, Threatened and Endangered Species.

Species/Habitat	Action Alternatives
Northern Spotted Owl	**NA**
Gray Wolf	**"No Effect"**
Oregon Spotted Frog	**NA**
Northern Spotted Owl Critical Habitat	**NA**
Oregon Spotted Frog Proposed Critical Habitat	**NA**

Summary of Conclusions for T&E Species

1. The Proposed Action will have "**No Effect**" on the gray wolf and their habitats. Consultation is not required.

2. There is no habitat for the following T&E species – northern spotted owl and the Oregon spotted frog as well as their respective critical habitats.

After a review of records, habitat requirements, and existing habitat components, it was determined the following T&E species do not occur and have no habitat in the project area and will not be included in any further analysis: northern spotted owl and the Oregon spotted frog and their respective critical habitat areas. Rationale for this determination is found in the BE.

Gray Wolf, Federally Endangered

The BE includes a thorough description of the habitat needs and existing habitat on the Deschutes National Forest.

Environmental Consequences

Proposed Action

Direct and Indirect Effects

There will be no change from the existing condition with the implementation of the proposed action. This is an administrative change from a proposed RNA to an established RNA. There will be no activities authorized other than the establishing the RNA. Therefore, there will be no direct or indirect effects to gray wolf habitat.

Cumulative Effects

Implementation of proposed action for the Designation of the Wechee Butte RNA will not result in any direct or indirect adverse effects and therefore, will not result in any cumulative effects for the gray wolf and its habitat.

Determination

The proposed action is programmatic in nature and there will be no change from the existing condition. Therefore, implementation of the proposed action will have a "No Effect" to gray wolves and their habitat.

Consistency

Implementation of the Designation of the Wechee Butte RNA is consistent with the Deschutes Land and Resource Management Plan and the Deschutes National Forest Late-Successional Reserve Assessments.

Regional Forester's Sensitive Species

Species classified as sensitive by the Forest Service are to be considered by conducting biological evaluations (BE) to determine potential effects of all programs and activities on these species (FSM 2670.32). The BE is a documented review of Forest Service activities in sufficient detail to determine how a proposed action may impact sensitive wildlife species, and to comply with the requirements of the Endangered Species Act.

The Forest Service Region 6 Sensitive Species List (USDA 2011) was reviewed for species that may be present on the Deschutes National Forest. After a review of records, habitat requirements, and existing habitat components, it was determined the following sensitive animal species have habitat or are known to occur in the project area and will be included in this analysis:

Table 4: Sensitive Species Summary for the Deschutes National Forest.

Species	Status	Habitat	Habitat/Species Present
Northern Bald Eagle (*Haliaeetus leucocephalus*)	Regional Forester Sensitive, MIS	Lakeside with Large Trees	No
Bufflehead (*Bucephala albeola*)	Regional Forester Sensitive	Lakes, Snags	No
Harlequin Duck (*Histrionicus histrionicus*)	Regional Forester Sensitive	Rapid Streams, Large Trees	No

Tricolored Blackbird (*Agelaius tricolor*)	Regional Forester Sensitive	Lakeside, Bullrush	No
Yellow Rail (*Coturnicops noveboracensis*)	Regional Forester Sensitive	Marsh	No
Greater (Western) Sage Grouse (*Centrocercus urophasianus phaeios*)	Federal Candidate, Regional Forester Sensitive	Sagebrush Flats	No
American Peregrine Falcon (*Falco peregrinus anatum*)	Regional Forester Sensitive, MIS	Riparian, Cliffs	No
Lewis' Woodpecker (*Melanerpes lewis*)	Regional Forester Sensitive, MIS	Large, open ponderosa pine and burned forests	Yes
White-headed Woodpecker (*Picoides albolarvatus*)	Regional Forester Sensitive, MIS	Large, open ponderosa pine	Yes
Northern Waterthrush (*Seiurus noveboracensis*)	Regional Forester Sensitive	Riparian vegetation including willows and alder	No
Horned Grebe (*Podiceps auritus*)	Regional Forester Sensitive, MIS	Lakes	No
Tule White-fronted Goose (*Anser albifrons elgasi*)	Regional Forester Sensitive, MIS	Large rivers, marsh/lakeshore habitat with emergent vegetation	No
Pacific Fisher (*Martes pennanti*)	Federal Candidate, Regional Forester Sensitive	Mixed, Complex	No
North American Wolverine (*Gulo gulo luscus*)	Regional Forester Sensitive, MIS	Mix, High Elevation	No
Townsend's Big-eared Bat (*Corynorhinus townsendii*)	Regional Forester Sensitive, MIS	Caves	No
Pallid Bat (*Antrozous pallidus*)	Regional Forester Sensitive	Canyons, cliffs, caves, and buildings	No
Spotted Bat (*Euderma maculatum*)	Regional Forester Sensitive	Canyons, cliffs, caves, and buildings	No
Fringed Myotis (*Myotis thysanodes*)	Regional Forester Sensitive	Canyons, cliffs, caves, buildings, and large snags	Yes
Columbia Spotted Frog (*Rana luteiventris*)	Federal Candidate, Regional Forester Sensitive	Stream, Marsh	No
Crater Lake Tightcoil (*Pristiloma arcticum crateris*)	Regional Forester Sensitive	Riparian, Perennially Wet	No

Evening Field Slug (*Deroceras hesperium*)	Regional Forester Sensitive	Perennially wet meadows	No
Silver-bordered Fritillary (*Boloria selene atrocostalis*)	Regional Forester Sensitive	Open riparian bogs and marshes	No
Johnson's Hairstreak (*Mitoura johnsonii*) (*Callophrys johnsonii*)	Regional Forester Sensitive	Coniferous forests with mistletoe	No
Western Bumblebee (*Bombus occidentalis*)	Regional Forester Sensitive	Meadows with floral resources	No

Summary of Conclusions for Sensitive Species

1. The No Action Alternative serves as a baseline for all sensitive species.
2. Implementation of Proposed Action will have **"No Impact"** to the Lewis' woodpecker, white-headed woodpecker, and fringed myotis and their habitats for the Deschutes National Forest.
3. There is no habitat for the following species within the Wechee Butte RNA - bald eagle, bufflehead, harlequin duck, tri-colored blackbird, yellow rail, greater sage grouse, American peregrine falcon, northern waterthrush, horned grebe, Tule white-fronted goose, Pacific fisher, California wolverine, Townsend's big-eared bat, pallid bat, spotted bat, Columbia spotted frog, Crater Lake tightcoil, evening field slug silver-bordered fritillary, Johnson's hairstreak, and western bumble bee.

After a review of records, habitat requirements, and existing habitat components, it was determined the remaining sensitive species do not occur and have no habitat in the project area and will not be included in any further analysis: bald eagle, bufflehead, harlequin duck, tricolored blackbird, yellow rail, greater sage grouse, peregrine falcon, northern waterthrush, horned grebe, Tule white-fronted goose, Pacific fisher, North American wolverine, Townsend's big-eared bat, pallid bat, spotted bat, Columbia spotted frog, Crater Lake tightcoil, evening field slug, silver-bordered fritillary, Johnson's hairstreak, and western bumble bee. The rationale for this determination is located in the BE.

Table 5displays those Region 6 Sensitive Species that are known to occur or have habitat within the Wechee Butte RNA.

Table 5: Summary of Conclusion of Impacts, Region 6 Sensitive Species for the Designation of the Wechee Butte RNA.

Species	Action Alternative
Lewis' Woodpecker	NI
White-headed Woodpecker	NI

Fringed Myotis	NI

NI = No Impact
MIIH = May impact individuals or habitat, but will not likely contribute a trend toward federal listing or loss of viability to the population or species
BI = Beneficial Impact

Lewis' Woodpecker, Region 6 Sensitive and MIS

Existing Condition/No Action

Formerly widespread, this species is common year-round only in the white oak ponderosa pine belt east of Mt. Hood. Habitat for the Lewis' woodpecker, a migrant in this part of its range, includes old-forest, single-storied ponderosa pine. Burned ponderosa pine forests created by stand-replacing fires provide highly productive habitats as compared to unburned pine (Wisdom et al. 2000). Lewis' woodpeckers feed on flying insects and are not strong cavity excavators. They require large snags in an advanced state of decay that are easy to excavate, or they use old cavities created by other woodpeckers. Nest trees generally average 17 to 44 inches (Saab and Dudley 1998, Wisdom et al. 2000). Known breeding has been documented in low numbers along Why-chus Creek (Marshall et al. 2003) and in recent burned areas across the Deschutes.

In evaluating landscape predictor variables for the Lewis's woodpecker, Saab et al. (2002) found a negative relation to burned ponderosa pine/Douglas-fir stands with high crown closure (>70%) but was positively associated with low snag densities overall. However, although it selects for more open stands, this species selected nest sites with higher densities of large snags (>20"dbh) (Saab and Dudley 1998). Lewis' woodpeckers are different than other woodpeckers. They are aerial insectivores during the breeding season and use lower densities of smaller snags but rely more heavily on large snags (Saab and Dudley 1998). Habitat for Lewis' woodpecker will increase 5-10 years after in fire areas as smaller snags fall.

The Lewis' woodpecker is declining throughout its range. Threats to this species include the loss of suitable habitat, competition for nest trees, and effects of pesticides on insects.

Habitat for the Lewis' woodpecker occurs sparingly throughout the Deschutes National Forest in ponderosa pine and xeric ponderosa pine PAGs and other PAGs where ponderosa pine is the dominant species in the early and mid seral stages in open stands where average tree size is 15"dbh or greater.

Environmental Consequences

Proposed Action

Direct and Indirect Impacts

There will be no change from the existing condition with the implementation of the proposed action. This is an administrative change from a proposed RNA to an established RNA. There will be no activities authorized other than the establishing the RNA. Therefore, there will be no direct or indirect effects to Lewis' woodpecker habitat.

Cumulative Effects

Implementation of action alternative for the Designation of the Wechee Butte RNA will not result in any direct or indirect adverse effects and therefore, will not result in any cumulative effects for the Lewis' woodpecker and its habitat.

Determination

Implementation of the Designation of the Wechee Butte RNA will result in no change to suitable Lewis' woodpecker habitat. Therefore, the Action Alternative will have "No Impact" to Lewis' woodpeckers or their habitat.

White-headed Woodpecker, Region 6 Sensitive and MIS

Existing Condition/No Action

White-headed woodpeckers are uncommon permanent residents in forests east of the Cascades. They use habitat with large open ponderosa pine, low shrub levels and large snags. Dixon (1995) found white-headed woodpecker densities increased with increasing old-growth ponderosa pine trees and showed a positive association with large ponderosa pine. The white-headed woodpecker is a primary cavity excavator of soft snags. This woodpecker is the only woodpecker species to rely heavily on seeds of ponderosa pine for food (Marshall et al. 2003 p. 364).

A long term study on the white-headed woodpecker occurred on the Deschutes and Winema National Forests from 1997-2004 with several Deschutes study sites occurring in the Metolius Basin area. Frenzel (2000) calculated the mean diameter for white-headed woodpecker nest trees to be 26.2"dbh while Dixon (1995) found similar results (mean diameter of 25.6"dbh). Frenzel (2003) found nests at sites with a high density of large diameter trees had a higher survival rate than nests in recently harvested sites. Unharvested sites or sites with greater than 12 trees per acre >21"dbh had a success rate of 63.1% while nests at previously harvested sites or lower densities of large trees had a success rate of 39.8%. Therefore, white-headed woodpeckers were positively associated with higher densities of large trees. On the Winema National Forest, white-headed woodpeckers were found to be using small-diameter trees, logs in a slash pile and upturned roots (6-13"dbh) where large snags were uncommon (Frenzel 2002).

Threats to this species include increased stand densities in ponderosa pine due to fire suppression, loss of large, old ponderosa pine trees and snags, wildfire, and increased shrub densities. Increased shrub densities may be factors leading to increased mammalian nest predation and increased risk of avian predation on adults (Frenzel 2000).

Habitat for the white-headed woodpecker occurs sparingly throughout the Deschutes National Forest in ponderosa pine dominated forests in open stands where average tree size is 10"dbh or greater.

Environmental Consequences

Proposed Action

Direct and Indirect Impacts

There will be no change from the existing condition with the implementation of the proposed action. This is an administrative change from a proposed RNA to an established RNA. There will be no activities authorized other than the establishing the RNA. Therefore, there will be no direct or indirect effects to white-headed woodpecker habitat.

Cumulative Effects

Implementation of action alternative for the Designation of the Wechee Butte RNA will not result in any direct or indirect adverse effects and therefore, will not result in any cumulative effects for the white-headed woodpecker and its habitat.

Determination

Implementation of the Designation of the Wechee Butte RNA will result in no change to suitable white-headed woodpecker habitat. Therefore, the Action Alternative will have "No Impact" to white-headed woodpeckers or their habitat.

Fringed Myotis, Region 6 Sensitive

Existing Condition/No Action

Fringed myotis are migratory to Oregon. They are a small, insectivorous bat that roosts in caves, mines, rock crevices, buildings, and other protected sites (NatureServe 2013, Harvey et. al 1999). Nursery colonies are established in caves, mines, and buildings (NatureServe 2013). Beetles and moths are common prey items and they glean insects from the ground or near thick or thorny vegetation. These bats are known to forage close to vegetative canopy and have relatively slow and highly maneuverable flight (Harvey et al. 1999). Females give birth to one young (pup) in June or July. For Oregon, NatureServe (2014) ranks the fringed myotis as S2, Imperiled. They report the greatest threat to the species is human disturbance of roost sites, especially maternity colonies, through recreational caving and mine exploration. Other threats include closure of abandoned mines, renewed mining at historic sites, toxic material impoundments, pesticide spraying, vegetation conversion, livestock grazing, timber harvest, and destruction of buildings and bridges used as roosts.

Environmental Consequences

Proposed Action

Direct and Indirect Impacts

There will be no change from the existing condition with the implementation of the proposed action. This is an administrative change from a proposed RNA to an established RNA. There will be no activities authorized other than the establishing the RNA. Therefore, there will be no direct or indirect effects to fringed myotis habitat.

Cumulative Effects

Implementation of action alternative for the Designation of the Wechee Butte RNA will not result in any direct or indirect adverse effects and therefore, will not result in any cumulative effects for the fringed myotis and its habitat.

Determination

Implementation of the Designation of the Wechee Butte RNA will result in no change to suitable fringed myotis habitat. Therefore, the Action Alternative will have "No Impact" to the fringed myotis or their habitat.

Wildlife other than Threatened, Endangered, and Sensitive

The Wildlife Report documents the review of activities and projects to meet the requirements of the Forest Service Manual (2634.03-.2), the National Forest Management Act, the Land and Resource Management Plan (LRMP) for the Deschutes National Forest, the Northwest Forest Plan (NWFP), and the Decision Notice for the Continuation of Interim Management Direction Establishing Riparian, Ecosystem and Wildlife Standards for Timber Sales (i.e. "Eastside Screens"), and the Landbird Strategies. The complete Wildlife Report is located in the project file.

Species and Habitats

The following wildlife/habitats have been reviewed to determine if the project/activity will have any negative effects on them including LRMP Management Indicator Species (MIS), NWFP Survey and Manage (S&M) species, and landbirds.

The Deschutes National Forest Land and Resource Management Plan (LRMP) (USDA 1990a) identified a group of wildlife species as management indicator species (MIS). These species were selected because they represent other species with similar habitat requirements. Management indicator species can be used to assess the impacts of management activities for a wide range of wildlife species with similar habitat needs (FSM 2620.5).

In addition to the above mentioned MIS species there have been a number of wildlife species deemed "species of concern" either through the Northwest Forest Plan (e.g. bats; pg C-43) or through other directives (e.g., landbirds).

Management Indicator Species

Table 6: Deschutes NF Management Indicator Species Summary

Species	Habitat	Habitat in Project Area
Northern Goshawk (*Accipiter gentiles*)	Mature and old-growth forests; especially high canopy closure and large trees	Yes
Cooper's Hawk (*Accipiter cooperi*)	Similar to goshawk, can also use mature forests with high canopy closure/tree density	Yes
Sharp-shinned Hawk (*Accipiter striatus*)	Similar to goshawk in addition to young, dense, even-aged stands	Yes
Great Gray Owl (*Strix nebulosa*)	Mature and old growth forests associated with openings and meadows	No
Great Blue Heron (*Ardea herodias*)	Riparian edge habitats including lakes, streams, marshes and estuaries	No
Golden Eagle (*Aquila chrysaetos*)	Large open areas with cliffs and rock outcrops	No
Waterfowl	Lakes, ponds, streams	No
Woodpeckers (Cavity Nesters)	Snags, Mature Conifers, Hardwoods, etc.	Yes
Red-tailed Hawk (*Buteo jamaicensis*)	Large snags, open country interspersed with forests	Yes
Osprey (*Pandion haliaetus*)	Large snags associated with fish bearing water bodies	No

Townsend's Big-eared Bat	Caves and dwellings	No
American Marten (*Martes americana*)	Mixed Conifer or High Elevation late successional forests with abundant down woody material	Yes
Elk (*Cervus elephas*)	Mixed habitats	No
Mule Deer (*Odocoileus hemionus*)	Mixed habitats	Yes
Snags and Down Wood Associated Species and Habitat	Snags and down woody material	Yes

The following table displays the acres of potential habitat mapped within the proposed Wechee Butte RNA.

Table 7: Acres of potential habitat for species within the proposed Wechee Butte RNA.

Species	Acres of Potential Habitat	Percent of Proposed RNA
Northern Goshawk	315 acres	72%
Coopers Hawk	288 acres	66%
Sharp-shinned Hawk	347 acres	79%
Great Gray Owl	0	%
Great Blue Heron	0	%
Golden Eagle	0	
Waterfowl	0	%
Black-backed Woodpecker	382 acres	88%
Hairy Woodpecker	0	%
Northern Flicker	0	%
Pileated Woodpecker	0	%
Three-toed Woodpecker	325 acres	74%
Williamson's Sapsucker	0	%
Red-tailed Hawk	9 acres	2%
Osprey	0	%
Townsend's Big-eared Bat	0	
American Marten	351 acres	80%
Elk Hiding Cover	0	
Elk Thermal Cover	0	
Mule Deer Hiding Cover	358 acres	82%
Mule Deer Thermal Cover	0	

Environmental Consequences

Proposed Action

Direct and Indirect Impacts

There will be no change from the existing condition with the implementation of the proposed action. This is an administrative change from a proposed RNA to an established RNA. There will be no activities authorized other than the establishing the RNA. Therefore, there will be no

direct or indirect effects to the above management indicator species.

Cumulative Effects

Implementation of action alternative for the Designation of the Wechee Butte RNA will not result in any direct or indirect adverse effects and therefore, will not result in any cumulative effects for the above mentioned management indicator species and their habitats.

Determination

This project will not affect the above mentioned management indicator species in the project area. Therefore, the designation of the Wechee Butte RNA project will not contribute to a negative trend in viability on the Deschutes National Forest for the above mentioned management indicator species.

Conservation Strategy for Eastslope of the Cascade Mountains

Landbird Strategic Plan

The Forest Service has prepared a Landbird Strategic Plan (January 2000) to maintain, restore, and protect habitats necessary to sustain healthy migratory and resident bird populations to achieve biological objectives. The primary purpose of the strategic plan is to provide guidance for the Landbird Conservation Program and to focus efforts in a common direction. On a more local level, individuals from multiple agencies and organizations with the Oregon-Washington Chapter of Partners in Flight participated in developing a publication for conserving landbirds in this region. A Conservation Strategy for Landbirds of the East-Slope of the Cascade Mountains in Oregon and Washington was published in June 2000 (Altman 2000). This document outlines conservation measures, goals and objectives for specific habitat types found on the east-slope of the Cascades and the focal species associated with each habitat type. See Table 8 for specific habitat types highlighted in that document, the habitat features needing conservation focus and the focal bird species for each.

Table 8: East-slope Cascade Mountain landbirds.

Habitat	Habitat Feature	Focal Species for Central Oregon
Ponderosa Pine	Large patches of old forest with large snags	White-headed woodpecker
	Large trees	Pygmy nuthatch
	Open understory with regenerating pines	Chipping sparrow
	Patches of burned old forest	Lewis' woodpecker
Mixed Conifer (Late-Successional)	Large trees	Brown creeper
	Large snags	Williamson's sapsucker
	Interspersion grassy openings and dense thickets	Flammulated owl
	Multi-layered/dense canopy	Hermit thrush
	Edges and openings created by wildfire	Olive-sided flycatcher

Lodgepole Pine	Old growth	Black-backed woodpecker
Whitebark Pine	Old-growth	Clark's nutcracker
Meadows	Wet/dry	Sandhill Crane
Aspen	Large trees with regeneration	Red-naped sapsucker
Subalpine fir	Patchy presence	Blue Grouse

Birds of Conservation Concern

In January 2001, President Clinton issued an executive order on migratory birds directing federal agencies to avoid or minimize the negative impact of their actions on migratory birds, and to take active steps to protect birds and their habitats. Federal agencies were required within two years to develop a Memorandum of Understanding (MOU) with the U.S. Fish and Wildlife Service to conserve migratory birds including taking steps to restore and enhance planning processes whenever possible. To meet this goal in part the U.S. Fish and Wildlife Service developed the Birds of Conservation Concern released in December 2002 (USFWS 2002) and an update to the original list was released in 2008 (USFWS 2008).

The "Birds of Conservation Concern 2008" (BCC) identifies species, subspecies, and populations of all migratory non-game birds that, without additional conservation actions, are likely to become candidates for listing under the Endangered Species Act (ESA) of 1973. Bird species considered for inclusion on lists in this report include non-game birds, gamebirds without hunting seasons, subsistence-hunted non-game species in Alaska, landbirds, shorebirds, waterbirds, and Endangered Species Act candidate, proposed endangered or threatened, and recently delisted species. While all of the bird species included in BCC are priorities for conservation action, the list makes no finding with regard to whether they warrant consideration for ESA listing. The goal is to conserve avian diversity in North America and includes preventing or removing the need for additional ESA bird listings by implementing proactive management and conservations actions (USFWS 2008). The 2008 lists were derived from three major bird conservation plans: the Partners in Flight North American Landbird Conservation Plan, the United States Shorebird Conservation Plan, and the North American Waterbird Conservation Plan. Conservation concerns stem from population declines, naturally or human-caused small ranges or population sizes, threats to habitat, or other factors.

Bird Conservation Regions (BCRs) were developed based on similar geographic parameters and are the basic units within which all bird conservation efforts should be planned and evaluated (USFWS 2008). One BCR encompasses the Designation of Wechee Butte RNA Project Area – BCR 9, Great Basin. See Table 9 for a list of the bird species of concern for the area, the preferred habitat for each species, and whether there is potential habitat for each species within the Wechee Butte project area.

Table 9: BCR 9 (Great Basin) BCC 2008 list.

Bird Species	Preferred Habitat	Habitat within the Project Area (Y or N)
Greater Sage Grouse (Columbia Basin DPS)	Sagebrush dominated Rangelands	N
Eared Grebe (non-breeding)	Open water intermixed with emergent vegetation	N
Bald Eagle	Lakeside with large trees	N
Ferruginous Hawk	Elevated Nest Sites in Open Country	N
Golden Eagle	Elevated Nest Sites in Open Country	N
Peregrine Falcon	Cliffs	N
Yellow Rail	Dense Marsh Habitat	N
Snowy Plover	Dry Sandy Beaches	N
Long-billed Curlew	Meadow/Marsh	N
Marbled Godwit	Marsh/Wet Meadows	N
Yellow-billed Cuckoo	Dense riparian/cottonwoods	N
Flammulated Owl	Ponderosa pine forests	Y
Black Swift	Cliffs associated with waterfalls	N
Calliope Hummingbird	Open mountain meadows, open forests, meadow edges, and riparian areas	N
Lewis's Woodpecker	Ponderosa pine forests	Y
Williamson's Sapsucker	Ponderosa pine forests	N
White-headed Woodpecker	Ponderosa pine forests	Y
Loggerhead Shrike	Open country with scattered trees or shrubs	N
Pinyon Jay	Juniper, juniper-ponderosa pine transition, and ponderosa pine edges	N
Sage Thrasher	Sagebrush	N
Virginia's Warbler	Scrubby vegetation within arid montane woodlands	N
Green-tailed Towhee	Open ponderosa pine with dense brush	Y
Brewer's Sparrow	Sagebrush clearings in coniferous forests/bitterbrush	N
Black-chinned Sparrow	Ceanothus and oak covered hillsides	N
Sage Sparrow	Unfragmented patches of sagebrush	N
Tricolored Blackbird	Cattails or Tules	N
Black Rosy Finch	Rock outcroppings and snowfields	N

Environmental Consequences

Direct and Indirect Impacts

There will be no change from the existing condition with the implementation of the proposed action. This is an administrative change from a proposed RNA to an established RNA. There will be no activities authorized other than the establishing the RNA. Therefore, there will be no direct or indirect effects to the above landbirds or Birds of Conservation Concern.

Cumulative Effects

Implementation of action alternative for the Designation of the Wechee Butte RNA will not result in any direct or indirect adverse effects and therefore, will not result in any cumulative effects for the above mentioned landbirds or birds of conservation concern and their habitats.

Cultural Resources

Two cultural resource sites or historic sites have been documented within the RNA (USDA Forest Service 2011). Establishing the RNA will have no impact to cultural resources and will not alter or limit existing Native American treaty rights. As per Section 106 of the National Historic Preservation Act, no ground disturbing activities will occur within the RNA without a cultural resources inventory.

Recreation

Recreation use in the area is minimal because there are no features or attractions for recreationists. There are no developed recreation facilities or trails within Wechee Butte RNA and none will be constructed. Potential recreational uses include light dispersed recreation such as hunting, off-highway vehicle use, automobile travel for pleasure on FS Road 1820 and horseback riding. Motor vehicle use, including use of all-terrain vehicles, is prohibited within the RNA. The Swamp Wells horse trail about 2 miles (3.2 kilometers) northwest of the RNA receives light use. No impacts of recreation use are evident in the RNA. Recreation use should not be encouraged, but will be permitted as long as it does not conflict with the purpose for establishing the RNA. Establishment of the RNA would not change recreation use.

Transportation

There are no roads within Wechee Butte RNA and none are planned to be built. The RNA will be closed to motor vehicles. With the boundary modified as described under the proposed action, there would be no roads or trails within the established RNA. Access is readily available by way of Forest Service Road 1820 and there is no known need for additional roads or trails, therefore the prohibition on new roads or trails would have no impact on access needs.

Invasive Plants

There are no known invasive plant sites within the RNA. In the event an invasive plant site is discovered, treatment of invasive plants is addressed in the Deschutes-Ochoco Invasive Plant Treatment Final EIS and Record of Decision (USDA Forest Service 2012).

Establishment of the RNA does not preclude continuation of treatment of existing invasive plant occurrences, nor would it prevent the practice of Early Detection Rapid Response (EDRR) to other invasive species, if detected within the RNA in the future. For these reasons, establishment

of the RNA is not anticipated to cause an increase in establishment or spread of invasive species.

Other Required Disclosures

Effects on Prime Farmland, Rangeland, and Forestland

There is no prime farmland, rangeland, or forestland in the proposed Wechee Butte RNA area.

Floodplains and Wetlands

Executive Order 11988 sets the direction of federal actions to avoid adverse impacts associated with the occupancy and modification of floodplains. Executive Order 11990 sets the direction of federal actions to avoid adverse impacts associated with destruction or modification of wetlands. The designation of the area as RNA is not expected to have any adverse impacts to floodplains or wetlands.

Potential or Unusual Expenditures of Energy

There would be no unusual expenditures of energy with this designation. The project does not involve any forms of energy expenditure.

Conflicts with Plans, Policies, or other Jurisdictions

There would be no conflicts with plans, policies, or other jurisdictions with either alternative. All overlapping plans and policies have been evaluated for consistency. The proposal to establish an RNA in this location was developed under consultation with regulatory agencies including the U.S. Fish and Wildlife Service, the National Marine Fisheries Service, Oregon Department of Fish and Wildlife, and the State Historic Preservation Officer.

Environmental Justice

The proposed designation does not appear to have a disproportionately high or adverse effect on minority or low-income populations, or Native American tribes. No mitigation measures to offset or ameliorate adverse effects to these populations have been identified. All interested and affected parties would continue to be involved with the comment and decision-making process.

Consumers, Civil Rights, Minority Groups, and Women

The proposed designation does not appear to have a disproportionately high or adverse effect on consumers, minorities, or women. The project would not have any effect on civil rights of any human being.

Consistency with Deschutes LRMP, as Amended

Formally designating the RNA would require amending the Deschutes LRMP. The designation is consistent with all other Forest Plan standards and guidelines. The management direction listed in Chapter 2 lists the management area categories for the Forest Plan.

Chapter 4: Agencies and Persons Consulted

U.S. Fish and Wildlife Service

It was determined that there would be no effect to any Federally-listed wildlife species, therefore consultation with the U.S. Fish and Wildlife Service was not required.

State Historic Preservation Officer

Designating Wechee Butte area as an RNA would not affect any historic or pre-historic artifacts; therefore no consultation with the Oregon State Historic Preservation Officer is required.

On March 12, 2009 a scoping letter was sent to a mailing list of interested parties maintained in the project file at the Deschutes National Forest Supervisor's Office. The following list of individuals, organizations, and agencies are receiving notice of the availability of this environmental assessment for comment:

Individuals, Agencies, and Organizations

Luann Danforth
Dave Lynn
Chuck Tolboe
Matt Mahoney
Vera Riser
Steven J. McNulty, Gas Transmission NW Corp.
Ken Roadman
Wally Buckman
Lee Fischer
Gary Pankey
Larry McGlocklin
Flip Houston, Scott Logging Inc.
Scott Odgers, Central Oregon Flyfishers
Pat Schatz, Mickey Finn Guide Service
Craig Vaage, Bigfoot Guide Service
David Nissen, Wanderlust Tours
Larry Ulrich
Ed Duffy, Deschutes County 4-Wheelers
David H. Tjomsland
Robert Speik
Susan Jane Brown
Brad Chalfant, Deschutes Basin Land Trust
Jim King
Michael Krochta
Josh Laughlin, Cascadia Wildlands Project
Karen Coulter, Blue Mountains Biodiversity Project
Doug Heiken, Oregon Wild
Glen Ardt
Marilyn Miller
Stuart Garrett, MD
Scott Silver, Wild Wilderness
Matt Kern
Mike Morris
Libby Johnson, Bonneville Power Administration
Keenen Howard
Senator Ron Wyden
Sunriver Owners Association
Dick Artley
John Pindar
Dennis Krakow, Woodside Ranch Owners Association
Arlie Holm
Fred Tanis
Chuck Burley, Interfor
Gerald Keck, D.R. Johnson Lumber Co.
John Morgan, Ochoco Lumber
Shawn Gerdes, Arnold Irrigation District
Bend Metro Parks & Recreation
Dylan Darling, The Bulletin
Billy Toman
Rick Bozarth, Bozarth's Offroad Service Specialties
Gordon Baker
Bodie Dowding, Interfor
Peggy Spieger, Oregon State Snowmobile Association
Corey Heath, Oregon Department of Fish and Wildlife
Stuart Otto, Oregon Department of Forestry

John McKenzie, Sunriver Owners Association
Mark Dunaway, Pine Mountain Observatory, Univ. of Oregon
Dyarle Sharkey
Patti Gentiluomo
Wade N. Foss
Bruce Cunningham
Moon Country Snowmobilers
Scott O'Neill
June Ramey
Mark Davis
Scott McCaulou, Deschutes River Conservancy
Ryan Houston, Upper Deschutes Watershed Council
Lynne Breese, Eastern Oregon Forest Protection Association
Greg McClarren
Rick Williams, ODOT Region 4
Kate Lighthall, Project Wildfire
SROA
Northwest Environmental Defense Center
Vicki McConnell, Department of Geology and Mineral Industries
Andy Ingram
Dean Richardson
Vic Russell
Ed Keith, Deschutes County Forester
Patricia Moore
Jim Lowrie
Jim Wilson, JTS Animal Bedding
Pieter & Diane Van Gelderen
L. Ulven
Steve Johnson, Central Oregon Irrigation District
Jim Anderson
Loren Smith
Jim Larson, Upper Deschutes River Coalition
Gail Carbiener
Margie Gregory
David Pitts
Central Oregon Climate Alliance
Kreg Lindberg
Peter Geiser
Senator Jeff Merkley
Larry Pennington, Oregon Chapter, Sierra Club
Judy Meredith, East Cascades Audubon Society
Paul Bannick, Conservation Northwest
Don Franks
Lowell Franks
Matt Bales, Mule Deer Foundation
Rod Adams, Oregon Hunter's Association
Jeff Trant
Kenna Hoyser, Central Oregon Chapter, Oregon Equestrian Trails
John Zachem
Scott Walley
Lisa Clark, Central Oregon Fire Management Service
Congressman Greg Walden
George Wuethner
Steve Bigby
Sarah Peters, Wildlands CPR
Meriel Darzen, Oregon Ch., Sierra Club, Juniper Group
Paul Dewey, Central Oregon Landwatch
Confederated Tribes of the Warm Springs
Burns Paiute Tribe
The Klamath Tribes
USDI Fish & Wildlife Service

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Appendix A – Consideration of Public Comments

During the public comment period (October 17, 2014 – November 17, 2014), three responses were received from the following individuals or organizations: George Wuerthner, Doug Heiken (Oregon Wild), Karen Coulter (Blue Mountains Biodiversity Project). Some comments are specific to just one of the RNAs, but some comments apply to all of them. This appendix incorporates all of the comments and responses regardless of whether or not they applied to just one of the RNAs.

All comments have been considered during the decision-making process for the RNA Establishment Project. Although not a requirement for environmental assessments, the responses provided here are intended to briefly discuss all major points of view and to document if comments resulted in any changes to the environmental assessment. Statements may have been summarized or paraphrased to reduce paperwork. Full text of the comment letters are on file at the Bend/Ft. Rock Ranger District.

Comment: I strongly approve of creation of these RNAs. My only comment has to do with the Many Lakes proposed NRA. It is not clear to me why the northern boundary does not extend past Deer Lake to the Three Sisters Wilderness boundary. It would seem to me to make a more logical boundary and expansion of the NRA to include Deer Lake and the surrounding area would provide more protection to the NRA and its purposes....trying to make it as large as possible because I like to have "buffers" around these areas, and it seemed somewhat logical to just go north to the Wilderness boundary. (G. Wuerthner)

Response: Boundary modifications that are included in the EAs are for the purpose of making the boundaries more easily recognized and described. The changes result in a net increase of 157 acres in the Many Lakes RNA. The Forest did not see a need to expand the Many Lakes RNA boundary further as the existing area incorporates the ecological area to be represented (Many Lakes EA pp 4-5); the purpose and need does not include making the RNAs as large as possible. Additionally, the area between the proposed boundary and the Wilderness is within the Dispersed Recreation management allocation in the Forest Plan (Many Lakes EA Figure 2, p. 7). Existing recreation sites and uses in that area may not be consistent with the direction for RNAs.

Comment: I'm very supportive of the designation. The EAs should have discussed the long-term benefits for focal species due to the preservation of habitat. (K. Coulter)

Response: The EAs describe which species may be present or have habitat within each RNA. Because there is no expected change to any existing habitat from officially designating the RNAs, the effects analysis concludes that there will be no effect to species or their habitat. The long-term objectives of the RNAs are to provide sites for study of natural processes in undisturbed ecosystems that can be compared to similar environments where human activities occur and to provide gene pool preserves for plant and animal species.

Comment: Oregon Wild supports conservation of these four RNAs. We encourage the Forest Service to go further and protect more of the landscape within which these special natural areas are embedded.

The proposed Cultus River RNA could be expanded to include sections 16 and 17 between roads 46 and 4623. This would help maintain more intact forest and protect more of the watershed of the Cultus River headwaters. (D. Heiken)

Response: The Forest did not see a need to expand the Headwaters Cultus River RNA boundary further as the existing area incorporates the ecological area to be represented (HW Cultus EA pp 4-5). This RNA falls within the Cultus Late Successional Reserve (LSR). The LSR is intended to provide habitat for species that rely on late-successional habitat and any activities must be consistent with the direction in the LSR Assessment and Northwest Forest Plan. Much of the areas outside the RNA in Sections 16 and 17 are roaded and have been managed in the past, including timber harvest.

Comment: The proposed Katsuk Butte RNA could be expanded to include the similar and connected biophysical setting including all of Section 22 and most of section 27 (south of Katsuk Butte and west of Sparks Lake and extending west to the amazing spring complex at Quinn Meadows in the southeast portion of section 21. The proposed Many Lanes RNA could be expanded northward to include sections 26 and 21 thereby encompassing Deer Lake and the small lake west of Deer Lake. (D. Heiken)

Response: The original RNA boundaries were the result of extensive surveys to identify areas that met the needs of the Research Station to represent specific forest type or plant community. The Forest did not identify a need to enlarge the proposed RNA, only to modify the boundary to make it easier to identify and describe. The result is a net increase of 226 acres over the proposed Katsuk Butte RNA. The entire Katsuk Butte RNA and most of the surrounding area fall within an Inventoried Roadless Area where timber harvest and road building are not allowed.

Comment: The proposed Wechee Butte RNA is in a heavily managed part of the forest and should be expanded to include all contiguous native forest, such as in the extreme NW corner of section 28. The FS might even consider adding the adjacent butte in section 28 and doing appropriate restoration and recovery efforts to that contributes to RNA values. (D. Heiken)

Response: The Oregon Natural Heritage Plan identified a need for representation in an "undisturbed forested cinder cone at mid-elevation with ponderosa pine-lodgepole pine climax." The focus area proposed for designation is almost entirely free of disturbance, which fits the purpose of providing a site where the study of natural processes can occur and be compared against areas where human activities are occurring. The establishment of the Wechee Butte RNA does not affect the potential to conduct restoration in areas surrounding the RNA.

Comment: There appears to be a small OHV play area on the border between section 28 and 29 that needs to be closed so that OHVs do not intrude any further into the Wechee Butte RNA. (D. Heiken)

Response: This information has been provided to Central Oregon's Combined off Highway Vehicle Operations (COHVOPS), which manages OHV use on the Deschutes National Forest. There is no designated trail or play area in this area, so the use is not in compliance with the Travel Management Rule.

Comment: The cover of the Wechee Butte RNA EA says it's located in section 27, but it's in section 29. (D. Heiken)

Response: This is corrected in the Final EA.

Comment: We strongly support standards for all RNAs that allow natural processes to function without significant intervention. As such, road building and logging must be prohibited. Native insects and disease and other natural disturbance processes are a natural and integral part of the ecosystem and should be allowed to play out. Forest health logging and salvage logging should not be practiced. Fire should be reintroduced in appropriate forest types to maintain stands.

Some of the proposed standards & guidelines include following the Deschutes LRMP standards for "forest health." This would be inappropriate because these standards are outdated. They label native insects "pests" and they focus too much on tree "vigor" when (from an ecological standpoint) mortality processes are just as important. (LRMP p 4-36). We recommend dropping this proposed standard "M2-23: Follow Forest-wide standards/guidelines for forest health." (D. Heiken)

Response: The system of RNAs was established with the goal of preserving natural features and plant communities for research and education purposes (Cultus Headwaters EA p. 4). Therefore timber harvest, including salvage harvest is not allowed (S&Gs M2-4, M2-5, M2-6). The S&Gs do allow for the use of fire where appropriate and prescribed fire has been used in established RNAs such as the Pringle Falls RNA (see http://www.fsl.orst.edu/rna/sites/Pringle_Falls.html for a photo of burning in the Pringle Falls RNA). This web site also provides information on all RNAs in the system across the country, including the research that has been conducted.

Comment: The designation of these RNAs should not trump the protective standards that may already be in place, such as for riparian reserves, Late Successional Reserves and inventoried roadless areas. (D. Heiken)

Response: Three of the new RNAs fall within the Northwest Forest Plan, and overlapping layers of protective management direction are in place. Headwaters Cultus River and Many Lakes RNAs fall within an LSR (see Headwaters Cultus EA p. 10), and Katsuk Butte and Many Lakes RNAs fall within Inventoried Roadless Areas (also page 10 of each of those EAs). Standards and guidelines that are consistent with those for RNAs (e.g. timber harvest is not allowed in the RNAs, regardless of direction for silviculture in LSRs under the Northwest Forest Plan) are applicable, including Riparian Reserve standards and guidelines. This has been clarified within Chapter 2 of the EAs and the map of management allocations has been updated to display NWFP allocations.