

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

Establishment Record

For

MCKENZIE PASS RESEARCH NATURAL AREA

Willamette National Forest

Lane County, Oregon



SIGNATURE PAGE

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for

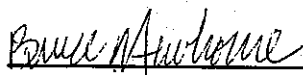
RESEARCH NATURAL AREA ESTABLISHMENT RECORD


McKenzie Pass Research Natural Area

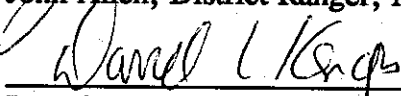
Willamette National Forest

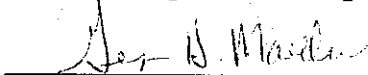
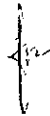
Lane County, Oregon

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 5.e(3) in arriving at this recommendation.

Prepared by:  Date 4/15/97  
Bruce Newhouse, AICP, Salix Associates

Recommended by:  Date 4/4/97  
John Allen, District Ranger, McKenzie District

Recommended by:  Date 3/24/97  
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Concurrence of:  Date 5/1/97  
 Thomas J. Mills, Station Director, Pacific Northwest Research Station

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**TITLE PAGE**

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**Establishment Record  
for  
McKenzie Pass Research Natural Area  
within  
Willamette National Forest  
Lane County, Oregon.**

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## INTRODUCTION

The McKenzie Pass Proposed Research Natural Area (RNA), in the Willamette National Forest (WNF), lies on lava flows of the High Cascades Geological Province, just west of the crest of the Cascade Mountains. Much of the flat to gently rolling terrain within the RNA is underlain by lava flows that were glaciated most recently about 10,000 years ago. These flows are forested with a variety of tree species including mountain hemlock (*Tsuga mertensiana*)<sup>1</sup>, subalpine fir (*Abies lasiocarpa*), Pacific silver fir (*Abies amabilis*), lodgepole pine (*Pinus contorta*), western white pine (*Pinus monticola*), whitebark pine (*Pinus albicaulis*), ponderosa pine (*Pinus ponderosa*), and Engelmann spruce (*Picea engelmannii*). Within the forested area are several small ponds, dry and moist meadows, numerous seasonal drainages, and rock outcrops. Very recent, nearly unvegetated lava flows enter the RNA from the south edge. These are parts of extensive beds of lava which formed 1500-2600 years ago (Long 1991) and generally surround the RNA on the north, east and south sides.

Native Americans from the Willamette Valley probably used the area in and around the RNA for huckleberry picking and stopovers on their way to the east where they obtained obsidian for their tools. Historically, the McKenzie Pass was an important travel route between the central Oregon and the Willamette Valley. The McKenzie Pass Highway, a National Forest Scenic Byway, generally follows the same route of the original road and passes less than one-eighth mile (0.2 kilometer) north of the northwest corner of the RNA. Historic use of the RNA probably concentrated around a small campground at Huckleberry Lake. Current uses are dispersed recreational activities by hikers, hunters and sightseers who enter the area from Highway 242.

The RNA and surrounding lands are entirely under National Forest ownership. Of a total of 1187 acres (480 ha) within the RNA, 723 acres (293 ha) is within the Three Sisters Wilderness Area. None of the area is within any wild and scenic river, national recreation, or any other Congressionally designated area. The Three Sisters Wilderness Area borders the RNA on the west, south and east sides.

### **Land Management Planning**

The McKenzie Pass RNA is designated as an RNA in the WNF Land and Resource Management Plan (LRMP) (WNF 1990). The plan contains objectives and management guidelines applicable to all RNAs within the Forest (Appendix A).

## OBJECTIVES

The objective of the establishment of the McKenzie Pass RNA is to preserve an upper elevation lava flow with representative vegetation. About four-fifths of the RNA is underlain by lava that was last glaciated about 10,000 years ago, and is now vegetated by a variety of forest and meadow

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<sup>1</sup>Nomenclature of trees follows Little (1979).

communities. The RNA will serve as a reference area for the study of succession on these lava flows. The remainder of the RNA is comprised of the more recent lava flows, and will provide an opportunity to compare successional patterns and ecological processes on substrates of different ages. Many of these recent flows are within the surrounding Three Sisters and Mount Washington Wilderness Areas. Ponds and meadows in the RNA, which represent unclassified subalpine parkland plant communities, add to the variety of successional processes available for study within the area. Because the area is near the upper elevational limits of many of the plant species found in it, and because of the harsh environmental conditions, the RNA will be of value as a reference area for measuring long-term ecological changes, including those associated with global climate change. The RNA will preserve genetic diversity and will provide an opportunity for preservation and study of unique or sensitive species that may occur there.

#### JUSTIFICATION STATEMENT FOR ESTABLISHMENT OF AREA

The McKenzie Pass RNA fills a stated need in the Oregon Natural Heritage Plan (Appendix B) for a lava flow with representative vegetation (Terrestrial Ecosystems), and for a volcanic field with various features (Unique Geologic with a Variety of Features). Ponds and meadows in the RNA, and extensive recent lava flows surrounding the area add to its research value.

#### PRINCIPAL DISTINGUISHING FEATURES

The principal distinguishing features of the McKenzie Pass RNA are:

1. Coniferous forest underlain by a glaciated lava flow;
2. Recent, nearly unvegetated lava flows;
3. An ecotone between the forested area and the recent lava flows;
4. A forested area on older, glaciated lava on "The Island," an area in the eastern portion of the RNA that is completely surrounded by recent lava flows.
5. Several small, shallow ponds with adjacent herbaceous, non-forested plant communities;
6. Moist meadows dominated by sedges and forbs;
7. Dry meadows dominated by grasses;
8. Rock outcrops;
7. Numerous seasonal drainages.

## LOCATION

McKenzie Pass RNA is located in the McKenzie Ranger District of the Willamette National Forest. The approximate center of the RNA is at latitude 44° 14' north and longitude 121° 49' west. It is roughly comprised of the following areas within Township 15 South, Range 7 East, and Township 15 South, Range 8 East, Willamette Meridian, Oregon:

<u>Township</u>	<u>Range</u>	<u>Section</u>	<u>Portion</u>
15S	7E	25	E ½
15S	8E	29	SW ¼
15S	8E	30	NW ¼ & S ½
15S	8E	31	NE ¼
15S	8E	32	NW ¼

### **Boundary**

The boundaries of the McKenzie Pass RNA are shown on Map 3 (provided by WNF, Geometronics and Geographic Mapping Division 1991).

### **Area**

The total area of the McKenzie Pass RNA is 1187 acres (480 ha).

### **Elevation**

Elevations within the RNA range from approximately 5040 feet (1536 m) in the northwest corner to 5842 feet (1781 m) in the southeast corner, for a total vertical difference between lowest and highest points of approximately 802 feet (244 m).

### **Access**

The McKenzie Pass RNA is located in the high Cascades of western Oregon approximately 17 air miles (27 km) east-northeast of McKenzie Bridge, Oregon. From the McKenzie Ranger District Office just east of McKenzie Bridge take Oregon Highway 126 east approximately 2 miles (3.2 km) to the junction with Oregon Highway 242. Turn right on Highway 242 and drive 19.5 miles (31.4 km). To reach the western third of the RNA, park at the Craig Memorial pullout, and walk south. Park at Craig Lake for the easiest access to the eastern two-thirds of the RNA. From the lake, walk approximately 0.2 mile (0.3 km) east on Highway 242 and take the trail to Huckleberry Lake (trail no. 3501.0). An unmaintained trail continues beyond Huckleberry Lake to Huckleberry Butte, and provides access to the southeast portions of the RNA.

The RNA is accessible by automobile on paved roads during the snow-free months. Highway 126 is kept open year round. From mid-October to July, Highway 242 is usually closed by snow 9.8

miles (15.8 km) southwest of the RNA. Winter access is possible by snow machine or skis.

## Maps

The Willamette National Forest Visitor Map (1990) illustrates the described access routes to the RNA. This map is available at the WNF Supervisor's Office in Eugene, Oregon and at all WNF Ranger District offices.

The USGS 7.5 minute quad map of North Sister, Ore. covers the RNA. This map shows topographic features at a scale of 1:24,000, with contour intervals of 40 feet (12.2 m). It is available from the USGS and at many bookstores.

The McKenzie Ranger District map is available at the McKenzie Ranger District office in McKenzie Bridge, Oregon, and has the most current road and trail information.

### AREA BY COVER TYPE

The SAF forest cover types are illustrated in Map 4. Approximate acreages of each Kuchler cover type, SAF forest cover type, and forest series are given in the following tables:

<u>Kuchler Cover Types (Kuchler 1966)</u>		<u>Acres</u>	<u>Hectares</u>
3	Fir - hemlock forest ( <i>Abies - Tsuga</i> )	926	375
45	Alpine meadows and barren ( <i>Agrostis, Carex, Festuca, Poa</i> )	261	105
Total		1187	480

<u>SAF Cover Types (Eyre 1980)</u>		<u>Acres</u>	<u>Hectares</u>
205	Mountain hemlock	545	221
218	Lodgepole pine	324	131
226	Coastal true fir - hemlock	57	23
N	Non-forested	261	105
Total		1187	480

<u>Forest Series (Hemstrom, et al. 1987)</u>	<u>Acres</u>	<u>Hectares</u>
Mountain hemlock	869	352
Pacific silver fir	57	23
<u>Non-forest communities</u>	<u>261</u>	<u>105</u>
Total	1187	480

### PHYSICAL AND CLIMATIC CONDITIONS

The topography of the McKenzie Pass RNA generally climbs gently from the northwest to the southeast. Most of the terrain varies from flat to rolling and is traversed by numerous small seasonal drainages that flow generally northwest. In the northwest corner of the RNA a steep-sided ravine drains toward the northwest. Huckleberry Butte, a cinder cone, rises steeply in the southeast corner of the RNA. Depressional areas carved out by glaciers are occupied by several small, shallow ponds, or by meadows that probably once were ponds. A variety of small ridges and rock outcrops occur throughout the area. Recent lava flows originating from the south enter the RNA in the western, southern, and eastern portions. These flows are nearly unvegetated and have undergone very little weathering, resulting in a surface of sharp, angular blocks of basaltic rock. Where the recent flows end, they rise 50 to 100 feet (15 to 30 m) above the underlying older rocks.

The climate of the high Cascades is maritime (Franklin and Dyrness 1973) with dry summers and cool, wet winters. According to Bierlmaier and McKee (1989) precipitation from cyclonic winter storms is directed at the region by the polar jet stream. In summer, the jet stream shifts to the north and high pressure dominates. Approximately 70 percent of the annual precipitation falls between November 1 and March 31, mostly as snow. Mountainous topography causes the amount of precipitation to vary greatly over short distances, thus nearby weather stations may not accurately represent the climatic conditions of the RNA.

The following tables present data from the nearest weather station at a similar elevation. The Santiam Pass station, with 30 years of weather data, is located 12.5 miles (20.1 km) north of the RNA at an elevation of 4748 feet (1447 m). Weather data were provided by the Oregon Climate Service at Oregon State University. Record length varies between months and between the precipitation and temperature data because of missing values in some years for some months.



## CLIMATE DATA FOR SANTIAM PASS, OREGON

Elevation: 4748 feet (1447 m)

PRECIPITATION Mean annual total = 86.15 inches (2188 mm)

Month	Mean		Maximum Total		Minimum Total		Record Length years
	in	mm	in	mm	in	mm	
January	14.15	359	24.55	624	0.36	9	22
February	9.62	244	17.25	438	3.20	81	22
March	8.95	227	15.00	381	2.32	59	22
April	5.65	144	10.53	267	0.78	20	24
May	3.73	95	7.01	178	0.99	25	24
June	3.33	85	9.41	239	0.98	25	23
July	1.12	28	5.90	150	0.00	0	25
August	1.79	45	6.05	154	0.00	0	25
September	3.61	92	7.42	188	0.00	0	24
October	6.18	157	12.67	322	1.34	34	24
November	12.28	312	28.01	711	3.54	90	24
December	15.74	400	34.72	882	2.40	61	22

## TEMPERATURE

Month	Mean		Maximum Mean		Minimum Mean		Record Length years
	°F	°C	°F	°C	°F	°C	
January	26.6	-3.0	34.3	1.3	14.4	-9.8	30
February	29.8	-1.2	39.1	3.9	25.0	-3.9	30
March	31.5	-0.3	36.3	2.4	27.4	-2.6	28
April	35.6	2.0	41.5	5.3	31.0	-0.6	29
May	42.5	5.9	47.9	8.8	38.5	3.6	26
June	49.9	10.0	55.0	12.8	45.7	7.6	18
July	58.0	14.5	63.2	17.3	51.6	10.9	23
August	57.2	14.0	63.8	17.7	53.1	11.7	24
September	50.4	10.2	57.1	13.9	45.0	7.2	25
October	41.9	5.5	46.8	8.2	36.7	2.6	26
November	33.3	0.7	39.2	4.0	27.7	-2.4	27
December	27.9	-2.3	35.3	1.8	20.5	-6.4	27

## DESCRIPTION OF VALUES

### Flora

The flora of the McKenzie Pass RNA is characterized by a variety of forest and non-forest plant communities. Forests of the RNA are comprised of plant associations in the mountain hemlock and Pacific silver fir series (Map 5) (Hemstrom, et al. 1987). Associations in the mountain hemlock series are the most common and occur throughout the RNA. They include the mountain hemlock/grouseberry (*Vaccinium scoparium*)<sup>2</sup>, and the mountain hemlock/thin-leaved blueberry (*Vaccinium membranaceum*)/beargrass (*Xerophyllum tenax*) associations. Two Pacific silver fir associations, Pacific silver fir/thin-leaved blueberry/beargrass and Pacific silver fir/thin-leaved blueberry/queencup beadlily (*Clintonia uniflora*), occur in three patches in the southern half of the RNA. Plant community composition in the forested parts of the RNA can vary considerably over relatively short distances, perhaps because of variation in topography or substrate. Thus, within a given plant association, inclusions of other plant associations and even other series are common. Most of these inclusions are too small to be mapped.

Mountain hemlock, subalpine fir and Pacific silver fir dominate forests in the northern third and in the south part of the RNA. Lodgepole pine, mixed with mountain hemlock and subalpine fir, dominates on drier sites through the middle of the RNA, particularly on the low ridges and rock outcrops and on "The Island" in the eastern part of the RNA. The variety of coniferous tree species growing in the RNA reflects the upper elevation mixing of westside and eastside Cascades vegetation types. In addition to those already mentioned, Engelmann spruce, western white pine, ponderosa pine, whitebark pine, Douglas-fir (*Pseudotsuga menziesii*), noble fir (*Abies procera*), and white fir (*Abies concolor*) are present. The shrub layer, which is sparse in many parts of the RNA, is most commonly dominated by grouseberry, thin-leaved blueberry, and dwarf bramble (*Rubus lasiococcus*). The most common herbaceous species in forested habitats are redwoods violet (*Viola sempervirens*), one-sided wintergreen (*Pyrola secunda*), beargrass, and broadleaf lupine (*Lupinus latifolius*).

Among the non-forest plant communities that occur within the RNA are wet meadows, dry meadows, and recent lava flows. Wet meadow communities are scattered throughout the RNA in low areas and around the margins of ponds. They are dominated by herbaceous species such as water sedge (*Carex aquatilis*), beaked sedge (*Carex rostrata*), and Jeffrey's shooting star (*Dodecatheon jeffreyi*). Dry meadows are less common and are usually dominated by bluejoint reedgrass (*Calamagrostis canadensis*). Recent lava flows in the RNA are extensions of the large lava flows that generally surround the RNA. These areas are very sparsely vegetated with scattered mountain hemlock and subalpine fir trees and occasional shrubs and herbs such as penstemon (*Penstemon* sp.) and rock-brake (*Cryptogramma crispa* var. *acrostichoides*).

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<sup>2</sup>Nomenclature of shrubs and herbs follows Hitchcock and Cronquist (1973).

Two recent mapping projects have identified old growth forests on the Willamette National Forest. The "Old Growth Forests Within the Douglas-Fir Region" map produced by the Willamette National Forest identifies the McKenzie Pass RNA area as partially "old growth" and partially "other conifer," which does not meet the stated old growth definition. The "Ancient Forest Existing in 1990" map produced by The Wilderness Society shows nearly all of the RNA as "High Elevation Ancient Forest" (above 4700 feet, 1433 m).

No federally listed candidate or endangered plant species have been found in the McKenzie Pass RNA. Habitats for several plants on the Region 6 Sensitive, Review, and Watch lists are present within the RNA. These lists should be consulted before undertaking any research or management activity in the area.

The following table lists plants documented within the RNA in the summers of 1991 and 1992.

## Flora of McKenzie Pass RNA<sup>3</sup>

LATIN NAME	COMMON NAME
<b>TREES</b>	
<i>Abies amabilis</i>	Pacific silver fir
<i>Abies concolor</i>	white fir
<i>Abies lasiocarpa</i>	subalpine fir
<i>Abies procera</i>	noble fir
<i>Amelanchier alnifolia</i>	western serviceberry
<i>Picea engelmannii</i>	Engelmann spruce
<i>Pinus albicaulis</i>	whitebark pine
<i>Pinus contorta</i> var. <i>latifolia</i>	lodgepole pine
<i>Pinus monticola</i>	western white pine
<i>Pinus ponderosa</i>	ponderosa pine
<i>Pseudotsuga menziesii</i>	Douglas-fir
<i>Salix scoulerana</i>	Scouler willow
<i>Sambucus callicarpa</i>	red elderberry
<i>Sorbus scopulina</i>	Cascade mountain-ash
<i>Sorbus sitchensis</i>	Sitka mountain-ash
<i>Tsuga mertensiana</i>	mountain hemlock
<b>SHRUBS</b>	
<i>Alnus sinuata</i>	Sitka alder
<i>Amelanchier alnifolia</i>	western serviceberry
<i>Arctostaphylos nevadensis</i>	pinemat manzanita
<i>Chimaphila menziesii</i>	little pipsissewa
<i>Chimaphila umbellata</i> var. <i>occidentalis</i>	prince's-pine
<i>Gaultheria humifusa</i>	alpine wintergreen
<i>Juniperus communis</i>	common juniper
<i>Kalmia microphylla</i> var. <i>microphylla</i>	small-leaved laurel
<i>Lonicera involucrata</i>	bearberry honeysuckle
<i>Pachistima myrsinites</i>	mountain-boxwood
<i>Phyllodoce empetriformis</i>	red mountain-heath
<i>Ribes cereum</i>	wax currant
<i>Ribes lacustre</i>	swamp gooseberry

<sup>3</sup>Nomenclature for trees follows Little (1979). Other tracheophyte nomenclature follows Hitchcock and Cronquist (1973). Tracheophyte groupings generally follow Garrison and Skovlin (1976). Bracheophyte nomenclature follows Vitt, et al. (1988). List compiled 11 July; 18-20, 24, 25 September; 1-3 October 1991.

*Ribes viscosissimum*  
*Rosa* sp.  
*Rubus lasiococcus*  
*Rubus parviflorus*  
*Rubus ursinus*  
*Salix myrtilifolia*  
*Salix sitchensis*  
*Salix* cf. *commutata*  
*Spiraea densiflora*  
*Vaccinium alaskense/ovalifolium*  
*Vaccinium caespitosum*  
*Vaccinium membranaceum*  
*Vaccinium scoparium*  
*Vaccinium uliginosum (occidentale)*

sticky currant  
rose  
dwarf bramble  
thimbleberry  
Douglasberry  
blueberry willow  
Sitka willow  
undergreen willow  
subalpine spiraea  
Alaska blueberry/early blueberry  
blue-leaf huckleberry  
thin-leaved blueberry  
grouseberry  
bog blueberry

### FORBS

*Achillea millefolium*  
*Aconitum columbianum* var. *howellii*  
*Agoseris aurantiaca*  
*Anaphalis margaritacea*  
*Anemone deltoidea*  
*Anemone lyallii*  
*Anemone occidentalis*  
*Antennaria umbrinella*  
*Apargidium boreale*  
*Apocynum androsaemifolium*  
*Arabis platysperma*  
*Arnica discoidea*  
*Aster foliaceus*  
*Aster ledophyllus*  
*Aster occidentalis*  
*Caltha biflora* var. *biflora*  
*Cardamine bellidifolia* var. *pachyphylla*  
*Castilleja suksdorfii*  
*Cirsium callilepis* var. *oregonense*  
*Clintonia uniflora*  
*Conyza canadensis*  
*Cornus canadensis*  
*Dicentra formosa*  
*Dodecatheon jeffreyi*  
*Epilobium alpinum*  
*Epilobium angustifolium*  
*Epilobium watsonii*  
*Eriogonum umbellatum*

yarrow  
Columbian monkshood  
orange agoseris  
common pearly-everlasting  
threeleaf anemone  
Lyll's anemone  
western pasqueflower  
umber pussytoes  
apargidium  
spreading dogbane  
flatseed rockcress  
rayless arnica  
leafy aster  
Cascade aster  
western mountain aster  
white marshmarigold  
alpine bittercress  
Suksdorf's paintbrush  
mountain thistle  
queen's cup  
horseweed  
bunchberry  
Pacific bleedingheart  
Jeffrey's shooting star  
alpine willow-herb  
fireweed  
Watson's willow-herb  
sulphurflower

<i>Eriophyllum lanatum</i>	wooly sunflower
<i>Galium trifidum</i> var. <i>pacificum</i>	small bedstraw
<i>Gnaphalium</i> sp.	cudweed
<i>Goodyera oblongifolia</i>	rattlesnake-plantain
<i>Habenaria</i> sp.	bog-orchid
<i>Hieracium albiflorum</i>	white-flowered hawkweed
<i>Hieracium gracile</i>	slender hawkweed
<i>Hypericum anagaloides</i>	bog St. John's-wort
<i>Hypopitys monotropa</i>	pinetop
<i>Ligusticum grayi</i>	Gray's ligusticum
<i>Listera caurina</i>	western twayblade
<i>Lomatium</i> sp.	biscuitroot
<i>Luetkea pectinata</i>	partridgefoot
<i>Lupinus latifolius</i>	broadleaf lupine
<i>Lupinus lepidus</i>	prairie lupine
<i>Mitella breweri</i>	Brewer's mitrewort
<i>Mitella ovalis</i>	oval-leaved mitrewort
<i>Nothochelone nemorosa</i>	woodland beard-tongue
<i>Osmorhiza chilensis</i>	mountain sweet-root
<i>Pedicularis groenlandica</i>	pink elephants
<i>Pedicularis racemosa</i> var. <i>racemosa</i>	leafy lousewort
<i>Penstemon davidsonii</i> var. <i>davidsonii</i>	Davidson's penstemon
<i>Penstemon rupicola</i>	cliff penstemon
<i>Polygonum newberryi</i> var. <i>newberryi</i>	Newberry's fleecyflower
<i>Potentilla breweri</i>	Brewer's cinquefoil
<i>Potentilla drummondii</i>	Drummond's cinquefoil
<i>Potentilla flabellifolia</i>	fan-leaf cinquefoil
<i>Psilocarphus elatior</i>	tall woolly-heads
<i>Pyrola secunda</i> var. <i>secunda</i>	one-sided wintergreen
<i>Ranunculus alismaefolius</i>	water-plantain buttercup
<i>Senecio sylvaticus</i>	wood groundsel
<i>Senecio triangularis</i>	arrowleaf groundsel
<i>Spiranthes romanzoffiana</i> var. <i>romanzoffiana</i>	hooded ladies-tresses
<i>Spraguea umbellata</i> var. <i>caudicifera</i>	Mt. Hood pussypaws
<i>Streptopus roseus</i>	rosy twisted-stalk
<i>Tofieldia glutinosa</i> var. <i>brevistyla</i>	sticky tofieldia
<i>Trifolium longipes</i> var. <i>hanseni</i>	long-stalked clover
<i>Valeriana sitchensis</i>	mountain heliotrope
<i>Veratrum viride</i>	American false hellebore
<i>Veronica cusickii</i>	Cusick's speedwell
<i>Veronica serpyllifolia</i> var. <i>humifusa</i>	thyme-leaved speedwell
<i>Veronica wormsjoldii</i>	American alpine speedwell
<i>Viola glabella</i>	stream violet
<i>Viola macloskeyi</i> var. <i>macloskeyi</i>	small white violet
<i>Viola sempervirens</i>	redwoods violet

Xerophyllum tenax

beargrass

### SEDGES and RUSHES

Carex aquatilis

water sedge

Carex arcta

northern clustered sedge

Carex halliana

Hall's sedge

Carex jonesii

Jones' sedge

Carex lenticularis var. impressa

shore sedge

Carex lenticularis var. lipocarpa

shore sedge

Carex luzulina

woodrush sedge

Carex nigricans

black alpine sedge

Carex pachystachya

thick-headed sedge

Carex pensylvanica var. vespertina

long stolon sedge

Carex rossii

Ross sedge

Carex rostrata

beaked sedge

Carex spectabilis

showy sedge

Carex vesicaria

inflated sedge

Eleocharis acicularis

needle spike-rush

Eleocharis palustris

common spike-rush

Juncus ensifolius

dagger-leaf rush

Juncus filiformis

thread rush

Juncus mertensianus

Mertens' rush

Juncus parryi

Parry's rush

Luzula campestris

field woodrush

Scirpus congdonii

Congdon's bulrush

### GRASSES

Agropyron caninum ssp. majis var. latiglume

awned wheatgrass

Agrostis exarata ssp. minor

spike bentgrass

Agrostis variabilis

variant bentgrass

Bromus vulgaris

Columbia brome

Calamagrostis canadensis var. acuminata

bluejoint reedgrass

Danthonia intermedia

timber danthonia

Deschampsia cespitosa

tufted hairgrass

Festuca sp.

fescue

Muhlenbergia filiformis

pullup muhly

Sitanion hystrix

bottlebrush squirreltail

Stipa occidentalis var. occidentalis

western needlegrass

Trisetum spicatum

spike trisetum

## **FERNS and ALLIES**

Athyrium filix-femina  
Blechnum spicant  
Botrychium multifidum  
Cheilanthes gracillima  
Cryptogramma cascadenis  
Cystopteris fragilis  
Isoetes echinospora  
Lycopodium clavatum  
Lycopodium sitchense  
Polystichum munitum  
Pteridium aquilinum

lady-fern  
deer-fern  
leathery grape-fern  
lace lip-fern  
Cascade rock-brake  
brittle bladder-fern  
bristle-like quillwort  
elk-moss  
Alaska clubmoss  
sword fern  
bracken

## **AQUATICS**

Potamogeton natans  
Sparganium angustifolium

broad-leaved pondweed  
narrow-leaved burreed

## **MOSSES and LIVERWORTS**

Fontanalis antipyretica  
Marchantia sp.  
Philonotis sp.  
Polytrichum sp.

(none)



## Fauna

Wildlife species in the RNA have not been systematically inventoried or studied. Three federally listed animal species, peregrine falcon (*Falco peregrinus*)<sup>4</sup>, bald eagle (*Haliaeetus leucocephalus*), and northern spotted owl (*Strix occidentalis*), are known to be present in the WNF. Although openings and meadows in the RNA may be suitable feeding habitat for peregrines, the cliffs necessary for nesting are lacking. Nearby major bodies of water for bald eagle feeding do not exist within the RNA. The northern spotted owl requires mature and old-growth forests for nesting and foraging. Nesting pairs have been documented at lower elevations west of the RNA (Freisen, pers. comm.), and spotted owl habitat has been mapped to the west (USDA Forest Service 1991). No spotted owls have been documented in the RNA and the RNA is not within or adjacent to any designated northern spotted owl habitat.

The WNF has developed a list of species using various habitats for reproduction (Appendix C). The following habitats from that list occur in the McKenzie Pass RNA:

1. riparian - coniferous (herbaceous and shrub only)
2. riparian - herbaceous
3. high temperate conifer forest (true fir associations)
4. lodgepole pine (Cascades)
5. subalpine forest (mountain hemlock)

The following unique or threatened species potentially use the above habitats that occur within the RNA for reproduction:

1. northern spotted owl - old growth habitats
2. Oregon slender salamander (*Batrachoseps wrighti*)<sup>5</sup> - several forested habitats
3. mountain beaver (*Aplodontia rufus*)<sup>6</sup> - several habitats
4. fisher (*Martes pennanti*) - mature forest and old growth habitats
5. wolverine (*Gulo luscus*) - mature forest and old growth habitats

The WNF has also identified unique habitats occurring on the Forest, and the animals that use them for feeding, resting, and roosting (Appendix C). The following unique habitats occur within the McKenzie Pass RNA:

1. wetlands
2. edges - grass/forest
3. edges - water/forest
4. burrows and bank cavities

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Nomenclature of birds follows Scott (1983).

Nomenclature of amphibians follows Nussbaum et al. (1983).

Nomenclature for mammals follows Ingles (1965).

5. caves and crevices
6. snags
7. logs and down material

The following unique and threatened animals potentially use the above unique habitats that occur within the RNA:

1. northern spotted owl - breeds in snags
2. peregrine falcon - feeds in wetlands; rests in water-forest edges
3. Oregon slender salamander - breeds in logs, down material, snags; feeds in burrows, bank cavities
4. tailed frog (*Ascaphus truei*) - feeds and rests in logs and down material
5. Townsend's big-eared bat (*Plecotus townsendii*) - breeds in caves, crevices, feeds in wetlands
6. mountain beaver - breeds in wetlands, grass-forest edges, burrows, bank cavities and in logs and down material
7. fisher - breeds in snags, logs, downed material; feeds in wetlands
8. wolverine - breeds in burrows, bank cavities, caves, logs, down material

The following fauna were observed in the McKenzie Pass RNA in the summer of 1991 by the authors of this report.

## Fauna of McKenzie Pass RNA<sup>7</sup>

### LATIN NAME

### COMMON NAME

#### AMPHIBIANS and REPTILES

Bufo boreas	western toad
Hyla regilla	Pacific treefrog
Rana cascadae	Cascade frog
Thamnophis sp.	garter snake

#### BIRDS

Ardea herodias	great blue heron
Cathartes aura	turkey vulture
Aquila chrysaetos	golden eagle
Accipiter striatus	sharp-shinned hawk
Colaptes auratus	northern flicker
Perisoreus canadensis	gray jay
Cyanocitta stelleri	Steller's jay
Nucifraga columbiana	Clark's nutcracker
Corvus corax	common raven
Parus gambeli	mountain chickadee
Sitta canadensis	red-breasted nuthatch
Troglodytes aedon	house wren
Salpinctes obsoletus	rock wren
Myadestes townsendii	Townsend's solitaire
Catharus guttatus	hermit thrush
Sialia currucoides	mountain bluebird
Turdus migratorius	American robin
Vermivora celata	orange-crowned warbler
Dendroica coronata	yellow-rumped warbler
Dendroica townsendi	Townsend's warbler
Passerculus sandwichensis	savannah sparrow
Junco hyemalis oreganus	dark-eyed junco
Carduelis pinus	pine siskin
Loxia curvirostra	red crossbill

<sup>7</sup>Nomenclature follows Scott (1983) for birds and Ingles (1965) for mammals. Species marked with an asterisk were not sighted; presence confirmed by scat and tracks.

## MAMMALS

<i>Ochotona princeps</i>	pika
<i>Callospermophilus lateralis</i>	Sierra Nevada golden-mantled ground squirrel
<i>Eutamias townsendii</i>	Townsend's chipmunk
<i>Tamiasciurus douglasii</i>	Douglas squirrel
<i>Canis latrans</i> *	coyote
<i>Euarctos americana</i> *	black bear
<i>Cervus canadensis roosevelti</i> *	Roosevelt elk
<i>Odocoileus hemionus hemionus</i>	mule deer
<i>Odocoileus hemionus columbianus</i>	black-tailed deer

## Geology

The McKenzie Pass RNA is located in an area of relatively recent volcanic activity known as the High Cascades Province. Eruptions occurred at nearby buttes as recently as 400 years ago (Long 1991), creating numerous flows of basaltic lava in the area. Lava often funneled down creek valleys (Wilson 1981). Eruptions at Yapoah Cone and Four-in-One Cone about 2600 years ago (Long 1991) resulted in the flows within the area proposed for the RNA. Immediately north of the RNA is a flow from Belknap Crater which appeared about 1500 years ago (Long 1991). This flow abuts the 2600 year-old flow just northeast of the RNA.

The area was mapped by the U. S. Geological Survey in 1967 as Quaternary-Tertiary basalt and andesite and pyroclastic rocks, and Quaternary olivine basalt. Walker and Duncan (1989) show the area as Quaternary basaltic and basaltic andesitic rocks.

Exposed rock formations within forested areas of the RNA are basaltic-andesitic, and much older than the sparsely-vegetated, more recent flows (Wilson 1981). These rocks exhibit striations attributable to scouring by glacial advance and retreat several times during the Pleistocene (1.6 million to 10,000 years ago). Glaciers essentially formed a cap (called the High Cascade Platform) in this region, and carved out hundreds of depressions, forming ponds and lakes in the area (Wilson 1981). Several ponds are present in the RNA, as well as sedge- and grass-dominated meadows that probably were ponds. These are now filled with accumulated debris, and are probably succeeding towards eventual forestation.

## Soils

The Willamette National Forest Soil Resource Inventory (SRI) was completed in 1973 (Legard and Meyer) and updated in 1990. Four soil mapping units occur within the McKenzie Pass RNA (Map 5), representing five landtypes. One or two digit mapping units consist of at least 70% of a single landtype of the same number, and up to 30% of other landtypes. Mapping

unit 714 is composed of 60% landtype 71 and 40% landtype 74. The following descriptions are from the SRI (Legard and Meyer 1973).

- Landtype 4** Recent volcanic lava flows.  
Fresh, recent volcanic lava of the High Cascades. Vegetation is sparse and found in pockets of soil material on the lava flows. Slopes are generally less than 30%.
- Landtype 6** Wet non-forest land.  
Areas that have high water tables or become seasonally ponded. This mapping unit is highly variable in topographic position and is found in depressions, along streamside areas, and steep sideslopes. Boulder fields are often found within this unit on steep slopes. Vegetation consists of sedges, rushes, grasses, tag alder, devil's club, and willow.
- Landtype 71** Loamy-skeletal Entic Cryumbrept.  
Shallow, nonplastic landtype derived from residuum and colluvium. Surface soils are thin sandy loams and loams. Subsoils are thin gravelly loams, fine sandy loams, and loams. Bedrock is composed of competent, hard andesites and basalts. Depth to bedrock is usually less than 3 feet (0.9 m). This landtype occurs on steep, smooth to uneven upper sideslopes and ridges with slopes ranging from 45 to 90 percent. Elevation ranges from 4400 feet (1341 m) to 6000 feet (1829 m). Soils are well drained. Permeability is rapid in the surface soils and rapid in the subsurface soils.
- Landtype 73** Ashy over loamy Entic Cryorthod.  
Shallow to moderately deep, nonplastic soils derived from residual, glacial and volcanic materials. Surface soils are thin sandy loams and loams. Subsoils are thin to moderately thick loams ranging to silt loams. Bedrock is composed of competent, hard andesites and basalts. Depth to bedrock ranges from less than 3 feet (0.9 m) to 6 feet (1.8 m). This landtype occurs on gentle, uneven high elevation flats and benches with slopes less than 30 percent. Small meadows and rock outcrops occur within this landtype. Elevation ranges from 3800 feet (1158 m) to 5300 feet (1615 m). Soils are well-drained. Permeability is rapid in the surface soils and rapid to moderate in the subsoils.
- Landtype 74** Entic Cryumbrept  
Moderately deep, nonplastic soils derived from glacial till, colluvium, and volcanic materials. Surface soils are thin sandy and gravelly or cobbly loams. Subsoils are gravelly or cobbly sand loams and loams. Bedrock is composed of competent, hard andesites and basalts. Depth to

bedrock ranges from 3 feet (0.9 m) to 6 feet (1.8 m). This landtype occurs on moderate, smooth to uneven sideslopes of glacial origin, with slopes ranging from 35 to 55 percent. Elevation ranges from 4800 feet (1463 m) to 5500 feet (1676 m). Soils are well drained. Permeability is rapid to very rapid in the surface soils and rapid in the subsoils.

## **Lands**

All lands within the RNA boundary are reserved National Forest lands. There are no outstanding rights to any lands within the boundary (Watson, pers. comm.).

## **Cultural**

Native Americans likely used the RNA for huckleberry gathering, hunting, and as a travel route and stopover area on their way to gather obsidian for tools at Obsidian Cliffs and Obsidian Falls to the east (Berglund, pers. comm.). Warm Springs Indians from the east probably ventured westward during the summer months over the McKenzie Pass, through the area of the RNA, to the McKenzie Valley (WNF, no date).

Most of the historic use of the area has been associated with the McKenzie Highway (Oregon Highway 242). After several unsuccessful attempts to privately finance road construction, John Craig and others completed the McKenzie Toll Road in 1872 (Williams 1990). Craig subsequently carried the U.S. Mail across the McKenzie Pass between the towns of McKenzie Bridge and Sisters until his death in a blizzard in 1877, 0.4 mile (0.6 km) west of the RNA (MacArthur 1982). The Toll Road became a county road in 1898 and the first automobile crossed the McKenzie Pass in 1912. In 1917 the road became a state highway. The highway served as a major route between central Oregon and the southern Willamette Valley until 1964 when the Clear Lake Cutoff to the Santiam Pass Highway was built. The highway is listed as a designated National Forest Scenic Byway in the LRMP (WNF 1990).

From the 1920s until 1964, the U.S. Forest Service operated a campground at Huckleberry Lake. In 1947 it had two trailer spaces, three stoves, six tables, and two outhouses. (USDA Forest Service 1947). One picnic table remains, and the women's outhouse still stands. The road to the camp and the lake was officially closed in 1964 by the Wilderness Act (Otoupalik, pers. comm.), and is designated as forest trail no. 3501.0 in the LRMP (WNF 1990).

Establishment of the RNA is not likely to have an impact on either pre-historic or historic cultural values, unless there is significant ground-disturbing activity. If research installations within the RNA require such activities, known cultural sites should be avoided. Known site locations are on file at the McKenzie Ranger District.

## IMPACTS AND POSSIBLE CONFLICTS

### **Mineral Resources**

There are no unpatented mining claims within the RNA on file with the U.S. Bureau of Land Management, and no known mineral resources are in or adjacent to the RNA (Clayton, pers. comm.). A request will be made to withdraw the area from mineral entry if the RNA establishment is approved.

### **Grazing**

No grazing occurs within or near the McKenzie Pass RNA because of lack of forage and inaccessibility of the area. Establishment of an RNA will not conflict with grazing values (Freisen, pers. comm.).

### **Timber**

Potential annual timber production from suited acres in the RNA is 103,710 cubic feet (2935 cu m) per year (Mayo, pers. comm.). Timber volume production was calculated using the WNF forest-wide average of 112 cubic feet/acre/year (7.8 cu m/ha/yr), and may overestimate productivity of forested lands in the RNA. The RNA contains 926 acres (375 ha) of forested land, all of which meets the productivity requirements of commercial forest land (Ragan, pers. comm.). The timber within the RNA was not included in the timber producing base specified in the LRMP (WNF 1990).

### **Watershed Values**

Deep snowpacks accumulate in the McKenzie Pass RNA and surrounding area. Snowmelt percolating down through the porous rock underlying the area is probably an important source of groundwater feeding Lost Creek and White Branch Creek, major tributaries of the McKenzie River, as well as lower elevation lakes such as Scott Lake and Coffee Lake (McSwain, pers. comm.). Lost Creek provides salmon spawning habitat (observed by the authors of this report).

The Draft National Wetlands Inventory Map (U. S. Fish and Wildlife Service 1990) for the RNA shows five types of wetlands within the RNA. Of a total of twelve ponds, eight are mapped as "Palustrine, Unconsolidated Bottom, Permanently Flooded," and four are mapped as "Palustrine, Aquatic Bed, Semipermanently Flooded." Of seven wetland meadows, five are mapped as "Palustrine, Scrub-Shrub, Seasonally Flooded," and two are mapped as "Palustrine, Emergent, Seasonally Flooded." A "Palustrine, Forested, Seasonally Flooded" wetland area is mapped in the western part of the RNA.

RNA designation will have no negative impacts on watershed values and will protect existing values.

## **Recreation Values**

Recreational use of the RNA consists of light to moderate use by day hikers, mountain bikers, and deer hunters who usually enter the north side of the area from Craig Lake area or from the Huckleberry Lake Trail (no. 3501.0). Part of this trail may run inside the RNA boundary on the northeast side of the RNA. It continues beyond Huckleberry Lake to Huckleberry Butte, providing access to the east and south sides of the RNA. According to McKenzie Ranger District recreation personnel, the trail is sporadically maintained from Highway 242 to Huckleberry Lake, and there are no plans to maintain it beyond that point (Otoupalik, pers. comm.). No other trails are planned for the RNA or the surrounding area.

Light dispersed camping occurs in the area surrounding the RNA, mostly adjacent to Highway 242 near Craig Lake. No campground is shown in or adjacent to the RNA on current Forest Service or USGS maps.

Although the gentle terrain presents no significant barriers to entry on foot or bicycle, recreational use is expected to remain fairly light. Day hikers and mountain bikers will probably continue to concentrate their activities near Huckleberry Lake and on the trail between Highway 242 and Huckleberry Butte. The establishment of the RNA will not have a significant impact on recreational values.

## **Wildlife and Plant Values**

RNA designation will preserve habitat for the spotted owl and other threatened, endangered, and unique species that may use the site.

Potential habitat for pale blue-eyed grass (*Sisyrinchium sarmentosum*), a federal category 2 candidate species, is contained in the RNA, and will be preserved by the RNA designation.

## **Special Management Area Values**

The proposed RNA lies partially within the Three Sisters Wilderness Area and wilderness area land abuts the RNA on the west, south, and east sides. Establishment of the RNA will not impact the purposes or management of the wilderness area. No other congressionally-designated special management areas such as wild and scenic river, or national recreation areas occur within the proposed RNA.

## **Transportation Plans**

No road construction is planned in the RNA or in any of the surrounding area. Except for a small area directly north of the RNA, all neighboring lands are designated as unroaded areas - the Three Sisters Wilderness Area on the west, south, and east sides and a "Dispersed Recreation - Semiprimitive Nonmotorized" management area on the northeast side (WNF 1990). No motorized vehicles are allowed in these areas and the one existing road to Huckleberry Lake has been closed to motor vehicles since 1964. Adjacent lands on the



northeast side of the road (to the northeast of the RNA) are designated as a "Dispersed Recreation - Semiprimitive Motorized" management area in the LRMP (WNF 1990). New roads cannot be developed in this management area, but off-road motorized vehicles are allowed. Access to the RNA by off-road vehicles is prohibited and will be discouraged. Forest transportation system plans will have no impact on the RNA. Likewise, the RNA designation will have no impact on transportation plans.

### MANAGEMENT PRESCRIPTION

The McKenzie Pass RNA will be managed according to the goals, desired future condition, and standards and guidelines set forth for RNAs in Management Area 4 of the LRMP for the WNF (1990) (Appendix A). According to the LRMP, RNAs "will be managed to provide for naturally occurring physical and biological processes without undo human intervention."

Among the standards and guidelines listed in the LRMP are the following:

- an RNA management plan and implementation schedule for baseline data collection and periodic remeasurement shall be prepared;
- recreational activities within the RNA including camping, hunting and trapping will be discouraged;
- recreational off-road vehicle use will be prohibited;
- new trail or road construction will not occur unless it enhances RNA values;
- existing trails will be allowed to remain if they do not compromise RNA values;
- introduction of exotic plant and animal species will be prohibited;
- no programmed timber harvest will be scheduled;
- managed or naturally occurring fire may be used to perpetuate a sere provided prudent measures are taken to avoid catastrophe;
- no action will be taken against insects or diseases unless the outbreak threatens to drastically alter the natural ecological processes within the RNA or is an immediate threat to adjacent land;
- the RNA will be recommended for withdrawal from locatable mineral exploration.

### **Vegetation Management**

The McKenzie Pass RNA will be managed with minimal human interference to preserve and maintain natural plant communities and ecological processes.

Wildfire, ignited either by lightning or by Native Americans, was a natural element of the prehistoric forests of the high Cascades (Franklin and Dyrness 1973). Fire suppression activities in this century have probably interrupted the natural fire frequency in the area around the McKenzie Pass RNA as they have throughout much of the high Cascades (Franklin and Dyrness 1973). Natural fires will be allowed to burn within the boundaries of the RNA as long as burning conditions specified in the management plan are met. Fires not meeting those conditions will be suppressed as soon as possible. Suppression methods will be used that minimize impacts on RNA values. The use of mechanized equipment will be minimized. No chemical fire retardants may be used inside the RNA without the permission of the Forest Supervisor.

Exotic plant species are rare in the RNA at this time, but are likely to appear eventually along the Huckleberry Lake Trail or in other areas near the highway. They should be removed manually as soon as possible to prevent establishment and spread to other parts of the RNA.

The trail to Huckleberry Lake will be assessed for environmental damage to the meadows straddling the northeast boundary of the RNA. Soil disturbance from hiking and biking has resulted in erosion (probably wind-caused) and damage to fragile plant communities of the meadows. These meadows may be important habitats for threatened, endangered, or unique flora and fauna (for example, little grape-fern (*Botrychium simplex*), a species on the WNF 1991 watch list, was documented in a meadow just outside the RNA in this area). In places, the trail is eroded to a depth of a foot or more below the surrounding terrain. Impacts of the trail on RNA values might warrant relocation of the trail to a less fragile area in the forest or on the lava beds, perhaps entirely outside the RNA. After the northeast boundary is field surveyed, the feasibility of relocating the Huckleberry Lake Trail will be examined. Alternatives will be evaluated based on the goal of minimizing damage to fragile meadow communities while maintaining primitive access to the lake.

**Monitoring.** Permanent plots were installed in the RNA in 1991 to monitor forest communities. The plots were set up and sampled according to the Region 6 Vegetation Resource Exam procedures. Trees, shrubs, herbaceous vegetation, snags, and logs were sampled at each of the 46 plots. Details of plot establishment and location are in Appendix D. Ongoing monitoring of these plots will provide information about long term trends in succession, vegetation changes associated with climate change, and the effects of fire on vegetation, should it occur in the RNA. Types of data to be collected and the scheduling of sampling will be addressed in the RNA management plan.

## ADMINISTRATION RECORDS AND PROTECTION

The following principal contacts are responsible for the administration and protection of the McKenzie Pass RNA.

1. For administration and protection of the physical area:

District Ranger  
McKenzie Ranger District  
McKenzie Bridge, Oregon 97413

2. For approval and coordination of research within the RNA, maintenance of the RNA databases and of lists of herbarium and animal species samples collected in the RNA:

Director Pacific Northwest Research Station 333 S.W. First Avenue P.O. Box 3890 Portland, Oregon 97208	RNA Database Coordinator Department of Forest Science Peavy Hall 154 Oregon State University Corvallis, Oregon 97331
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Records for the McKenzie Pass RNA will be maintained in the following offices:

Regional Forester  
Pacific Northwest Region  
333 S.W. First Avenue  
P.O. Box 3623  
Portland, Oregon 97208

Director  
Pacific Northwest Research Station  
333 S.W. First Avenue  
P.O. Box 3890  
Portland, Oregon 97208

Forest Supervisor  
Willamette National Forest  
211 East 7th Avenue  
P.O. Box 10607  
Eugene, Oregon 97440

District Ranger  
McKenzie Ranger District  
McKenzie Bridge, Oregon 97463

RNA Database Coordinator  
Department of Forest Science  
Peavy Hall 154  
Oregon State University  
Corvallis, Oregon 97331

## ARCHIVING

The Pacific Northwest Research Station Director will establish and maintain a system for archiving data and reports from the RNA that will facilitate the exchange of information among Research Stations and scientists. Data from the RNA will be archived in the Forest Science Data Bank (FSDB) at the Forest Science Department, Oregon State University, Corvallis, Oregon under cooperative agreement between the FSDB and the Forest Service.

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## PERSONAL COMMUNICATIONS

### McKenzie Ranger District

Eric Berglund

Cheryl Freisen

Michelle McSwain

Steve Otoupalik

### WNF Supervisor's Office

Jim Mayo

Mike Ragan

Bruce Watson

### Siuslaw National Forest Supervisor's Office

Janine Clayton

## APPENDICES

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- A - Excerpt from Land and Resource Management Plan (Willamette National Forest 1990).
  - B - Excerpt from Oregon Natural Heritage Plan (Natural Heritage Advisory Council to the State Land Board 1988).
  - C - Willamette National Forest wildlife habitats and species lists (Willamette National Forest - date unknown, and 1991).
  - D - Monitoring plot location map and layout description.
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## MANAGEMENT AREA 4

**Emphasis:** Research Natural Areas

### Management Goals

The goals of this management area are to preserve naturally occurring physical and biological units where natural conditions are maintained insofar as possible for the purposes of:

- Comparison with those lands influenced by man.
- Provision of educational and research areas for ecological and environmental studies.
- Preservation of gene pools for typical as well as rare and endangered plants and animals.

### Desired Future Condition

Research Natural Areas (RNAs) will be managed to provide for naturally occurring physical and biological processes without undue human intervention. Plant and animal communities native to an area will be allowed to evolve unaltered, serving as a gene pool source and as a baseline for measuring long-term ecological change. RNAs will provide for nonmanipulative environmental research, observation and study. They will serve as control areas for comparing results from manipulative research, and for monitoring effects of resource management techniques and practices. Areas will preserve a wide spectrum of pristine values or natural settings that have unique educational and scientific interest. No programmed timber harvest will occur. Access will be limited to trails and roads that do not compromise the objectives of the RNA.

### Description

This prescription applies to existing RNAs and areas recommended for inclusion during the life of this Plan. The sites designated as Research Natural Areas include:

Area Name	Acres	District	Date Established
Ollalie Ridge	720	McKenzie	1963
Gold Lake Bog	463	Oakridge	1965
Wildcat Mountain	1,000	Sweet Home	1968
Middle Santiam	1,145	Sweet Home	1979
Hagan Block	1,280	Blue River	1990
McKenzie Pass	1,195	McKenzie	1990
Rigdon Point	300	Rigdon	1990
Three Creeks	661	Sweet Home	1990
Torrey-Charlton	2,154	Oakridge	1990
Wildcat Mtn Addition	384	Sweet Home	1990



Site-specific resource values and management activities will be prescribed in individual Establishment Records. The Regional Forester and Pacific Northwest Station Director will prepare an Establishment Report for each recommended area; this document will describe features, objectives for establishment, and specific management direction.

## **Standards and Guidelines**

### **PLANNING**

- MA-4-01** A management plan shall be prepared for each RNA to fulfill objectives of the Establishment Report.
- MA-4-02** An implementation schedule for baseline data collection and periodic remeasurement shall be prepared for each RNA. The baseline data will serve as a benchmark for research needs as well as for long-term assessments of changes in the forest ecosystem.
- MA-4-03** Ecological responses to management activities or natural disturbances on or adjacent to RNAs should be measured when appropriate. Studies may be prioritized based on the significance of the potential impact.

### **RECREATION MANAGEMENT**

- MA-4-04** Area management practices should result in a physical setting that meets or exceeds the ROS class of Roded Natural.
- MA-4-05** Recreation activities and uses within RNAs shall be discouraged. This includes overnight camping; recreation use within 200 feet of lakes, ponds and streams; and pack and saddle stock use.
- MA-4-06** All recreation ORV use shall be prohibited.
- MA-4-07** Hunting and trapping shall be discouraged.
- MA-4-08** If other recreation use threatens research or education values, closures or permits should be instituted.
- MA-4-09** Educational use of an RNA should generally be directed toward the graduate level, but may be approved for any educational level.
- MA-4-10** On-site interpretive or demonstrative facilities shall be prohibited.
- MA-4-11** Publicity that would attract the general public to the RNA shall be avoided.

### **FOREST TRAIL SYSTEM**

- MA-4-12** New trails shall not be constructed unless they are needed for research purposes. Existing trails may be allowed to remain as long as the RNA objectives are not compromised.

## MANAGEMENT AREA 4

### WILDERNESS

- MA-4-13** If an RNA is established within wilderness, wilderness management direction shall take precedence.

### SCENIC RESOURCES

- MA-4-14** All design and implementation practices should be modified as necessary to meet the VQO of Preservation.

### WILDLIFE MANAGEMENT

- MA-4-15** Introduction of exotic plant and animal species shall not be permitted. Reintroduction of former native species, including fish stocking, may be permitted if the objectives of the RNA are met.

- MA-4-16** Control of excessive animal populations should be evaluated and control activities may be implemented where such populations threaten the RNA objectives.

Habitat improvement projects may be approved if they meet the objectives of the RNA.

### TIMBER MANAGEMENT

- MA-4-17** No programmed harvest shall be scheduled.

- MA-4-18** Cutting and removal of all vegetation, including firewood, shall be prohibited, except as part of approved scientific investigation.

- MA-4-19** Felled trees shall remain in place, unless lying across trail or road. Trees shall not be removed. Hazard tree felling may be permitted along boundary trails or roads for safety.

### FIRE MANAGEMENT

- MA-4-20** If fire is used to perpetuate a sere, it should mimic a natural fire, but with prudent measures to avoid catastrophe. Managed or naturally occurring fire may be used to perpetuate the sere and thus the cell that the RNA is meant to represent.

- MA-4-21** Suppression strategies, practices and activities shall be limited to those which have minimal impacts to RNA values.

- MA-4-22** Chemical fire retardants shall be avoided.

- MA-4-23** Fuels normally should be allowed to accumulate at natural rates unless they threaten the objectives of the RNA.

**INTEGRATED PEST MANAGEMENT**

- MA-4-24** No action shall be taken against insects or diseases unless the outbreak threatens to drastically alter the natural ecological processes within the RNA or is an immediate threat to adjacent lands.

**LANDS**

- MA-4-25** Rights-of-way easements, including utility corridors, existing before RNA establishment shall be honored. Upgrading that would compromise the objectives of the RNA should be discouraged.
- MA-4-26** FERC licenses or permits that compromise the objectives of the RNA shall not be recommended.
- MA-4-27** All lands shall be retained and private inholdings acquired.

**MINERALS AND ENERGY**

- MA-4-28** RNAs shall be recommended for withdrawal from locatable mineral exploration.
- MA-4-29** RNAs may be recommended for lease issuance with a no surface occupancy stipulation.

**FACILITIES**

- MA-4-30** New trail or road construction should not occur, except to enhance RNA values.
- MA-4-31** Construction of new facilities shall be prohibited. Existing facilities may be allowed to deteriorate without replacement. Temporary research facilities and installations may be approved under permit.

## TERRESTRIAL ECOSYSTEMS - West Slopes and Crest, Oregon Cascades

Agency	Priority	Element Name	Present Representation
	+	58. Subalpine pumice and ash fields ("pumice deserts").	Pumice Desert PRNA
FS	L	59. Alpine needlegrass in the southern portion of the high Cascades.	Sky Lakes Wilderness** Mtn. Lakes Wilderness**
FS	L	60. Alpine community mosaic (above treeline with a variety of meadows, rocky areas, and aspects).	Three Sisters Wilderness**
<b>Special Types</b>			
FS	M	61. Swale or swamp forest, Umpqua region (Oregon ash and ponderosa pine).	
FS	M	62. Mesic Douglas fir-western hemlock forest with montane species in the Columbia Gorge.	Columbia River Gorge ACEC**
FS	H	63. Grand fir-ponderosa pine community in Columbia Gorge.	
FS	H	64. Western hemlock-western red cedar forested wetland in Columbia Gorge.	
ST,FS	L	65. Mesic red alder forest in western Columbia Gorge.	
FS	M	66. Scrub white oak community in western Columbia Gorge.	
	+	67. Lava flow with representative vegetation (range from mid to high elevations).	McKenzie Pass PRNA *
FS	M	68. Recent lahar (mudflow) with successional forest communities including lodgepole pine/pinemat manzanita.	
FS	L	69. West side lodgepole pine on glacial outwash.	
BLM,FS	M	70. Grass bald on western margin of the Cascades.	
BLM,FS	M	71. Southern Oregon Cascades chaparral communities.	

PVT = Private Land      ST = State Land      FS = U.S. Forest Service      NPS = National Park Service  
 ACE = Army Corps of Engineers      FWS = US Fish & Wildlife Service      BLM = Bureau of Land Management

P.. = Proposed.. RNA = Research Natural Area      ACEC = Area of Critical Environmental Concern      SIA = Special Interest Area  
 TNC = Nature Conservancy Preserve      NHCA = Natural Heritage Conservation Area      RSNA = Registered State Natural Area

H = High Priority      M = Medium Priority      L = Low Priority      + = Adequately represented on proposed but not established area  
 \* = Adequately represented in the area named      \*\* = Partially protected due to designation, size, or quality at this site

# UNIQUE GEOLOGIC FEATURES

Element Name

Present Representation

## Landforms of Vulcanism (cont.)

26. Lava Cast Life Forms	Lava Cast Forest Park Oneonta Gorge
27. Basalt & Basaltic Andesite Landforms	Three Sister Wilderness
28. Pillow Lavas	Boiler Bay
29. Fumaroles & Gas Vents	Mt. Hood
30. Volcanic Field with a variety of features	Diamond Craters ONA Jordan Craters RNA McKenzie Pass *

## Coastal Landforms

31. Capes and Headlands	Cape Lookout RSPPA Cascade Head NHCA Cape Blanco
32. Sea Caves and Arches	Sea Lion Caves Cape Lookout RSPPA
33. Sea Stacks & Haystacks	Otter Crest Ecola State Park Oregon Island NWR
34. Marine Terrace	Thomas Creek Humbug Mountain
35. Abrasion Surface	Cape Arago
36. Seacoast Landslide	North Euchre Creek
37. Faulted Coastline	Neahkahnie Mountain
38. Sand Beaches	Clatsop Plains Three Mile Creek PRNA
39. Sand Dunes	West Sand Island PRNA Umpqua Dunes

PVT = Private Land      ST = State Land      FS = U.S. Forest Service      NPS = National Park Service  
ACE = Army Corps of Engineers      FWS = US Fish & Wildlife Service      BLM = Bureau of Land Management

P. = Proposed, RNA = Research Natural Area, ACEC = Area of Critical Environmental Concern, SLA = Special Interest Area  
TNC = Nature Conservancy Preserve, NHCA = Natural Heritage Conservation Area, RSNA = Registered State Natural Area  
H = High Priority, M = Medium Priority, L = Low Priority, + = Adequately represented on proposed but not established area  
\* = Adequately represented in the area named      \*\* = Partially protected due to designation, size, or quality at this site

USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Riparian - Coniferous

GRASS/FORB	SHRUB STAGE	SAPLING - POLE (OPEN)	SAPLING - POLE (CLOSED)	LARGE SAWTIMBER OR MATURE FOREST	OLD GROWTH
1 American coot	1 Allen's hummingbird	1 Allen's hummingbird	1 Cooper's hawk	1 American crow	1 American crow
1 Canada goose	1 American robin	1 American robin	1 Swainson's thrush	1 Barrow's goldeneye	1 Barrow's goldeneye
1 Virginia rail	1 Brewer's blackbird	1 Brewer's blackbird	1 band-tailed pigeon	1 Cooper's hawk	1 Cooper's hawk
1 blue-winged teal	1 Hutton's vireo	1 Hutton's vireo	1 evening grosbeak	1 European starling	1 European starling
1 common nighthawk	1 Lincoln's sparrow	1 MacGillivray's warbler	1 golden-crowned kinglet	1 Hammond's flycatcher	1 Hammond's flycatcher
1 common snipe	1 MacGillivray's warbler	1 Swainson's thrush	1 harlequin duck	1 Steller's jay	1 Steller's jay
1 gadwall	1 Wilson's warbler	1 Wilson's warbler	1 long-eared owl	1 Swainson's thrush	1 Swainson's thrush
1 green-winged teal	1 brown-headed cowbird	1 black-throat gray warbler	1 pine siskin	1 Townsend's warbler	1 Townsend's warbler
1 mallard	1 chipping sparrow	1 brown-headed cowbird	1 purple finch	1 bald eagle	1 bald eagle
1 northern harrier	1 common nighthawk	1 chipping sparrow	1 ruffed grouse	1 band-tailed pigeon	1 band-tailed pigeon
1 northern pintail	1 dark-eyed junco	1 dark-eyed junco	1 sharp-shinned hawk	1 brown creeper	1 brown creeper
1 northern shoveler	1 fox sparrow	1 evening grosbeak	2 American crow	1 bufflehead	1 bufflehead
1 red-winged blackbird	1 hermit thrush	1 fox sparrow	2 American robin	1 chestnut-backed chickdee	1 chestnut-backed chickdee
1 savannah sparrow	1 orange-crowned warbler	1 hermit thrush	2 Cassin's finch	1 common merganser	1 common merganser
1 sora	1 ruffed grouse	1 orange-crowned warbler	2 European starling	1 common raven	1 common raven
2 California quail	1 rufous hummingbird	1 purple finch	2 Hammond's flycatcher	1 evenning grosbeak	1 evenning grosbeak
2 cinnamon teal	1 rufous-sided towhee	1 ruffed grouse	2 Hutton's vireo	1 golden-crowned kinglet	1 golden-crowned kinglet
2 marsh wren	1 song sparrow	1 rufous hummingbird	2 Steller's jay	1 gray jay	1 gray jay
2 mountain quail	1 white-crowned sparrow	1 rufous-sided towhee	2 Wilson's warbler	1 great blue heron	1 golden-crowned kinglet
2 ring-necked duck	1 yellow-rumped sparrow	1 white-crowned sparrow	2 barred owl	1 harlequin duck	1 harlequin duck
2 turkey vulture	1 yellow-rumped warbler	1 yellow-rumped warbler	2 black-headed woodpecker	1 hermit thrush	1 hermit thrush
2 white-crowned sparrow	1 American goldfinch	1 American goldfinch	2 black-headed grosbeak	1 hermit warbler	1 hermit warbler
	1 American wigeon	2 American goldfinch	2 black-throat gray warbler	1 hooded merganser	1 hooded merganser
	2 California quail	2 American hawk	2 brown creeper	1 long-eared owl	1 northern flicker
	2 Swainson's thrush	2 Hammond's flycatcher	2 brown-headed cowbird	1 northern flicker	1 northern saw-whet owl
	2 Virginia rail	2 Lincoln's sparrow	2 chestnut-backed chickdee	1 pine grosbeak	1 olive-sided flycatcher
	2 black-headed grosbeak	2 Steller's jay	2 dark-eyed junco	1 pine siskin	1 osprey
	2 blue-winged teal	2 black-headed grosbeak	2 downy woodpecker	1 purple finch	1 pine grosbeak
	2 common yellowthroat	2 band-tailed pigeon	2 gray sparrow	1 red crossbill	1 pine siskin
	2 gadwall	2 black-headed grosbeak	2 hairy woodpecker	1 red-breasted nuthatch	1 purple finch
	2 green-backed heron	2 mourning quail	2 hairy woodpecker	1 red-breasted nuthatch	1 red crossbill
	2 green-winged teal	2 mourning dove	2 hermit thrush	1 red-breasted sapsucker	1 red-breasted nuthatch
	2 house finch	2 northern oriole	2 mountain chickadee	1 ruby-crowned kinglet	1 red-breasted sapsucker
	2 mallard	2 pine siskin	2 mourning dove	1 ruffed grouse	1 red-tailed hawk
	2 mountain quail	2 sharp-necked duck	2 northern pygmy-owl	1 rufous hummingbird	1 red-tailed hawk
	2 mourning dove	2 warbling vireo	2 red crossbill	1 sharp-shinned hawk	1 ruby-crowned kinglet
	2 ring-necked duck	2 willow flycatcher	2 red-breasted sapsucker	1 varied thrush	1 ruffed grouse
	2 sora	2 willow flycatcher	2 ring-necked duck	1 violet-green swallow	1 spotted owl
	2 turkey vulture	2 yellow warbler	2 rufous-crowned kinglet	1 western flycatcher	1 tree swallow
	2 warbling vireo	2 willow warbler	2 solitary vireo	1 western flycatcher	1 varied thrush
	2 willow flycatcher	2 yellow warbler	2 three-toed woodpecker	1 western tanager	1 violet-green swallow
	2 yellow warbler	2 yellow-rumped warbler	2 varied thrush	1 western wood-pewee	1 western flycatcher
			2 western flycatcher	1 winter wren	1 western tanager
			2 western wood-pewee	1 wood duck	1 western wood-pewee
			2 willow flycatcher	2 American kestrel	1 winter wren
			2 winter wren	2 American robin	1 wood duck
			2 yellow warbler	2 Cassin's finch	2 Allen's hummingbird
			2 yellow-rumped warbler	2 Hutton's vireo	2 American kestrel
				2 MacGillivray's warbler	2 American robin

1 = Primary Habitat  
2 = Secondary Habitat

USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Riparian - Coniferous

GRASS/FORB	SHRUB STAGE	SAPLING - POLE (OPEN)	SAPLING - POLE (CLOSED)	LARGE SAWTIMBER OR MATURE FOREST	OLD GROWTH
Birds					
				(Continued)	
				2 Vaux's swift	2 Cassin's finch
				2 Wilson's warbler	2 Hutton's vireo
				2 black-backed woodpecker	2 MacGillivray's warbler
				2 black-headed grosbeak	2 Vaux's swift
				2 black-throat gray wrbler	2 Wilson's warbler
				2 brown-headed cowbird	2 black-backed woodpecker
				2 chipping sparrow	2 black-headed grosbeak
				2 dark-eyed junco	2 black-throat gray wrbler
				2 downy woodpecker	2 brown-headed cowbird
				2 fox sparrow	2 chipping sparrow
				2 great egret	2 dark-eyed junco
				2 great horned owl	2 downy woodpecker
				2 hairy woodpecker	2 fox sparrow
				2 house finch	1 great blue heron
				2 mountain chickadee	2 great horned owl
				2 mourning dove	2 hairy woodpecker
				2 northern goshawk	2 house finch
				2 northern pygmy-owl	2 long-eared owl
				2 olive-sided flycatcher	2 mountain chickadee
				2 orange-crowned warbler	2 mourning dove
				2 osprey	2 northern goshawk
				2 pileated woodpecker	2 northern pygmy-owl
				2 red-tailed hawk	2 orange-crowned warbler
				2 ring-necked duck	2 pileated woodpecker
				2 rufous-sided towhee	2 ring-necked duck
				2 solitary vireo	2 rufous hummingbird
				2 three-toed woodpecker	2 rufous-sided towhee
				2 tree swallow	2 sharp-shinned hawk
				2 warbling vireo	2 solitary vireo
				2 willow flycatcher	2 three-toed woodpecker
					2 turkey vulture
					2 warbling vireo
					2 willow flycatcher
				2 common garter snake	2 common garter snake
				2 ensatina	2 ensatina
				2 common garter snake	
				2 west red-backed simnndr	
				2 common garter snake	
				2 common garter snake	

Amphibians and Reptiles

2 common garter snake 2 common garter snake

2 common garter snake 2 common garter snake  
2 west red-backed simnndr 2 ensatina

2 common garter snake 2 common garter snake  
2 ensatina

2 common garter snake  
2 ensatina

1 = Primary Habitat  
2 = Secondary Habitat

USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Riparian - Coniferous

GRASS/FORB	SHRUB STAGE	SAPLING - POLE (OPEN)	SAPLING - POLE (CLOSED)	LARGE SAWTIMBER OR MATURE FOREST	OLD GROWTH
<b>Mammals</b>					
1 Pacific jumping mouse	1 Pacific jumping mouse	1 Virginia opossum	1 Virginia opossum	1 Trowbridge's shrew	1 California myotis
1 Townsend's vole	1 Virginia opossum	1 beaver	1 bushy-tailed woodrat	1 Virginia opossum	1 Trowbridge's shrew
1 Virginia opossum	1 beaver	1 dusky-footed woodrat	1 dusky shrew	1 Yuma myotis	1 Yuma myotis
1 coast mole	1 bobcat	1 ermine (sht-tld weasel)	1 ermine (sht-tld weasel)	1 bushy-tailed woodrat	1 dusky shrew
1 deer mouse	1 coast mole	1 deer mouse	1 ermine (sht-tld weasel)	1 dusky shrew	1 dusky-footed woodrat
1 long-tailed vole	1 deer mouse	1 mink	1 mink	1 dusky-footed woodrat	1 ermine (sht-tld weasel)
1 mink	1 ermine (sht-tld weasel)	1 mountain beaver	1 mink	1 ermine (sht-tld weasel)	1 little brown myotis
1 river otter	1 ermine (sht-tld weasel)	1 mule deer/blk-tld deer	1 raccoon	1 long-legged myotis	1 long-legged myotis
1 striped skunk	1 mink	1 river otter	1 shrew-mole	1 marten	1 marten
1 vagrant shrew	1 mountain beaver	1 shrew-mole	1 water shrew	1 mink	1 mink
1 water vole	1 mule deer/blk-tld deer	1 water shrew	1 yellow-pine chipmunk	1 raccoon	1 raccoon
2 Townsend's chipmunk	1 river otter	2 Douglas' squirrel	2 Douglas' squirrel	1 shrew-mole	1 river otter
2 Townsend's mole	1 shrew-mole	2 Pacific jumping mouse	2 Pacific jumping mouse	1 water shrew	1 silver-haired bat
2 badger	1 striped skunk	2 Roosevelt elk	2 Townsend's chipmunk	2 California myotis	1 water shrew
2 beaver	1 yellow-pine chipmunk	2 Townsend's chipmunk	2 Trowbridge's shrew	2 Douglas' squirrel	2 Douglas' squirrel
2 coyote	2 Roosevelt elk	2 black bear	2 Yuma myotis	2 Pacific jumping mouse	2 Townsend's chipmunk
2 creeping vole	2 Townsend's chipmunk	2 black bear	2 beaver	2 Townsend's chipmunk	2 Virginia opossum
2 dusky shrew	2 Townsend's mole	2 bushy-tailed woodrat	2 black bear	2 beaver	2 beaver
2 heather vole	2 Townsend's vole	2 coast mole	2 bobcat	2 big brown bat	2 big brown bat
2 long-tailed weasel	2 badger	2 coyote	2 coast mole	2 black bear	2 black bear
2 mountain beaver	2 bushy-tailed woodrat	2 creeping vole	2 deer mouse	2 coast mole	2 coast mole
2 muskrat	2 coyote	2 deer mouse	2 deer mouse	2 coyote	2 coyote
2 nutria	2 bushy-tailed woodrat	2 dusky shrew	2 little brown myotis	2 deer mouse	2 deer mouse
2 raccoon	2 creeping vole	2 long-eared myotis	2 long-eared myotis	2 fisher	2 fisher
2 red fox	2 heather vole	2 long-tailed weasel	2 long-tailed weasel	2 heather vole	2 heather vole
2 shrew-mole	2 long-tailed vole	2 muskrat	2 long-tailed weasel	2 little brown myotis	2 long-eared myotis
2 spotted skunk	2 long-tailed weasel	2 porcupine	2 mountain beaver	2 long-eared myotis	2 long-tailed weasel
2 water shrew	2 muskrat	2 raccoon	2 mule deer/blk-tld deer	2 long-tailed weasel	2 mule deer/blk-tld deer
2 yellow-pine chipmunk	2 porcupine	2 red fox	2 north flying squirrel	2 mountain beaver	2 north flying squirrel
	2 raccoon	2 snowshoe hare	2 porcupine	2 mule deer/blk-tld deer	2 porcupine
	2 red fox	2 snowshoe hare	2 red tree vole	2 north flying squirrel	2 red tree vole
	2 snowshoe hare	2 spotted skunk	2 snowshoe hare	2 north flying squirrel	2 red tree vole
	2 vagrant shrew	2 water shrew	2 vagrant shrew	2 porcupine	2 shrew-mole
	2 water vole	2 water vole	2 yellow-pine chipmunk	2 silver-haired bat	2 snowshoe hare
				2 snowshoe hare	2 vagrant shrew
				2 yellow-pine chipmunk	2 yellow-pine chipmunk

1 = Primary Habitat  
2 = Secondary Habitat



USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Riparian - Herbaceous

GRASS/FORB	SHRUB STAGE	SAPLING - POLE (OPEN)	SAPLING - POLE (CLOSED)	LARGE SAWTIMBER OR MATURE FOREST	OLD GROWTH
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Birds

- 1 American coot
- 1 American wigeon
- 1 Canada goose
- 1 Virginia rail
- 1 blue-winged teal
- 1 cinnamon teal
- 1 common snipe
- 1 dark-eyed juncó
- 1 gadwall
- 1 mallard
- 1 northern harrier
- 1 northern pintail
- 1 northern shoveler
- 1 red-winged blackbird
- 1 ring-necked pheasant
- 1 savannah sparrow
- 1 sora
- 1 spotted sandpiper
- 2 marsh wren
- 2 California quail
- 2 Wilson's phalarope
- 2 mountain quail
- 2 ring-necked duck
- 2 white-crowned sparrow

Amphibians and Reptiles

- 1 gopher snake
- 2 common garter snake
- 2 northern alligator lizard
- 2 northwestern garter snake
- 2 racer
- 2 ringneck snake
- 2 rubber boa
- 2 sharptail snake

1 = Primary Habitat  
2 = Secondary Habitat

USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Riparian - Herbaceous

GRASS/FORB	SHRUB STAGE	SAPLING - POLE (OPEN)	SAPLING - POLE (CLOSED)	LARGE SAWTIMBER OR MATURE FOREST	OLD GROWTH
<u>Mammals</u>					
1 California ground squirrel					
1 Pacific jumping mouse					
1 Townsend's mole					
1 Townsend's vole					
1 coast mole					
1 creeping vole					
1 deer mouse					
1 long-tailed vole					
1 mink					
1 nutria					
1 vagrant shrew					
1 water vole					
2 coyote					
2 dusky shrew					
2 muskrat					
2 red fox					
2 river otter					
2 shrew-mole					

1 = Primary Habitat  
2 = Secondary Habitat

USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Lodgepole pine (Cascades)

GRASS/FORB	SHRUB STAGE	SAPLING - POLE (OPEN)	SAPLING - POLE (CLOSED)	LARGE SAWN-TIMBER OR MATURE FOREST	OLD GROWTH
<u>Birds</u>					
1 common nighthawk	1 American robin	1 American robin	1 Cassin's finch		
1 white-crowned sparrow	1 blue grouse	1 blue grouse	1 Hammond's flycatcher		
2 Townsend's solitaire	1 calliope hummingbird	1 calliope hummingbird	1 Steller's jay		
2 mountain quail	1 common nighthawk	1 dusky flycatcher	1 black-backed woodpecker		
2 turkey vulture	1 dusky flycatcher	1 fox sparrow	1 evening grosbeak		
	1 fox sparrow	1 hermit thrush	1 golden-crowned kinglet		
	1 hermit thrush	1 rufous hummingbird	1 mountain chickadee		
	1 rufous hummingbird	1 white-crowned sparrow	1 pine siskin		
	1 white-crowned sparrow	1 yellow-rumped warbler	1 red crossbill		
	1 yellow-rumped warbler	2 Hammond's flycatcher	1 red-breasted nuthatch		
	2 Nashville warbler	2 Nashville warbler	1 three-toed woodpecker		
	2 Townsend's solitaire	2 Steller's jay	2 American kestrel		
	2 Wilson's warbler	2 Townsend's solitaire	2 American robin		
	2 brown-headed cowbird	2 Wilson's warbler	2 Clark's nutcracker		
	2 chipping sparrow	2 brown-headed cowbird	2 Nashville warbler		
	2 dark-eyed junco	2 chipping sparrow	2 gray jay		
	2 green-tailed towhee	2 dark-eyed junco	2 Vaux's Swift		
	2 mountain quail	2 green-tailed towhee	2 Wilson's warbler		
	2 turkey vulture	2 mountain quail	2 brown creeper		
		2 pine siskin	2 brown-headed cowbird		
		2 sharp-shinned hawk	2 calliope hummingbird		
		2 solitary vireo	2 common raven		
			2 dark-eyed junco		
			2 fox sparrow		
			2 great horned owl		
			2 hairy woodpecker		
			2 hermit thrush		
			2 hermit warbler		
			2 long-eared owl		
			2 northern pygmy-owl		
			2 northern saw-whet owl		
			2 olive-sided flycatcher		
			2 pileated woodpecker		
			2 pine grosbeak		
			2 ruby-crowned kinglet		
			2 rufous hummingbird		
			2 sharp-shinned hawk		
			2 solitary vireo		
			2 western screech-owl		
			2 western tanager		
			2 western wood-pewee		
			2 yellow-rumped warbler		

1 = Primary Habitat  
2 = Secondary Habitat

USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Lodgepole Pine (Cascades)

GRASS/FORB      SHRUB STAGE      SAPLING - POLE (OPEN)      SAPLING - POLE (CLOSED)      LARGE SALTIMBER OR MATURE FOREST      OLD GROWTH

Amphibians and Reptiles

2 north alligator lizard      2 north alligator lizard      2 north alligator lizard      2 north alligator lizard

Mammals

- |                           |                           |                           |                           |
|---------------------------|---------------------------|---------------------------|---------------------------|
| 1 badger                  | 1 bobcat                  | 1 bobcat                  | 1 Trowbridge's shrew      |
| 1 gl'n-mtld grnd squirrel | 1 gl'n-mtld grnd squirrel | 1 gl'n-mtld grnd squirrel | 1 ermine (sht-tld weasel) |
| 1 long-tailed weasel      | 1 long-tailed weasel      | 1 long-tailed weasel      | 1 gl'n-mtld grnd squirrel |
| 1 mule deer/blk-tld deer  | 1 mule deer/blk-tld deer  | 1 mule deer/blk-tld deer  | 1 long-legged myotis      |
| 2 coast mole              | 1 snowshoe hare           | 1 yellow-pine chipmunk    | 1 western red-backed vole |
| 2 coyote                  | 1 yellow-pine chipmunk    | 2 Douglas' squirrel       | 1 wolverine               |
| 2 deer mouse              | 2 bushy-tailed woodrat    | 2 Yuma myotis             | 2 Douglas' squirrel       |
| 2 dusky shrew             | 2 coast mole              | 2 bushy-tailed woodrat    | 2 Yuma myotis             |
| 2 mink                    | 2 deer mouse              | 2 coast mole              | 2 big brown bat           |
| 2 red fox                 | 2 dusky shrew             | 2 ermine (sht-tld weasel) | 2 black bear              |
| 2 vagrant shrew           | 2 ermine (sht-tld weasel) | 2 long-eared myotis       | 2 bobcat                  |
| 2 western pocket gopher   | 2 mink                    | 2 long-legged myotis      | 2 bushy-tailed woodrat    |
| 2 yellow-bellied marmot   | 2 porcupine               | 2 mink                    | 2 coast mole              |
|                           | 2 red fox                 | 2 mule deer/blk-tld deer  | 2 dusky shrew             |
|                           | 2 vagrant shrew           | 2 porcupine               | 2 fisher                  |
|                           |                           | 2 red fox                 | 2 little brown myotis     |
|                           |                           | 2 snowshoe hare           | 2 long-eared myotis       |
|                           |                           |                           | 2 long-tailed weasel      |
|                           |                           |                           | 2 marten                  |
|                           |                           |                           | 2 mink                    |
|                           |                           |                           | 2 mountain lion           |
|                           |                           |                           | 2 mule deer/blk-tld deer  |
|                           |                           |                           | 2 porcupine               |
|                           |                           |                           | 2 red fox                 |
|                           |                           |                           | 2 snowshoe hare           |
|                           |                           |                           | 2 yellow-pine chipmunk    |

1 = Primary Habitat  
2 = Secondary Habitat

USE 0: HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: High Temperate Conifer Forest (True Fir Association)

GRASS/FORB	SHRUB STAGE	SAPLING - POLE (OPEN)	SAPLING - POLE (CLOSED)	LARGE SAWN TIMBER OR MATURE FOREST	OLD GROWTH
1 common nighthawk	1 Townsend's solitaire	1 American robin	1 evening grosbeak	1 Barrow's goldeneye	1 Barrow's goldeneye
2 Townsend's solitaire	1 blue grouse	1 Townsend's solitaire	1 golden-crowned kinglet	1 Cooper's hawk	1 Cooper's hawk
2 mountain bluebird	1 dark-eyed junco	1 blue grouse	1 harlequin duck	1 Hammond's flycatcher	1 Hammond's flycatcher
2 turkey vulture	1 dusky flycatcher	1 dark-eyed junco	1 pine siskin	1 gray jay	1 gray jay
2 white-crowned sparrow	1 hermit thrush	1 dusky flycatcher	1 sharp-shinned hawk	1 Steller's jay	1 Steller's jay
	1 rufous hummingbird	1 orange-crowned warbler	2 American crow	1 Townsend's solitaire	1 Townsend's solitaire
	1 yellow-rumped warbler	1 pine grosbeak	2 American robin	1 Townsend's warbler	1 Townsend's warbler
	2 American robin	1 yellow-rumped warbler	2 Cooper's hawk	1 barred owl	1 Vaux's swift
	2 Brewer's blackbird	2 American crow	2 Hammond's flycatcher	1 brown creeper	1 bald eagle
	2 Lincoln's sparrow	2 Brewer's blackbird	2 gray jay	1 bufflehead	1 barred owl
	2 MacGillivray's warbler	2 Cooper's hawk	2 Steller's jay	1 chestnut-backed chickdee	1 brown creeper
	2 Nashville warbler	2 Hammond's flycatcher	2 Swainson's thrush	1 common merganser	1 bufflehead
	2 Swainson's thrush	2 MacGillivray's warbler	2 Wilson's warbler	1 common raven	1 chestnut-backed chickdee
	2 Wilson's warbler	2 Nashville warbler	2 band-tailed pigeon	1 dark-eyed junco	1 common merganser
	2 brown-headed cowbird	2 Steller's jay	2 barred owl	1 evening grosbeak	1 common raven
	2 chipping sparrow	2 Swainson's thrush	2 black-backed woodpecker	1 golden-crowned kinglet	1 dark-eyed junco
	2 fox sparrow	2 Wilson's warbler	2 brown creeper	1 great horned owl	1 evening grosbeak
	2 green-tailed towhee	2 band-tailed pigeon	2 brown-headed cowbird	1 hairy woodpecker	1 golden-crowned kinglet
	2 mountain bluebird	2 brown-headed cowbird	2 chestnut-backed chickdee	1 harlequin duck	1 golden-crowned kinglet
	2 mountain quail	2 calliope hummingbird	2 dark-eyed junco	1 hermit thrush	1 great horned owl
	2 orange-crowned warbler	2 chipping sparrow	2 hairy woodpecker	1 hooded merganser	1 hairy woodpecker
	2 turkey vulture	2 fox sparrow	2 hermit thrush	1 mountain chickadee	1 harlequin duck
	2 white-crowned sparrow	2 green-tailed towhee	2 long-eared owl	1 northern flicker	1 hermit thrush
		2 mountain quail	2 mountain chickadee	1 northern goshawk	1 hooded merganser
		2 pine siskin	2 northern pygmy-owl	1 northern flicker	1 hooded merganser
		2 rufous hummingbird	2 pine grosbeak	1 northern goshawk	1 mountain chickadee
		2 sharp-shinned hawk	2 red-breasted sapsucker	1 olive-sided flycatcher	1 northern flicker
		2 solitary vireo	2 red-breasted sapsucker	1 pine grosbeak	1 northern goshawk
		2 warbling vireo	2 ruby-crowned kinglet	1 pine siskin	1 northern pygmy-owl
		2 white-crowned sparrow	2 rufous hummingbird	1 red crossbill	1 northern goshawk
			2 solitary vireo	1 red-breasted nuthatch	1 northern saw-whet owl
			2 three-toed woodpecker	1 ruby-crowned kinglet	1 olive-sided flycatcher
			2 varied thrush	1 rufous hummingbird	1 pileated woodpecker
			2 western wood-pewee	1 sharp-shinned hawk	1 pine grosbeak
			2 white-headed woodpecker	1 solitary vireo	1 pine siskin
			2 winter wren	1 varied thrush	1 red crossbill
			2 yellow-rumped warbler	1 western tanager	1 red-breasted nuthatch
				1 winter wren	1 red-tailed hawk
				2 American crow	1 ruby-crowned kinglet
				2 American kestrel	1 sharp-shinned hawk
				2 American robin	1 solitary vireo
				2 Cassin's finch	1 varied thrush
				2 Clark's nutcracker	1 western tanager
				2 MacGillivray's warbler	1 winter wren
				2 Nashville warbler	2 American kestrel
				2 Swainson's thrush	2 American robin
				2 Vaux's swift	2 Cassin's finch
					2 Clark's nutcracker

1 = Primary Habitat  
2 = Secondary Habitat

USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: High Temperate Conifer Forest (True Fir Association)

GRASS/FORB	SHRUB STAGE	SAPLING - POLE (OPEN)	SAPLING - POLE (CLOSED)	LARGE SANTIEMBER OR MATURE FOREST	OLD GROWTH
Birds					
				(Continued)	(Continued)
				2 Wilson's warbler	2 Nashville warbler
				2 black-tailed pigeon	2 Swainson's thrush
				2 black-backed woodpecker	2 Wilson's warbler
				2 brown-headed cowbird	2 band-tailed pigeon
				2 chipping sparrow	2 black-backed woodpecker
				2 long-eared owl	2 brown-headed cowbird
				2 northern saw-whet owl	2 chipping sparrow
				2 osprey	2 long-eared owl
				2 pileated woodpecker	2 orange-crowned warbler
				2 red-breasted sapsucker	2 osprey
				2 red-tailed hawk	2 red-breasted sapsucker
				2 three-toed woodpecker	2 rufous hummingbird
				2 tree swallow	2 spotted owl
				2 violet-green swallow	2 three-toed woodpecker
				2 western flycatcher	2 tree swallow
				2 western screech-owl	2 turkey vulture
				2 western wood-pewee	2 violet-green swallow
				2 white-headed woodpecker	2 western flycatcher
					2 western screech-owl
					2 western wood-pewee
					2 white-headed woodpecker
Amphibians and Reptiles					
1 north alligator lizard	1 north alligator lizard	1 ensatina	1 OR slender salamander	1 OR slender salamander	1 OR slender salamander
1 rubber boa	1 rubber boa	1 north alligator lizard	2 clouded salamander	2 clouded salamander	2 ensatina
2 OR slender salamander	2 OR slender salamander	1 rubber boa	2 ensatina	2 ensatina	2 north alligator lizard
2 clouded salamander	2 clouded salamander	2 OR slender salamander	2 north alligator lizard	2 north alligator lizard	2 ringneck snake
2 common garter snake	2 common garter snake	2 clouded salamander	2 ringneck snake	2 ringneck snake	2 rubber boa
2 racer	2 racer	2 common garter snake	2 rubber boa	2 rubber boa	
2 ringneck snake	2 ringneck snake	2 ringneck snake			
2 western fence lizard	2 western fence lizard	2 western fence lizard			
2 western pond turtle	2 western pond turtle	2 western pond turtle			
2 western skink	2 western skink	2 western skink			

1 = Primary Habitat  
2 = Secondary Habitat

USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: High Temperate Conifer Forest (True Fir Association)

GRASS/FORB	SHRUB STAGE	SAPLING - POLE (OPEN)	SAPLING - POLE (CLOSED)	LARGE SAWN TIMBER OR MATURE FOREST	OLD GROWTH
Mammals					
1 Pacific jumping mouse	1 Pacific jumping mouse	1 Douglas' squirrel	1 Douglas' squirrel	1 Douglas' squirrel	1 Douglas' squirrel
1 coast mole	1 Roosevelt elk	1 Roosevelt elk	1 Townsend's chipmunk	1 Townsend's chipmunk	1 Townsend's chipmunk
1 coyote	1 bobcat	1 Townsend's chipmunk	1 Townsend's shrew	1 Trowbridge's shrew	1 Trowbridge's shrew
1 creeping vole	1 coast mole	1 bobcat	1 black bear	1 Yuma myotis	1 Yuma myotis
1 mule deer/blk-tld deer	1 coyote	1 bushy-tailed woodrat	1 bushy-tailed woodrat	1 big brown bat	1 big brown bat
1 vagrant shrew	1 deer mouse	1 dusky shrew	1 dusky shrew	1 black bear	1 black bear
1 western pocket gopher	1 gl'n-mtld grnd squirrel	1 ermine (sht-tld weasel)	1 ermine (sht-tld weasel)	1 bushy-tailed woodrat	1 bushy-tailed woodrat
1 yellow-bellied marmot	1 gl'n-mtld grnd squirrel	1 gl'n-mtld grnd squirrel	1 gl'n-mtld grnd squirrel	1 dusky shrew	1 dusky shrew
2 CA ground squirrel	1 long-tailed weasel	1 western red-backed vole	1 western red-backed vole	1 ermine (sht-tld weasel)	1 ermine (sht-tld weasel)
2 Townsend's chipmunk	1 mountain beaver	2 California myotis	2 California myotis	1 fisher	1 fisher
2 Townsend's mole	1 mountain lion	2 Pacific jumping mouse	2 Pacific jumping mouse	1 gl'n-mtld grnd squirrel	1 gl'n-mtld grnd squirrel
2 Townsend's vole	1 mule deer/blk-tld deer	2 Yuma myotis	2 Yuma myotis	1 hoary bat	1 hoary bat
2 brush rabbit	1 snowshoe hare	2 bobcat	2 bobcat	1 long-eared myotis	1 long-eared myotis
2 deer mouse	1 yellow-pine chipmunk	2 brush rabbit	2 brush rabbit	1 long-legged myotis	1 long-legged myotis
2 dusky shrew	2 CA ground squirrel	2 coast mole	2 coast mole	1 marten	1 marten
2 gl'n-mtld grnd squirrel	2 Townsend's chipmunk	2 Townsend's mole	2 Townsend's mole	1 mountain lion	1 mountain lion
2 heather vole	2 Townsend's vole	2 black bear	2 black bear	1 north flying squirrel	1 north flying squirrel
2 long-tailed vole	2 Townsend's vole	2 brush rabbit	2 brush rabbit	1 western red-backed vole	1 western red-backed vole
2 mink	2 brush rabbit	2 bushy-tailed woodrat	2 bushy-tailed woodrat	2 California myotis	2 California myotis
2 mountain beaver	2 bushy-tailed woodrat	2 dusky shrew	2 dusky shrew	2 bobcat	2 bobcat
2 raccoon	2 dusky shrew	2 ermine (sht-tld weasel)	2 ermine (sht-tld weasel)	2 brush rabbit	2 brush rabbit
2 river otter	2 ermine (sht-tld weasel)	2 long-eared myotis	2 long-eared myotis	2 coast mole	2 coast mole
2 shrew-mole	2 heather vole	2 long-tailed vole	2 long-tailed vole	2 coyote	2 coyote
2 spotted skunk	2 long-tailed vole	2 porcupine	2 porcupine	2 deer mouse	2 deer mouse
2 vagrant shrew	2 porcupine	2 red fox	2 red fox	2 heather vole	2 heather vole
2 western pocket gopher	2 raccoon	2 river otter	2 river otter	2 little brown myotis	2 little brown myotis
	2 red fox	2 shrew-mole	2 shrew-mole	2 long-eared myotis	2 long-eared myotis
	2 river otter	2 spotted skunk	2 snowshoe hare	2 long-tailed weasel	2 long-tailed weasel
	2 shrew-mole	2 vagrant shrew	2 snowshoe hare	2 mink	2 mink
	2 spotted skunk		2 spotted skunk	2 mountain beaver	2 mountain beaver
	2 vagrant shrew		2 vagrant shrew	2 mountain lion	2 mountain lion
	2 western pocket gopher		2 yellow-pine chipmunk	2 mule deer/blk-tld deer	2 mule deer/blk-tld deer
				2 porcupine	2 porcupine
				2 raccoon	2 raccoon
				2 red tree vole	2 red tree vole
				2 river otter	2 river otter
				2 shrew-mole	2 shrew-mole
				2 silver-haired bat	2 silver-haired bat
				2 snowshoe hare	2 snowshoe hare
				2 vagrant shrew	2 vagrant shrew
				2 wolverine	2 wolverine
				2 yellow-pine chipmunk	2 yellow-pine chipmunk

1 = Primary Habitat  
2 = Secondary Habitat

USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Subalpine Forest (Mountain Hemlock)

GRASS/FORB	SHRUB STAGE	SAPLING - POLE (OPEN)	SAPLING - POLE (CLOSED)	LARGE SAWTIMBER OR MATURE FOREST	OLD GROWTH
Birds					
1 common nighthawk	1 Townsend's solitaire	1 American robin	1 Cassin's finch	1 Barrow's goldeneye	1 Barrow's goldeneye
1 mountain bluebird	1 calliope hummingbird	1 Townsend's solitaire	1 calliope hummingbird	1 Cassin's finch	1 Cassin's finch
1 rosy finch	1 common nighthawk	1 calliope hummingbird	1 evening grosbeak	1 Clark's nutcracker	1 Clark's nutcracker
1 water pipit	1 dark-eyed junco	1 dark-eyed junco	1 golden-crowned kinglet	1 Steller's jay	1 Hammond's flycatcher
1 white-crowned sparrow	1 fox sparrow	1 fox sparrow	1 pine siskin	1 Townsend's solitaire	1 gray jay
2 Townsend's solitaire	1 hermit thrush	1 hermit thrush	1 sharp-shinned hawk	1 Townsend's warbler	1 Steller's jay
2 mountain quail	1 mountain bluebird	1 pine grosbeak	2 American robin	1 bufflehead	1 Townsend's solitaire
2 turkey vulture	1 mountain quail	1 rufous hummingbird	2 Steller's jay	1 calliope hummingbird	1 Townsend's warbler
	1 rufous hummingbird	1 white-crowned sparrow	2 Wilson's warbler	1 common raven	1 black-backed woodpecker
	1 white-crowned sparrow	1 yellow-rumped warbler	2 black-tailed pigeon	1 evening grosbeak	1 bufflehead
	1 yellow-rumped warbler	2 Steller's jay	2 black-backed woodpecker	1 golden-crowned kinglet	1 calliope hummingbird
	2 American robin	2 Wilson's warbler	2 brown creeper	1 gray jay	1 common raven
	2 Lincoln's sparrow	2 band-tailed pigeon	2 dark-eyed junco	1 hermit thrush	1 dark-eyed junco
	2 Wilson's warbler	2 chipping sparrow	2 fox sparrow	1 mountain chickadee	1 evening grosbeak
	2 chipping sparrow	2 mountain quail	2 gray jay	1 northern flicker	1 golden-crowned kinglet
	2 turkey vulture	2 pine siskin	2 hermit thrush	1 northern flicker	1 hermit thrush
		2 sharp-shinned hawk	2 long-eared owl	1 pine grosbeak	1 mountain chickadee
			2 mountain chickadee	1 northern goshawk	1 northern flicker
			2 northern pygmy-owl	1 pine grosbeak	1 northern goshawk
			2 red-breasted nuthatch	1 pine siskin	1 northern goshawk
			2 ruby-crowned kinglet	1 red crossbill	1 pine grosbeak
			2 rufous hummingbird	1 red-breasted nuthatch	1 pine siskin
			2 three-toed woodpecker	1 rufous hummingbird	1 red crossbill
			2 varied thrush	1 sharp-shinned hawk	1 red-breasted nuthatch
				1 three-toed woodpecker	1 sharp-shinned hawk
				1 varied thrush	1 three-toed woodpecker
				2 American kestrel	1 varied thrush
				2 American robin	2 American kestrel
				2 Hammond's flycatcher	2 American robin
				2 Vaux's swift	2 Vaux's swift
				2 Wilson's warbler	2 Wilson's warbler
				2 band-tailed pigeon	2 band-tailed pigeon
				2 black-backed woodpecker	2 brown creeper
				2 brown creeper	2 chipping sparrow
				2 chipping sparrow	2 fox sparrow
				2 fox sparrow	2 great horned owl
				2 great horned owl	2 hairy woodpecker
				2 hairy woodpecker	2 hermit warbler
				2 hermit warbler	2 long-eared owl
				2 long-eared owl	2 northern pygmy-owl
				2 northern pygmy-owl	2 olive-sided flycatcher
				2 olive-sided flycatcher	2 osprey
				2 osprey	2 ruby-crowned kinglet
				2 ruby-crowned kinglet	2 rufous hummingbird
				2 violet-green swallow	2 turkey vulture
				2 western screech-owl	2 violet-green swallow
				2 western tanager	2 western screech-owl
					2 western tanager

1 = Primary Habitat  
2 = Secondary Habitat



USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Subalpine Forest (Mountain Hemlock)

GRASS/FORB	SHRUB STAGE	SAPLING - POLE (OPEN)	SAPLING - POLE (CLOSED)	LARGE SAWTIMBER OR MATURE FOREST	OLD GROWTH
<b>Amphibians and Reptiles</b>					
1 north alligator lizard	1 north alligator lizard	2 north alligator lizard	1 OR slender salamander	1 OR slender salamander	1 OR slender salamander
2 N.W. garter snake	2 common garter snake	2 rubber boa	2 ensatina	2 north alligator lizard	2 north alligator lizard
2 common garter snake			2 rubber boa	2 ensatina	2 ensatina
<b>Mammals</b>					
1 Pacific jumping mouse	1 Pacific jumping mouse	1 Douglas' squirrel	1 Douglas' squirrel	1 Douglas' squirrel	1 Douglas' squirrel
1 badger	1 Roosevelt elk	1 Roosevelt elk	1 Townsend's chipmunk	1 Townsend's chipmunk	1 Townsend's chipmunk
1 heather vole	1 bobcat	1 Townsend's chipmunk	1 Trowbridge's shrew	1 Trowbridge's shrew	1 Trowbridge's shrew
1 long-tailed vole	1 creeping vole	1 bobcat	1 dusky shrew	1 dusky shrew	1 dusky shrew
1 long-tailed weasel	1 deer mouse	1 creeping vole	1 ermine (sht-tld weasel)	1 ermine (sht-tld weasel)	1 ermine (sht-tld weasel)
1 mule deer/bk-tld deer	1 gldn-mtld grnd squirrel	1 deer mouse	1 gldn-mtld grnd squirrel	1 ermine (sht-tld weasel)	1 ermine (sht-tld weasel)
1 red fox	1 heather vole	1 gldn-mtld grnd squirrel	1 mountain lion	1 fisher	1 fisher
1 western pocket gopher	1 long-tailed vole	1 long-tailed weasel	1 red fox	1 gldn-mtld grnd squirrel	1 gldn-mtld grnd squirrel
1 yellow-bellied marmot	1 long-tailed weasel	1 mountain lion	1 wolverine	1 marten	1 little brown myotis
2 Townsend's mole	1 mountain lion	1 mule deer/bk-tld deer	2 Pacific jumping mouse	1 north flying squirrel	1 long-eared myotis
2 Townsend's vole	1 red fox	1 red fox	2 black bear	1 western red-backed vole	1 marten
2 coast mole	1 red fox	1 yellow-pine chipmunk	2 black bear	1 wolverine	1 north flying squirrel
2 deer mouse	1 yellow-pine chipmunk	2 Pacific jumping mouse	2 bobcat	2 Pacific jumping mouse	1 western red-backed vole
2 dusky shrew	2 Townsend's mole	2 Townsend's vole	2 bushy-tailed woodrat	2 big brown bat	1 wolverine
2 gldn-mtld grnd squirrel	2 badger	2 badger	2 bushy-tailed woodrat	2 black bear	2 big brown bat
2 mountain beaver	2 bushy-tailed woodrat	2 coast mole	2 deer mouse	2 bobcat	2 black bear
2 shrew-mole	2 coast mole	2 dusky shrew	2 little brown myotis	2 bushy-tailed woodrat	2 bushy-tailed woodrat
2 vagrant shrew	2 dusky shrew	2 ermine (sht-tld weasel)	2 long-eared myotis	2 coast mole	2 coast mole
2 yellow-pine chipmunk	2 ermine (sht-tld weasel)	2 long-tailed vole	2 long-tailed weasel	2 creeping vole	2 creeping vole
	2 mountain beaver	2 mountain beaver	2 mountain beaver	2 deer mouse	2 deer mouse
	2 shrew-mole	2 shrew-mole	2 mule deer/bk-tld deer	2 heather vole	2 heather vole
	2 snowshoe hare	2 snowshoe hare	2 north flying squirrel	2 little brown myotis	2 long-tailed weasel
	2 vagrant shrew	2 vagrant shrew	2 shrew-mole	2 long-eared myotis	2 mountain beaver
	2 western pocket gopher	2 vagrant shrew	2 yellow-pine chipmunk	2 mountain beaver	2 mountain lion
		2 western pocket gopher		2 mule deer/bk-tld deer	2 mule deer/bk-tld deer
				2 shrew-mole	2 shrew-mole
				2 snowshoe hare	2 vagrant shrew
				2 vagrant shrew	2 yellow-pine chipmunk
				2 yellow-pine chipmunk	2 yellow-pine chipmunk

1 = Primary Habitat  
2 = Secondary Habitat

USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Wetlands

BREEDING

FEEDING ONLY

RESTING ONLY

FEEDING AND RESTING

Birds

1 American coot  
 1 American wigeon  
 1 Barrow's goldeneye  
 1 Canada goose  
 1 Lincoln's sparrow  
 1 Virginia rail  
 1 Wilson's phalarope  
 1 blue-winged teal  
 1 bufflehead  
 1 cinnamon teal  
 1 common snipe  
 1 common yellowthroat  
 1 gadwall  
 1 green-winged teal  
 1 hooded merganser  
 1 killdeer  
 1 mallard  
 1 marsh wren  
 1 northern harrier  
 1 northern pintail  
 1 northern shoveler  
 1 osprey  
 1 pied-billed grebe  
 1 red-winged blackbird  
 1 ring-necked duck  
 1 ruddy duck  
 1 sora  
 1 spotted sandpiper  
 1 willow flycatcher  
 1 wood duck  
 2 Bewick's wren  
 2 Brewer's blackbird  
 2 Swainson's thrush  
 2 Wilson's warbler  
 2 black-capped chickadee  
 2 common loon  
 2 common merganser  
 2 lesser scaup  
 2 purple finch  
 2 red-tailed hawk  
 2 song sparrow  
 2 varied thrush  
 2 white-crowned sparrow  
 2 yellow warbler

1 American robin  
 1 Vaux's swift  
 1 barn swallow  
 1 brown-headed cowbird  
 1 calliope hummingbird  
 1 cliff swallow  
 1 common barn-owl  
 1 common nighthawk  
 1 great blue heron  
 1 green-backed heron  
 1 long-eared owl  
 1 north rough-winged swallow  
 1 peregrine falcon  
 1 pine siskin  
 1 rufous hummingbird  
 1 tree swallow  
 1 violet-green swallow  
 1 western screech-owl  
 2 American crow  
 2 American kestrel  
 2 Cooper's hawk  
 2 European starling  
 2 bald eagle  
 2 bank swallow  
 2 black swift  
 2 double-crested cormorant  
 2 great blue heron  
 2 great horned owl  
 2 mourning dove  
 2 northern pygmy-owl  
 2 osprey  
 2 rosy finch  
 2 sharp-shinned hawk

1 belted kingfisher  
 1 great egret  
 1 ring-billed gull  
 1 ruffed grouse  
 1 water pipit  
 2 horned grebe  
 2 horned lark  
 2 ring-necked pheasant  
 2 western gull  
 2 western meadowlark  
 2 yellow-rumped warbler

1 = Primary Habitat  
 2 = Secondary Habitat

USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Wetlands

BREEDING FEEDING ONLY RESTING ONLY FEEDING AND RESTING

Amphibians and Reptiles

- 1 Cascades frog
- 1 Dunn's salamander
- 1 Olympic salamander
- 1 Pacific giant salamander
- 1 Pacific tree frog
- 1 bullfrog
- 1 common garter snake
- 1 northwestern garter snake
- 1 northwestern salamander
- 1 red-legged frog
- 1 ringneck snake
- 1 roughskin newt
- 1 spotted owl
- 1 western red-backed salamander
- 1 western toad
- 2 ensatina
- 2 racer
- 2 rubber boa
- 2 sharptail snake

- 2 gopher snake
- 2 northwestern salamander
- 1 western pond turtle

Mammals

- 1 Townsend's mole
- 1 Townsend's vole
- 1 Virginia opossum
- 1 beaver
- 1 coast mole
- 1 creeping vole
- 1 dusky shrew
- 1 long-tailed vole
- 1 mink
- 1 muskrat
- 1 nutria
- 1 pacific jumping mouse
- 1 shrew-mole
- 1 striped skunk
- 1 vagrant shrew
- 1 water vole
- 2 coyote
- 2 deer mouse
- 2 heather vole
- 2 long-tailed weasel
- 2 mountain beaver
- 2 porcupine
- 2 raccoon
- 2 red fox
- 2 river otter
- 2 silver-haired bat
- 2 snowshoe hare
- 2 water shrew
- 2 western pocket gopher

- 1 California myotis
- 1 Townsend's big-eared bat
- 1 black bear
- 1 hoary bat
- 1 little brown myotis
- 1 long-eared myotis
- 1 long-legged myotis
- 2 Yuma myotis
- 2 ermine (short-tailed weasel)
- 2 fisher
- 2 gray fox
- 2 marten
- 2 yellow-bellied marmot

1 = Primary Habitat  
2 = Secondary Habitat

USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Edges--Grass-Forest

BREEDING	FEEDING ONLY	RESTING ONLY	FEEDING AND RESTING
<u>Birds</u>			
1 American kestrel			1 Brewer's blackbird
1 American robin	2 black swift		1 Cooper's hawk
1 European starling	2 northern goshawk		1 long-eared owl
1 Hammond's flycatcher	2 northern rough-winged swallow		1 turkey vulture
1 Lewis' woodpecker			2 American kestrel
1 Vaux's swift			2 bald eagle
1 band-tailed pigeon			2 bald eagle
1 black-headed grosbeak			2 spotted sandpiper
1 blue grouse			
1 brown-headed cowbird			
1 chipping sparrow			
1 common barn-owl			
1 common nighthawk			
1 dark-eyed junco			
1 golden eagle			
1 great horned owl			
1 house finch			
1 mountain bluebird			
1 mourning dove			
1 northern flicker			
1 northern oriole			
1 northern pygmy-owl			
1 northern saw-whet owl			
1 pine grosbeak			
1 pine siskin			
1 purple finch			
1 ruffed grouse			
1 rufous hummingbird			
1 western bluebird			
1 western kingbird			
1 western screech-owl			
1 western wood-pewee			
2 American crow			
2 Clark's nutcracker			
2 Steller's jay			
2 Swainson's thrush			
2 Townsend's solitaire			
2 common raven			
2 dusky flycatcher			
2 fox sparrow			
2 hermit thrush			
2 mountain quail			
2 olive-sided flycatcher			
2 red-breasted sapsucker			
2 red-tailed hawk			
2 ring-necked pheasant			

1 = Primary Habitat  
2 = Secondary Habitat

USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Edges--Grass-Forest

BREEDING	FEEDING ONLY	RESTING ONLY	FEEDING AND RESTING
<u>Birds (Continued)</u>			
2 scrub jay			
2 song sparrow			
2 varied thrush			
2 western tanager			
2 wood duck			
2 yellow-rumped warbler			
<u>Amphibians and Reptiles</u>			
1 clouded salamander			2 Pacific giant salamander
1 northwestern garter snake			2 northwestern salamander
1 racer			2 roughskin newt
1 ringneck snake			2 western toad
1 rubber boa			
2 northern alligator lizard			
2 sharptail snake			
2 western fence lizard			
<u>Mammals</u>			
1 Roosevelt elk			
1 Townsend's chipmunk			1 California myotis
1 Townsend's mole			1 Virginia opossum
1 coyote			1 little brown myotis
1 creeping vole			1 marten
1 heather vole			1 mountain lion
1 mountain beaver			1 silver-haired bat
1 mule deer/black-tailed deer			2 Yuma myotis
1 vagrant shrew			2 ermine (short-tailed weasel)
1 western pocket gopher			
2 California ground squirrel			
2 Douglas' squirrel			
2 Townsend's vole			
2 bobcat			
2 brush rabbit			
2 coast mole			
2 deer mouse			
2 dusky shrew			
2 golden-mantled ground squirrel			
2 long-tailed vole			
2 long-tailed weasel			
2 northern flying squirrel			
2 spotted skunk			
2 striped skunk			
2 western gray squirrel			
2 yellow-bellied marmot			

1 = Primary Habitat  
 ? = Secondary Habitat

USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Edges--Water-Forest

BREEDING	FEEDING ONLY	RESTING ONLY	FEEDING AND RESTING
Birds			
1 American crow	1 green-backed heron	2 green-winged teal	1 great blue heron
1 American dipper	2 barn swallow	2 peregrine falcon	2 great egret
1 Barrow's goldeneye	2 black swift		
1 Brewer's blackbird	2 northern pygmy-owl		
1 Lincoln's sparrow	2 turkey vulture		
1 bald eagle			
1 belted kingfisher			
1 bufflehead			
1 common merganser			
1 common nighthawk			
1 harlequin duck			
1 hooded merganser			
1 northern oriole			
1 osprey			
1 ruffed grouse			
1 scrub jay			
1 tree swallow			
1 wood duck			
1 yellow warbler			
2 American coot			
2 American goldfinch			
2 American kestrel			
2 Cooper's hawk			
2 Hammond's flycatcher			
2 Vaux's swift			
2 black-backed woodpecker			
2 black-capped chickadee			
2 downy woodpecker			
2 great horned owl			
2 house finch			
2 mallard			
2 mourning dove			
2 purple finch			
2 red-breasted sapsucker			
2 red-tailed hawk			
2 violet-green swallow			
2 western screech-owl			
2 western wood-pewee			

1 = Primary Habitat  
 2 = Secondary Habitat

USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Edges--Water-Forest

BREEDING	FEEDING ONLY	RESTING ONLY	FEEDING AND RESTING
<u>Amphibians and Reptiles</u>			
1 Cascades frog			
1 bullfrog			
1 red-legged frog			2 Pacific tree frog
2 foothill yellow-legged frog			2 roughskin newt
2 western toad			
<u>Mammals</u>			
1 Virginia opossum			
1 coast mole			
1 deer mouse			
1 mink			
1 mountain beaver			
1 river otter			
1 water shrew			
2 Townsend's chipmunk			
2 Townsend's mole			
2 beaver			
2 coyote			
2 dusky shrew			
2 vagrant shrew			
	1 California myotis		
	1 Roosevelt elk		
	1 little brown myotis		
	1 mountain lion		
	1 raccoon		
	2 Yuma myotis		
	2 ermine (short-tailed weasel)		
	2 silver-haired bat		
			1 mule deer/black-tailed deer

1 = Primary Habitat  
 ? = Secondary Habitat

USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Burrows and Bank Cavities

BREEDING      FEEDING ONLY      RESTING ONLY      FEEDING AND RESTING

Birds

- | Barrow's goldeneye
- | Townsend's solitaire
- | bank swallow
- | belted kingfisher
- | northern rough-winged swallow

Amphibians and Reptiles

- | gopher snake
- | racer
- | rubber boa
- | Oregon slender salamander
- | ensatina
- | western toad

Mammals

- | California ground squirrel
- | Townsend's chipmunk
- | Townsend's mole
- | Townsend's vole
- | Virginia opossum
- | beaver
- | black bear
- | coast mole
- | coyote
- | creeping vole
- | deer mouse
- | dusky shrew
- | golden-mantled ground squirrel
- | gray fox
- | heather vole
- | long-tailed vole
- | long-tailed weasel
- | mink
- | mountain beaver
- | red fox
- | river otter
- | shrew-mole
- | spotted skunk
- | striped skunk
- | vagrant shrew
- | water shrew
- | water vole
- | wolverine
- | yellow-bellied marmot
- | yellow-pine chipmunk

1 = Primary Habitat  
2 = Secondary Habitat



USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Caves and Crevices

BREEDING	FEEDING ONLY	RESTING ONLY	FEEDING AND RESTING
<u>Birds</u>			
1 Townsend's solitaire			
1 common merganser			
1 northern rough-winged swallow			
1 peregrine falcon			
1 rosy finch			
1 turkey vulture			
2 common barn-owl			
2 great horned owl			
<u>Amphibians and Reptiles</u>			
1 Dunn's salamander			2 Pacific tree frog
<u>Mammals</u>			
1 California myotis			
1 Townsend's big-eared bat			
1 Yuma myotis			2 silver-haired bat
1 big brown bat			
1 bobcat			
1 little brown myotis			
1 mountain lion			
1 wolverine			
2 black bear			
2 bushy-tailed woodrat			
2 coyote			
2 ermine (short-tailed weasel)			
2 gray fox			
2 long-eared myotis			
2 long-legged myotis			
2 long-tailed weasel			
2 marten			
2 pika			
2 porcupine			
2 raccoon			
2 spotted skunk			

1 = Primary Habitat  
2 = Secondary Habitat

USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Snags

BREEDING	FEEDING ONLY	RESTING ONLY	FEEDING AND RESTING
----------	--------------	--------------	---------------------

Birds

- |                             |  |  |  |
|-----------------------------|--|--|--|
| 1 American kestrel          |  |  |  |
| 1 Barrow's goldeneye        |  |  |  |
| 1 European starling         |  |  |  |
| 1 European starling         |  |  |  |
| 1 Vaux's swift              |  |  |  |
| 1 black-backed woodpecker   |  |  |  |
| 1 black-capped chickadee    |  |  |  |
| 1 brown creeper             |  |  |  |
| 1 bufflehead                |  |  |  |
| 1 chestnut-backed chickadee |  |  |  |
| 1 common barn-owl           |  |  |  |
| 1 common merganser          |  |  |  |
| 1 downy woodpecker          |  |  |  |
| 1 hairy woodpecker          |  |  |  |
| 1 hooded merganser          |  |  |  |
| 1 house wren                |  |  |  |
| 1 mountain bluebird         |  |  |  |
| 1 mountain chickadee        |  |  |  |
| 1 northern flicker          |  |  |  |
| 1 northern pygmy-owl        |  |  |  |
| 1 northern saw-whet owl     |  |  |  |
| 1 osprey                    |  |  |  |
| 1 pileated woodpecker       |  |  |  |
| 1 red-breasted nuthatch     |  |  |  |
| 1 red-breasted sapsucker    |  |  |  |
| 1 song sparrow              |  |  |  |
| 1 spotted owl               |  |  |  |
| 1 three-toed woodpecker     |  |  |  |
| 1 tree swallow              |  |  |  |
| 1 violet-green swallow      |  |  |  |
| 1 western bluebird          |  |  |  |
| 1 western screech-owl       |  |  |  |
| 1 white-breasted nuthatch   |  |  |  |
| 1 white-headed woodpecker   |  |  |  |
| 1 wood duck                 |  |  |  |
| 2 Bewick's wren             |  |  |  |
| 2 great horned owl          |  |  |  |
| 2 house finch               |  |  |  |

- |                          |
|--------------------------|
| 1 bald eagle             |
| 1 belted kingfisher      |
| 2 Cooper's hawk          |
| 2 Hammond's flycatcher   |
| 2 dusky flycatcher       |
| 2 olive-sided flycatcher |
| 2 peregrine falcon       |
| 2 red-tailed hawk        |
| 2 sharp-shinned hawk     |
| 2 turkey vulture         |
| 2 western kingbird       |

1 = Primary Habitat  
2 = Secondary Habitat

USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Snags

BREEDING	FEEDING ONLY	RESTING ONLY	FEEDING AND RESTING
<u>Amphibians and Reptiles</u>			
2 Oregon slender salamander			
2 clouded salamander			
<u>Mammals</u>			
1 California myotis			
1 Douglas' squirrel			
1 Virginia opossum			
1 Yuma myotis			
1 big brown bat			
1 fisher			
1 long-eared myotis			
1 long-legged myotis			
1 marten			
1 northern flying squirrel			
1 raccoon			
1 silver-haired bat			
1 western gray squirrel			
2 black bear			
2 bobcat			
2 bushy-tailed woodrat			
2 deer mouse			
2 gray fox			
2 hoary bat			
2 little brown myotis			
2 porcupine			
2 spotted skunk			
2 yellow-pine chipmunk			
		2 ermine (short-tailed weasel)	

1 = Primary Habitat  
2 = Secondary Habitat

USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Logs and Down Material

BREEDING	FEEDING ONLY	RESTING ONLY	FEEDING AND RESTING
<u>Birds</u>			
1 Bewick's wren	1 hairy woodpecker	1 blue grouse	
1 Townsend's solitaire	1 northern flicker		
1 house wren	1 pileated woodpecker		
1 ruffed grouse	1 three-toed woodpecker		
1 rufous-sided towhee	2 Cooper's hawk		
1 turkey vulture	2 Steller's jay		
1 winter wren	2 barred owl		
2 Barrow's goldeneye	2 black-backed woodpecker		
2 California quail	2 green-tailed towhee		
2 common merganser	2 northern goshawk		
2 dark-eyed junco	2 sharp-shinned hawk		
2 mountain chickadee	2 white-headed woodpecker		
2 red-breasted sapsucker			
2 song sparrow			
2 white-breasted nuthatch			
2 wood duck			
<u>Amphibians and Reptiles</u>			
1 Oregon slender salamander		1 western pond turtle	1 Dunn's salamander
1 clouded salamander			1 Pacific giant salamander
1 common garter snake			1 Pacific tree frog
1 ensatina			1 northwestern salamander
1 northern alligator lizard			1 tailed frog
1 ringneck snake			1 western fence lizard
1 rubber boa			1 western toad
1 sharptail snake			2 gopher snake
1 western red-backed salamander			
1 western skink			
2 northwestern garter snake			
2 western rattlesnake			

1 = Primary Habitat  
2 = Secondary Habitat

USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Logs and Down Material

BREEDING	FEEDING ONLY	RESTING ONLY	FEEDING AND RESTING
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Mammals

- 1 Townsend's chipmunk
- 1 Trowbridge's shrew
- 1 Virginia opossum
- 1 black bear
- 1 bobcat
- 1 bushy-tailed woodrat
- 1 coyote
- 1 creeping vole
- 1 deer mouse
- 1 dusky shrew
- 1 ermine
- 1 fisher
- 1 golden-mantled ground squirrel
- 1 gray fox
- 1 heather vole
- 1 long-tailed vole
- 1 long-tailed weasel
- 1 marten
- 1 mink
- 1 mountain beaver
- 1 porcupine
- 1 red fox
- 1 shrew-mole
- 1 spotted skunk
- 1 water shrew
- 1 western red-backed vole
- 1 wolverine
- 2 Townsend's mole
- 2 coast mole
- 2 dusky-footed woodrat
- 2 mountain lion
- 2 snowshoe hare
- 2 striped skunk
- 2 vagrant shrew
- 2 yellow-pine chipmunk

1 = Primary Habitat  
2 = Secondary Habitat

FAUNA OF WILLAMETTE NATIONAL FOREST  
AMPHIBIANS, REPTILES AND FISHES

1/14/91

AMPHIBIANS

Salamanders

\*Oregon slender salamander (Batrachoseps wrighti)  
Rough-skinned newt (Taricha granulosa)  
Pacific giant salamander (Dicamptodon ensatus)  
Northwestern salamander (Ambystoma gracilis)  
Olympic salamander (Rhyacotriton olympicus)  
Dunn's salamander (Plethodon dunni)  
Ensatina (Ensatina eschscholtzi)  
Clouded salamander (Aneides ferreus)

Frogs and Toads

Yellow-legged frog (Rana boylei)  
Cascade frog (Rana cascadae)  
Red-legged frog (Rana aurora)  
Western toad (Bufo boreas)  
Pacific tree frog (Hylla regilla)  
\*Tailed frog (Ascaphus truei)  
Spotted frog (Rana pretiosa)  
Bullfrog (Rana catesbeiana)

REPTILES

Western pond turtle (Clemmys marmorata)  
Western fence lizard (Sceloporus occidentalis)  
Western skink (Eumeces skiltonianus)  
Short-horned lizard (Phrynosoma douglassi)  
Northern alligator lizard (Gerrhonotus coeruleus)  
Southern alligator lizard (Gerrhonotus multicarinatus)  
Rubber boa (Charina bottae)  
Western ringneck snake (Diadophis amabilis)  
Sharp-tailed snake (Contia tenuis)  
Racer (Coluber constrictor)  
Common garter snake (Thamnophis sirtalis)  
Northwestern garter snake (Thamnophis ordinoides)  
Gopher snake (Pituophis melanoleucus)

Fishes

Spring chinook (Oncorhynchus tshawytscha)  
Kokanee (Oncorhynchus nerka)  
Coho (Oncorhynchus kisutch)  
Rainbow trout (Oncorhynchus gairdneri)  
Summer steelhead (Oncorhynchus gairdneri)  
Winter steelhead (Oncorhynchus gairdneri)  
Cutthroat trout (Oncorhynchus clarki)

AMPHIBIANS, REPTILES AND FISHES (CONT.)

\*\*\*Hackleman cutthroat trout (Oncorhynchus clarki hackelmanii)  
Brown trout (Salmo Trutta)  
Atlantic salmon (Salmo salar)  
Brook trout (Salvelinus fontinalis)  
Bull trout (Salvelinus confluentus)  
Mountain whitefish (Prosopium williamsoni)  
Large-mouth bass (Micropterus salmoides)  
brown bullhead (Ictalurus nebulosus)  
White crappie (Pomoxis annularis)  
Black crappie (Pomoxis nigromaculatus)  
Oregon chub (Oregonichthys crameri)  
Largescale sucker (Catostomus macrocheilus)  
Mountain sucker (Catostomus platyrhynchus)  
Trout-perch (Percopsis transmontanus)  
Northern squawfish (Ptychocheilus oregonensis)  
Chiselmouth (Acrocheilus alutaceus)  
Redside shiner (Richardsonius balteatus)  
Cottids (Cottus sp.)  
Speckled dace (Rhinichthys osculus)  
Blackside dace (Rhinichthys osculus nubilus)  
Longnose dace (Rhinichthys cataractae dulcis)  
Leopard dace (Rhinichthys falcatus)  
Prickly sculpin (Cottus asper)  
Torrent sculpin (Cottus confusus)  
Reticulate sculpin (Cottus rhotheus)  
Piute sculpin (Cottus beldingi)  
Western brook lamprey (Lampetra richardsoni)  
Pacific lamprey (Lampetra tridentatus)

\*Species listed as "unique" on Forest Service Region 6 list of Endangered, Threatened or Unique Species.

\*\*Species or subspecies listed as "Threatened" on Forest Service Region 6 list of Endangered, Threatened or Unique Species.

\*\*\*The Hackleman cutthroat trout is not on the R-6 list but is considered "unique" on the Forest, because it has been isolated for 10,000 years and may have developed into a distinct race.

Nomenclature of reptiles and amphibians are based on "A Field Guide to Western Reptiles and Amphibians", Robert C. Stebbins, published by Houghton Mifflin Co. 1966.

## BIRDS OF THE WILLAMETTE NATIONAL FOREST

### SPECIES

Common loon (Gavia immer)  
Pacific loon (Gavia pacifica)  
Western grebe (Aechmophorus occidentalis)  
Horned grebe (Podiceps auritus)  
Pied-billed grebe (Podilymbus podiceps)  
Leach's storm-petrel (Oceanodroma leucorhoa) (Accidental)  
Double-crested cormorant (Phalacrocorax auritus)  
Tundra swan (Cygnus columbianus)  
Trumpeter swan (Cygnus buccinator) (accidental)  
Canada goose (Branta canadensis)  
Greater white-fronted goose (Anser albifrons)  
Snow goose (Chen caerulescens)  
Mallard (Anas platyrhynchos)  
Pintail (Anas acuta)  
Gadwell (Anas strepera)  
Eurasian widgeon (Anas penelope)  
American wigeon (Anas americana)  
Northern shoveller (Anas clypeata)  
Green-winged teal (Anas crecca)  
Cinnamon teal (Anas cyanoptera)  
Blue-winged teal (Anas discors)  
Wood duck (Aix sponsa)  
Redhead (Aythya americana)  
Canvasback (Aythya valisineria)  
Ring-necked duck (Aythya collaris)  
Greater scaup (Aythya marila)  
Lesser scaup (Aythya affinis)  
Common goldeneye (Bucephala clangula)  
Barrow's goldeneye (Bucephala islandica)  
Bufflehead (Bucephala albeola)  
\*Harlequin duck (Histrionicus histrionicus)  
Oldsquaw (Clangula hyemalis) (Accidental)  
White-winged scoter (Melanitta fusca) (Accidental)  
Surf scoter (Melanitta perspicillata)  
Common merganser (Mergus merganser)  
Hooded merganser (Lophodytes cucullatus)  
Ruddy duck (Oxyura jamaicensis)  
Turkey vulture (Cathartes aura)  
Goshawk (Accipiter gentilis)  
Cooper's hawk (Accipiter cooperi)  
Sharp-shinned hawk (Accipiter striatus)  
Northern harrier (Circus cyaneus)  
Rough-legged hawk (Buteo lagopus)  
Ferruginous hawk (Buteo regalis)  
Red-tailed hawk (Buteo jamaicensis)  
Swainson's hawk (Buteo swainsoni)  
Golden eagle (Aquila chrysaetos)  
\*\*Northern bald eagle (Haliaeetus leucocephalus alascanus)



BIRDS OF THE WILLAMETTE (CONT.)

\*Osprey (Pandion haliaetus)  
Prairie falcon (Falco mexicanus)  
\*\*Peregrine falcon (Falco peregrinus)  
Merlin (Falco columbarius)  
American kestrel (Falco sparverius)  
Turkey (Meleagris gallopavo) (introduced)  
Blue grouse (Dendragapus obscurus)  
Ruffed grouse (Bonasa umbellus)  
California quail (Callipepla californicus)  
Mountain quail (Oreotyx pictus)  
Ring-necked pheasant (Phasianus colchicus)  
Common egret (Casmerodius albus)  
Cattle egret (Bubulcus ibis) (Accidental)  
Great blue heron (Ardea herodias)  
Green-backed heron (Butorides striatus)  
American bittern (Botaurus lentiginosus)  
White-faced ibis (Eudocimus albus) (Accidental)  
Sandhill crane (Grus canadensis)  
American coot (Fulica americana)  
Semipalmated plover (Charadrius semipalmatus)  
Killdeer (Charadrius vociferus)  
Greater yellowlegs (Tringa melanoleucus)  
Lesser yellowlegs (Tringa flavipes)  
Solitary sandpiper (Tringa solitaria)  
Spotted sandpiper (Actitis macularia)  
Long-billed dowitcher (Limnodromus scolopaceus)  
Red phalarope (Phalaropus fulicarius) (Accidental)  
Red-necked phalarope (Phalaropus lobatus) (Accidental)  
Common snipe (Gallinago gallinago)  
Pectoral sandpiper (Calidris melanotos)  
Dunlin (Calidris alpina)  
Least sandpiper (Calidris minutilla)  
Glaucous-winged gull (Larus glaucescens)  
California gull (Larus californicus)  
Ring-billed gull (Larus delawarensis)  
Bonaparte's gull (Larus philadelphia) (Accidental)  
Caspian tern (Sterna caspia)  
Band-tailed pigeon (Columba fasciata)  
Rock dove (Columba livia) (Introduced)  
Mourning dove (Zenaida macroura)  
Western screech owl (Otus kennicottii)  
Great horned owl (Bubo virginianus)  
Long-eared owl (Asio otus)  
Barn owl (Tyto alba)  
Barred Owl (Strix varia)  
\*\*Northern spotted owl (Strix occidentalis caurina)  
Great grey owl (Strix nebulosa)  
Boreal owl (Aegolius funereus)  
Northern saw-whet owl (Aegolius acadicus)  
Flammulated owl (Otus flammeolus)  
Northern pygmy owl (Glaucidium gnoma)  
Common nighthawk (Chordeiles minor)

BIRDS OF THE WILLAMETTE (CONT.)

Black swift (Cypseloides niger)  
Vaux's swift (Chaetura vauxi)  
Calliope hummingbird (Stellula calliope)  
Anna's hummingbird (Calypte anna)  
Rufous hummingbird (Selasphorus rufus)  
Belted kingfisher (Ceryle alcyon)  
Northern flicker (Colaptes auratus)  
Pileated woodpecker (Dryocopus pileatus)  
White-headed woodpecker (Picoides albolarvatus)  
Lewis woodpecker (Melanerpes lewis)  
Red-naped sapsucker (Sphyrapicus ?)  
Red-breasted sapsucker (Sphyrapicus ruber)  
Williamson's sapsucker (Sphyrapicus thyroideus)  
Hairy woodpecker (Picoides villosus)  
Downy woodpecker (Picoides pubescens)  
Black-backed woodpecker (Picoides arctus)  
Three-toed woodpecker (Picoides tridactylus)  
Western kingbird (Tyrannus verticalis)  
Willow flycatcher (Empidonax traillii)  
Hammond's flycatcher (Empidonax hammondi)  
Dusky flycatcher (Empidonax oberholseri)  
Gray flycatcher (Empidonax wrightii)  
Western flycatcher (Empidonax difficilis)  
Western wood pewee (Contopus sordidulus)  
Olive-sided flycatcher (Contopus borealis)  
Horned lark (Eremophila alpestris)  
Barn swallow (Hirundo rusticus)  
Cliff swallow (Hirundo pyrrhonota)  
Violet-green swallow (Tachycineta thalassina)  
Tree swallow (Tachycineta bicolor)  
Bank swallow (Riparia riparia)  
Rough-winged swallow (Stelgidopteryx serripennis)  
Purple martin (Progne subis)  
Steller's jay (Cyanocitta stelleri)  
Scrub jay (Aphelocoma coerulescens)  
Gray jay (Perisoreus canadensis)  
Black-billed magpie (Pica pica)  
Clark's nutcracker (Nucifraga columbiana)  
Common raven (Corvus corax)  
American crow (Corvus brachyrhynchos)  
Black-capped chickadee (Parus atricapillus)  
Mountain chickadee (Parus gambeli)  
Chestnut-backed chickadee (Parus rufescens)  
Bushtit (Psaltriparus minimus)  
Wrentit (Chamaea fasciata)  
Dipper (Cinclus mexicanus)  
White-breasted nuthatch (Sitta carolinensis)  
Red-breasted nuthatch (Sitta canadensis)  
Brown creeper (Certhia americana)  
House wren (Troglodytes aedon)  
Winter wren (Troglodytes troglodytes)  
Bewick's wren (Thryomanes bewickii)

BIRDS OF THE WILLAMETTE (CONT.)

Rock wren (Salpinctes obsoletus)  
Marsh wren (Cistothorus palustris)  
Mockingbird (Mimus polygottos)  
American robin (Turdus migratorius)  
Varied thrush (Ixoreus naevius)  
Townsend's solitaire (Myadestes townsendii)  
Hermit thrush (Catharus guttatus)  
Swainson's thrush (Catharus ustulatus)  
Western bluebird (Sialia mexicana)  
Mountain bluebird (Sialia currucoides)  
Golden-crowned kinglet (Regulus satrapa)  
Ruby-crowned kinglet (Regulus calendula)  
American pipit (Anthus spinoletta)  
Bohemian waxwing (Bombycilla garrulus) (Accidental)  
Cedar waxwing (Bombycilla cedrorum)  
Northern shrike (Lanius excubitor)  
Starling (Sturnus vulgaris)  
Solitary vireo (Vireo solitarius)  
Hutton's vireo (Vireo huttoni)  
Red-eyed vireo (Vireo olivaceus)  
Warbling vireo (Vireo gilvus)  
Tennessee warbler (Vermivora peregrina) (Accidental)  
Orange-crowned warbler (Vermivora celata)  
Nashville warbler (Vermivora ruficapilla)  
Yellow warbler (Dendroica petechia)  
Yellow-rumped warbler (Dendroica coronata)  
Townsend's warbler (Dendroica townsendi)  
Hermit warbler (Dendroica occidentalis)  
Black-throated gray warbler (Dendroica nigrescens)  
Northern waterthrush (Seiurus noveboracensis)  
Common yellow-throat (Geothlypis trichas)  
Yellow-breasted chat (Icteria virens)  
MacGillivray's warbler (Oporornis tolmiei)  
Wilson's warbler (Wilsonia pusilla)  
American redstart (Setophaga ruticilla)  
House sparrow (Passer domesticus)  
Western meadowlark (Sturnella neglecta)  
Yellow-headed blackbird (Xanthocephalus xanthocephalus)  
Red-winged blackbird (Agelaius phoeniceus)  
Brewer's blackbird (Euphagus cyanocephalus)  
Brown-headed cowbird (Molothrus ater)  
Northern oriole (Icterus galbula bullockii)  
Western tanager (Piranga ludoviciana)  
Black-headed grosbeak (Pheucticus melanocephalus)  
Evening grosbeak (Coccothraustes vespertina)  
Lazuli bunting (Passerina amoena)  
Purple finch (Carpodacus purpureus)  
Cassin's finch (Carpodacus cassinii)  
House finch (Carpodacus mexicanus)  
Pine grosbeak (Pinicola enucleator)  
Rosy finch (Leucosticte arctoa)  
Pine siskin (Carduelis pinus)

BIRDS OF THE WILLAMETTE (CONT.)

American goldfinch (Carduelis tristis)  
Lesser goldfinch (Carduelis psaltria)  
Red crossbill (Loxia curvirostra)  
White-winged crossbill (Loxia leucoptera)  
Green-tailed towhee (Pipilo chlorurus)  
Rufous-sided towhee (Pipilo erythrophthalmus)  
Savannah sparrow (Passerculus sandwichensis)  
Vesper sparrow (Pooecetes gramineus)  
Lark sparrow (Chondestes grammacus)  
Dark-eyed junco (Junco hyemalis oregonus)  
Chipping sparrow (Spizella passerina)  
Brewer's sparrow (Spizella breweri)  
White-crowned sparrow (Zonotrichia leucophrys)  
Golden-crowned sparrow (Zonotrichia atricapilla)  
White-throated sparrow (Zonotrichia albicollis)  
Fox sparrow (Passerella iliaca)  
Lincoln's sparrow (Melospiza lincolni)  
Song sparrow (Melospiza melodia)

\*Species or subspecies listed as "Unique" on Forest Service Region 6 list of Endangered, Threatened or Unique Species.

\*\*Species or subspecies listed as "Threatened" or "Endangered" on Forest Service Region 6 list of Endangered, Threatened or Unique Species.

Nomenclature of Birds is based on "A Guide to Field Identification, Birds of North America", Robbins, Bruun, Zim and Singer published by Golden Press, New York, 1983; and "Checklist of North American Birds", American Ornithologists' Union, 1974.

## MAMMALS OF THE WILLAMETTE NATIONAL FOREST

### SPECIES

Opposum (Didlephus virginiana), (Introduced)  
Dusky shrew (Sorex obscurus)  
Vagrant shrew (Sorex vagrans)  
Water shrew (Sorex palustris)  
Trowbridge shrew (Sorex trowbridgii)  
Coast mole (Scapanus orarius)  
Shrew mole (Neurotrichus gibbsii)  
Little brown myotis (Myotis lucifugus)  
California myotis (Myotis californicus)  
Long-eared myotis (Myotis evotis)  
Yuma myotis (Myotis yumanensis)  
\*\*\*Townsend's big-eared bat (Plecotus townsendii)  
Big brown bat (Eptesicus fuscus)  
Pika (Ochotona princeps)  
Snowshoe hare (Lepus americanus)  
Brush rabbit (Sylvilagus bachmani)  
\*Mountain beaver (Aplodontia rufus)  
Beechey ground squirrel (Ostospermophilus beecheyi)  
Sierra Nevada golden-mantled ground squirrel (Callospermophilus lateralis)  
Yellow pine chipmunk (Eutamias amoenus)  
Townsend chipmunk (Eutamias townsendii)  
Western gray squirrel (Sciurus griseus)  
Douglas squirrel (Tamiasciurus douglasii)  
Northern flying squirrel (Glaucomys sabrinus)  
Mazama pocket gopher (Thomomys mazama)  
Beaver (Castor canadensis)  
Deer mouse (Peromyscus maniculatus)  
Bushy-tailed woodrat (Neotoma cinerea)  
Red tree mouse (Phenacomys longicaudus)  
Western red-backed mouse (Clethrionomys occidentalis)  
Oregon meadow mouse (Microtus oregonia)  
White-footed vole (Microtus albipes)  
Water rat (Microtus richardsoni)  
Porcupine (Erethizon dorsatum)  
Red Fox (Vulpes fulva)  
Coyote (Canis latrans)  
Black bear (Euarctos americanus)  
Ring-tailed cat (Bassariscus astutus)  
Raccoon (Procyon lotor)  
Marten (Martes americana)  
\*Fisher (Martes pennanti)  
Ermine (Mustela erminea)  
Long-tailed weasel (Mustela frenata)  
Mink (Mustela vison)  
\*Wolverine (Gulo luscus)  
Spotted skunk (Spilogale putorius)  
Striped skunk (Mephitis mephitis)  
River otter (Lutra canadensis)

MAMMALS OF THE WILLAMETTEE (CONT.)

Mountain lion (Felis concolor)

Bobcat (Lynx rufus)

Roosevelt elk (Cervus canadensis roosevelti)

Black-tailed deer (Odocoileus hemionus columbianus)

Mule deer (Odocoileus hemionus hemionus)

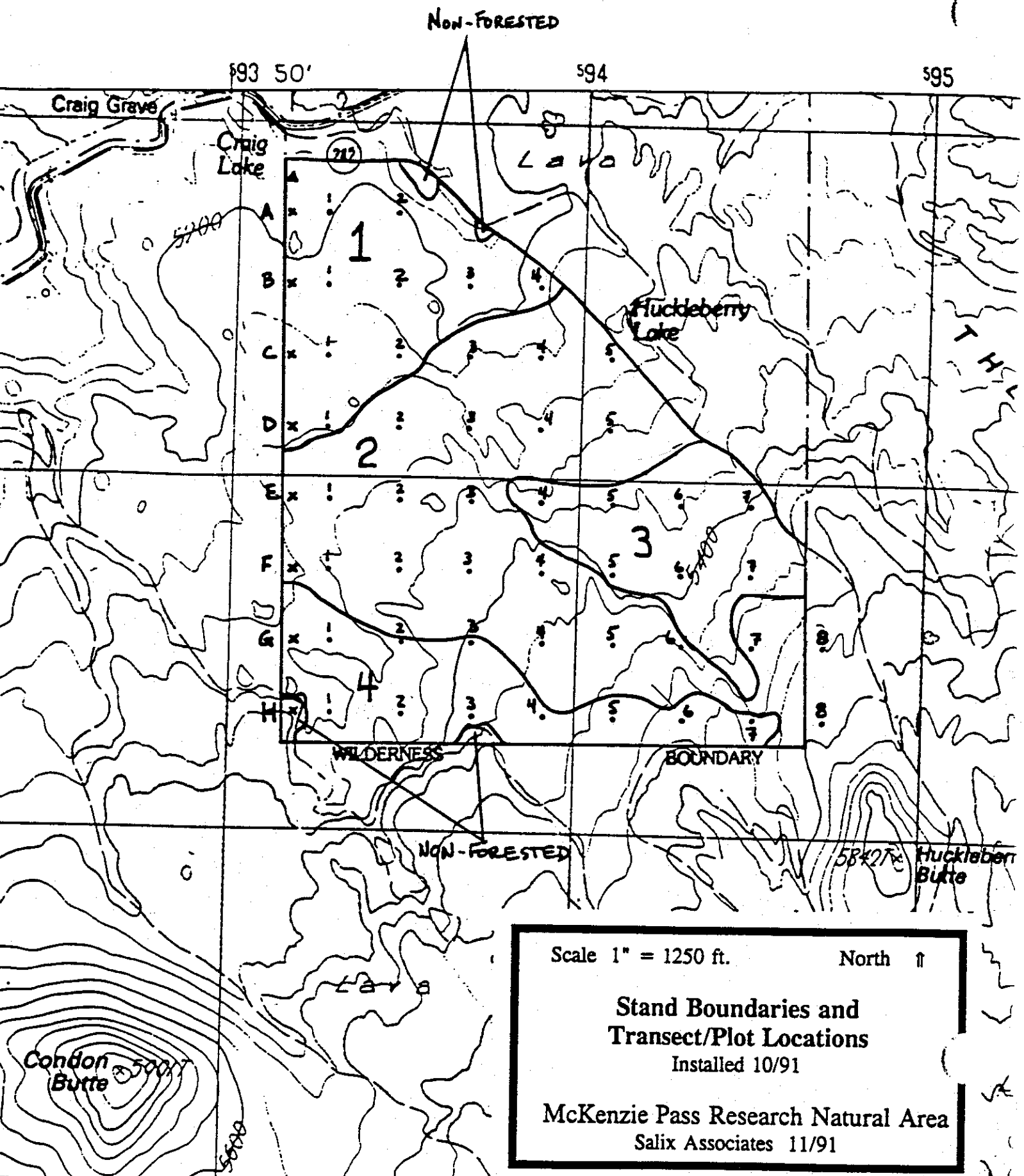
Yellow bellied marmot (Marmota flaviventris)

\*Species or subspecies listed as "Unique" on Forest Service Region 6 list of Endangered, Threatened or Unique Species.

Nomenclature of Mammals based on "Mammals of the Pacific States" by F. Ingles, Stanford University Press, 1965.

Vegetation Resource Plot Layout  
McKenzie Pass Research Natural Area

1. **Directions to Baseline.** From McKenzie R.S. take Highway 126 east to Highway 242 and turn right. Drive 19.5 miles (31.4 km) and park at the Craig Lake parking area. Walk 0.2 mile (0.3 km) east on the highway to the Huckleberry Lake Trail and take the trail approximately 250 feet to an orange-painted rebar to the south of three trees on the south side of the trail. The rebar is about 80 feet due south of the lefthand curve (eastbound) in the highway. Head due south 400 feet to the approximate NW corner of Section 30 (T15S, R8E). The line is flagged in pink and there is an orange-painted rebar in the ground at the 400 foot mark.
2. **Baseline Survey.** The baseline was surveyed with a staff compass and is marked with pink flagging. The rebar at the approximate location of the section corner is the baseline point of beginning (P.O.B.). The baseline runs due south from this point. All baseline and transect distances are slope corrected. Transect heads are located on the baseline beginning 330 feet south from the baseline P.O.B., and every 660 feet thereafter. Transect heads are marked by orange-painted rebar in the ground on the baseline, by pink and blue flagging and by an aluminum flasher on a nearby tree that gives a transect identification letter (A,B,C...), distance along the baseline, and distance and direction from the flasher to the rebar. Eight transects (identified A-H) originate on the baseline and run due east from it.
3. **Plot Location.** The plots are located on each transect beginning 330 feet from the baseline and every 660 feet thereafter. Transects were surveyed by hand compass and flagged in pink between plots. Plot centers are marked by orange-painted rebar and blue flagging hung on the tree nearest to the rebar.
4. **Plot Sampling.** Plots were sampled according to the procedures guide for the Vegetation Resource Exam for the Pacific Northwest Region (dated 5/91) and the specifications listed in the purchase order for the establishment and sampling of plots in the McKenzie Pass RNA.



Scale 1" = 1250 ft.      North ↑

**Stand Boundaries and  
Transect/Plot Locations**  
Installed 10/91

**McKenzie Pass Research Natural Area**  
Salix Associates 11/91



I certify the enclosed boundary description for the McKenzie Pass Research Natural Area.

REGISTERED  
PROFESSIONAL  
LAND SURVEYOR

Seal  
OREGON  
JULY 25, 1991  
DONN ROWE  
2519

*Donn Rowe*  
Donn Rowe, Land Surveyor

MCKENZIE PASS RESEARCH NATURAL AREA

QUAD SHEET NAME	ANGLE POINT	BEARING	DISTANCE FEET	DESCRIPTION
				Commencing at Craig Lake southwesterly along Highway 242 approx. 0.2 miles to the True Point of Beginning.
North Sister.	POB			True Point of Beginning is a point along the Right of Way for Highway 242. This point being a point at which a line tangent to the curve is equal to N 45° E. (i.e. Where the highway course changes from north-south to east-west.
		S89/14/11E	2551.4	Ascend over uneven ground.
	2			A digitized angle point.
		S50/26/26E	1021.4	
	3			A digitized angle point.
		S66/43/55E	516.3	
	4			A digitized angle point.
		S11/02/58E	1112.1	
	5			A digitized angle point.
		S34/40/09E	646.7	
	6			A digitized angle point.
		S69/17/17E	1352.2	
	7			A digitized angle point.
		S33/12/05E	760.9	
	8			A digitized angle point.
		N01/07/45E	1066.8	
	9			A digitized angle point.
		S88/24/13E	2968.9	

QUAD SHEET NAME	ANGLE POINT	BEARING	DISTANCE FEET	DESCRIPTION
	10			A digitized angle point.
	11	S01/00/18W	3674.0	A digitized angle point.
		S31/39/58W	1914.6	
	12			A digitized angle point.
		S89/05/47W	3362.8	
	13			A digitized angle point.
		N41/43/12W	1613.8	
	14			A digitized angle point.
		N00/48/09E	1322.2	
	15			A digitized angle point.
		N89/07/59W	4297.5	
	16			A digitized angle point.
		N18/47/30W	2620.8	
	17			A digitized angle point.
		N85/32/52W	2184.7	
	18			A point on the Right of Way for Highway 242.
	19	N58/07/42E	258.3	
	20	N58/43/16E	600.0	
	21	N58/48/49E	457.4	
	22	N53/38/59E	159.5	Along the Right of Way of Highway 242.
	23	N58/21/05E	253.7	
	24	N59/48/41E	296.5	
	25	N53/01/35E	173.6	
	26	N62/18/29E	201.7	
		N54/16/29E	262.3	

QUAD SHEET NAME	ANGLE POINT	BEARING	DISTANCE FEET	DESCRIPTION
	27			
		N56/56/41E	256.3	
	28			
		N60/13/29E	190.8	
	29			
		N36/16/41E	174.7	
	30			
		N09/15/14E	161.7	
	31			
		N09/10/06W	130.8	
	32			
		N16/33/44W	141.6	Along the Right of Way of Highway 242.
	33			
		N02/25/34E	145.1	
	34			
		N47/02/28E	146.0	
	35			
		N52/04/13E	121.2	
	36			
		N64/01/19E	371.0	
	37			
		N82/10/12E	305.0	
	38			
		N83/50/46E	196.6	
	39			Point of Beginning.

**DECISION NOTICE / DESIGNATION ORDER  
and  
FINDING OF NO SIGNIFICANT IMPACT**

**ESTABLISHMENT OF ELEVEN  
RESEARCH NATURAL AREAS**

**USDA Forest Service  
Pacific Northwest Region  
Oregon and Washington**

By virtue of the authority vested in me by the Chief of the Forest Service, in Forest Service Manual Section 4063, I hereby establish the Research Natural Areas listed in Table 1 and as described in their respective Establishment Records in the section entitled "Location".

**Table 1: Research Natural Area Locations**

<b>R N A</b>	<b>National Forest</b>	<b>Ranger District</b>	<b>County</b>	<b>Acres</b>
<b>Oregon</b>				
<b>Cache Mountain</b>	Deschutes	Sisters	Deschutes	1400
<b>Dry Mountain</b>	Ochoco	Snow Mountain	Harney	2205
<b>Gumjuwac/Tolo</b>	Mt. Hood	Barlow	Hood River	3600
<b>Hagan</b>	Willamette	Blue River	Lane	1126
<b>McKenzie Pass</b>	Willamette	McKenzie	Lane	1187
<b>Mokst Butte</b>	Deschutes	Bend/Fort Rock	Deschutes	1250
<b>Reneke Creek</b>	Siuslaw	Hebo	Tillamook	480
<b>Tenmile Creek</b>	Siuslaw	Oregon Dunes NRA	Coos	1190
<b>Vee Pasture</b>	Fremont	Bly	Klamath & Lake	620
<b>Washington</b>				
<b>Fish Lake Bog</b>	Wenatchee	Lake Wenatchee	Chelan	206
<b>Roger Lake</b>	Okanogan	Tonasket	Okanogan	436

The Regional Forester recommended the establishment of these RNAs in the Record of Decision for their respective Land and Resource Management Plans (Forest Plans). That recommendation was the result of an analysis of the factors listed in 36 CFR 219.25 and Forest Service Manual 4063.2. Results of the Regional Forester's analysis are documented in the Forest Plans and Final Environmental Impact Statements which are available to the public.

## **SELECTED ALTERNATIVE**

The Regional Forester has reexamined the RNAs to ensure that the environmental effects of establishing the areas as RNAs have not changed since the Forest Plans were adopted. In three cases (Cache Mountain, Dry Mountain, and Gumjuwac/Tolo) areas were recommended for addition or deletion from the proposed RNA to better accomplish the original purpose of the RNA. Proposed Tenmile Creek RNA boundary adjustments were adopted by the Record of Decision for the Oregon Dunes National Recreation Area Management Plan in 1994. For the remaining RNAs no changes were found. This analysis is documented in the attached Environmental Assessment.

Based on the analysis in the Environmental Assessment, it is my decision to adopt Alternative 2 which establishes these eleven areas as Research Natural Areas. Alternative 2 is selected because it provides long-term protection of the research and educational values of these special areas and the ecosystem elements that they represent. The RNAs will be managed in compliance with all relevant laws, regulations and Forest Service Manual direction regarding RNAs and in accordance with the management direction identified in their respective Forest Plans.

Although this alternative is consistent with the management direction in each Forest Plan it does change the allocation for these areas from "Proposed RNA" to "Established RNA". This is a non-significant amendment of the Forest Plans [36 CFR 219.10(f)].

## **OTHER ALTERNATIVE CONSIDERED**

The other alternative considered was Alternative 1, the "No Action" alternative which would continue management of the RNAs as "Proposed RNAs". Alternative 1 was not selected because it would provide only short-term protection of the research and educational values of the areas. Alternative 1 is consistent with the Forest Plans.

## **FINDING OF NO SIGNIFICANT IMPACT**

Based on the environmental analysis documented in the Environmental Assessment, it has been determined 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 RNAs, both short-term and long-term physical and biological effects are limited to the local area.

### **INTENSITY**

1. There are no known effects on public health and safety.
2. No significant direct, indirect or cumulative impacts to the natural resources or other components of the human environment are anticipated.
3. Effects on the human environment are not uncertain, do not involve unique or unknown risks,

and are not likely to be highly controversial.

4. There are no known effects on historical or cultural resources, park lands, prime farmlands, wetlands, or wild and scenic rivers. Effects of establishing the RNAs is to protect ecologically sensitive areas. No significant adverse effects are anticipated to any environmentally sensitive or critical area.

5. The action is not likely to establish a precedent for future actions with significant effects.

6. The proposed action will not adversely affect any federally listed or proposed endangered or threatened species or Regionally listed sensitive species of plants or animals or their critical habitats.

7. The proposed action is consistent with the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (USDA, USDI 1994).

8. The proposed action is consistent with Federal, State, and local laws and requirements for protection of the environment.

## **NOTIFICATION and IMPLEMENTATION**

Legal notice of this decision will appear in The Oregonian and The Seattle Post-Intelligencer. The Forest Supervisor of each National Forest shall notify the public of this decision and mail a copy of the Decision Notice/Designation Order to all persons on their Forest Plan mailing lists.

Implementation of this decision shall not occur within seven days following publication of the legal notice of the decision in The Oregonian and The Seattle Post-Intelligencer.

## **APPEAL RIGHTS**

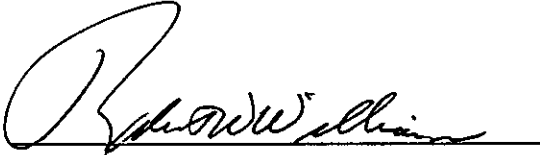
This decision is subject to appeal pursuant to 36 CFR Part 217. A copy of the Notice of Appeal must be in writing and must be submitted to:

Chief, USDA Forest Service  
ATTN: NFS Appeals  
14th and Independence Ave., S.W.  
P.O. Box 96090  
Washington, DC 20090-6090

Any written Notice of Appeal of this decision must be fully consistent with 36 CFR 217.9 (Content of a Notice of Appeal), must include the reasons for appeal, and must be submitted within 45 days from the date of legal notice of this decision in The Oregonian and The Seattle Post-Intelligencer.

CONTACT PERSON

For further information regarding this decision contact Sarah Greene,  
RNA Coordinator, Pacific Northwest Research Station, 3200 S.W. Jefferson  
Way, Corvallis, Oregon 97331, Phone 541-750-7360.



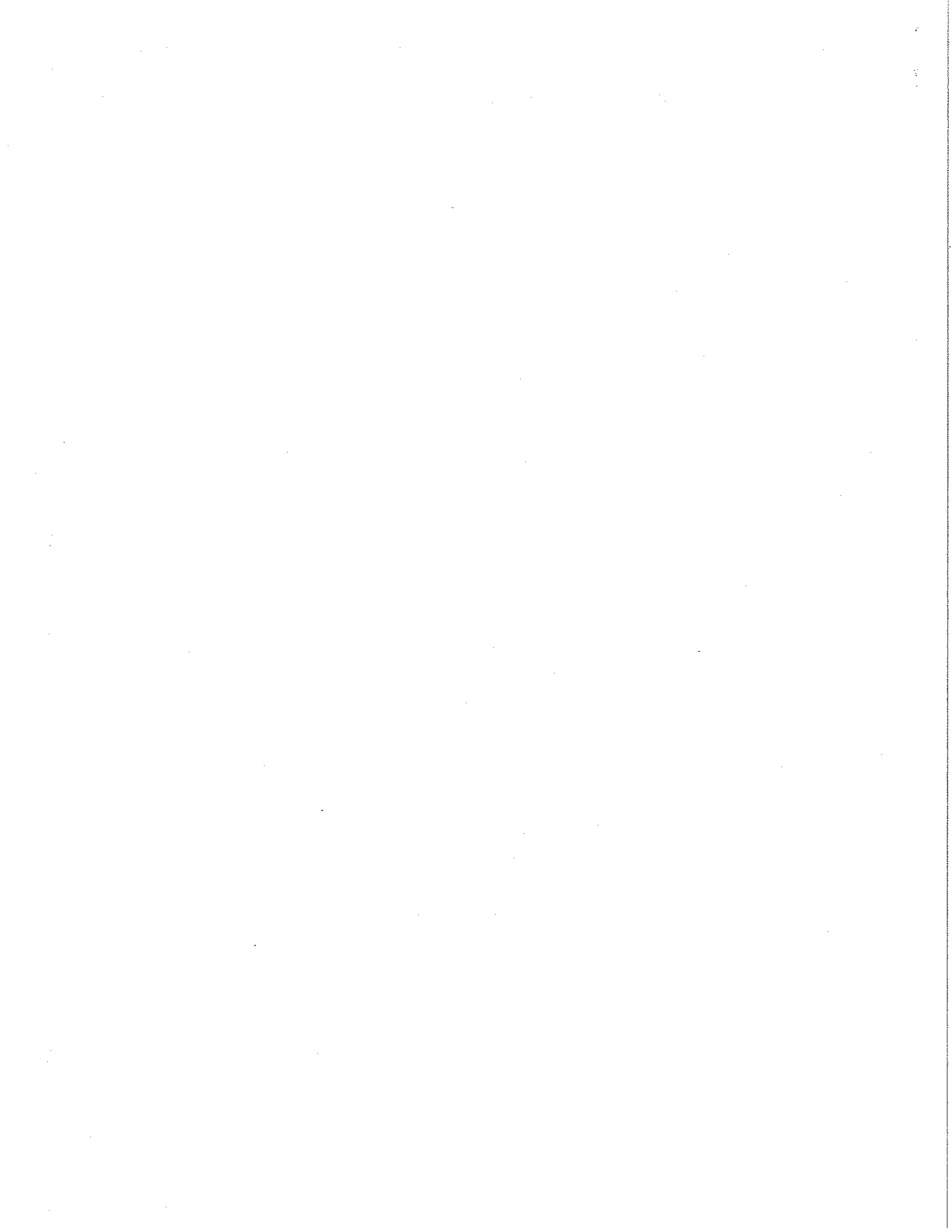
ROBERT W. WILLIAMS  
Regional Forester

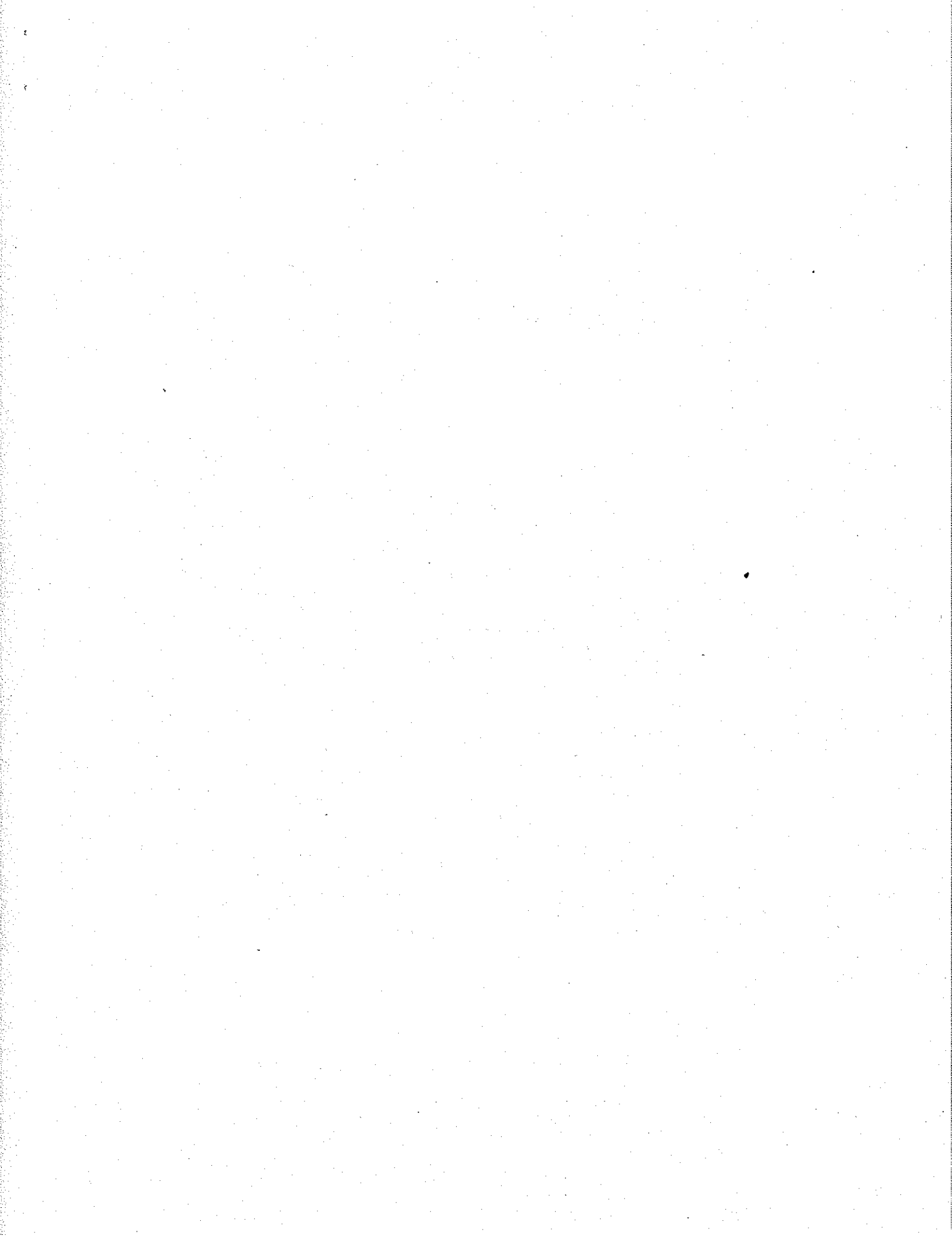
6/9/97  
Date

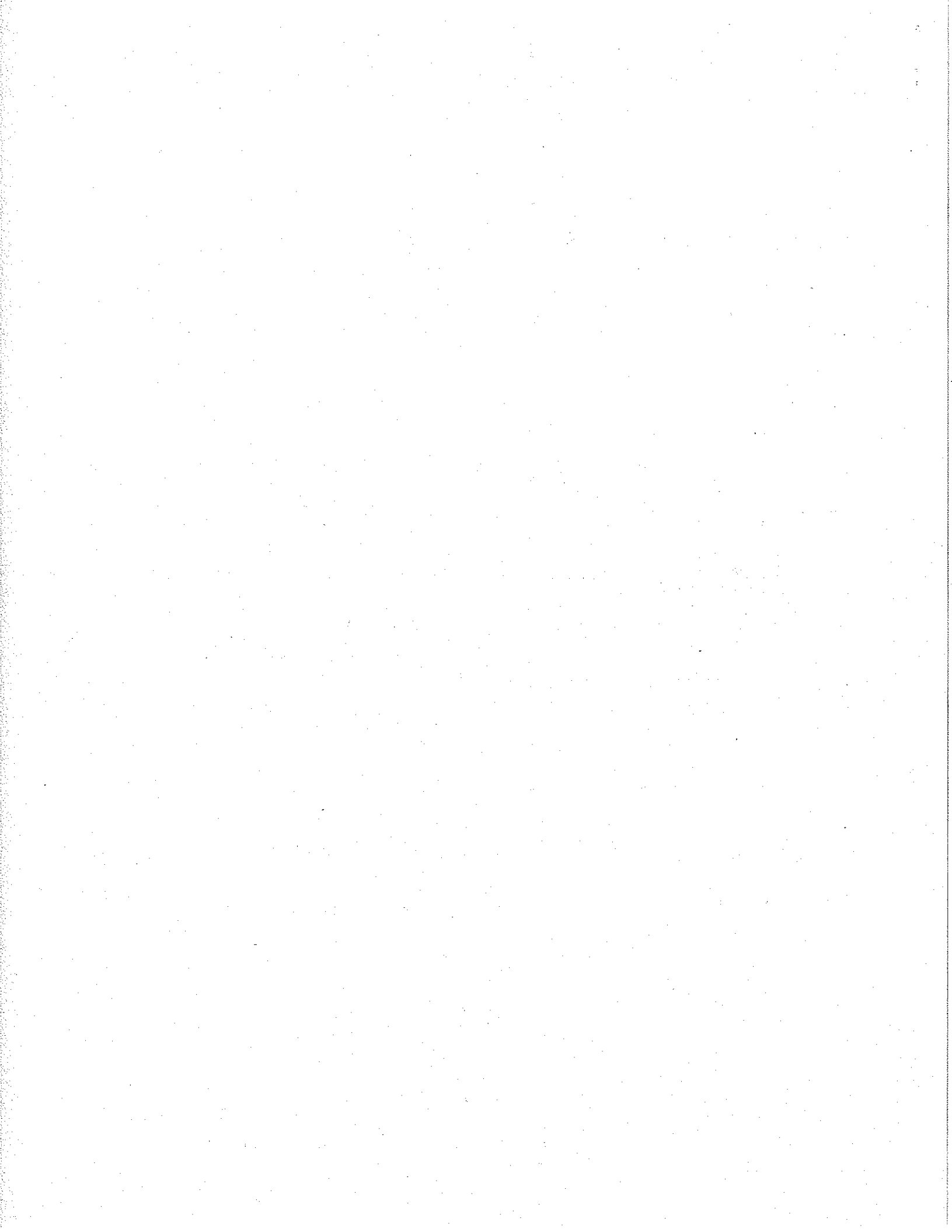


# Research Natural Area Locations









# **ESTABLISHMENT OF ELEVEN RESEARCH NATURAL AREAS**

## **ENVIRONMENTAL ASSESSMENT**

**Pacific Northwest Region  
USDA Forest Service  
Oregon and Washington**

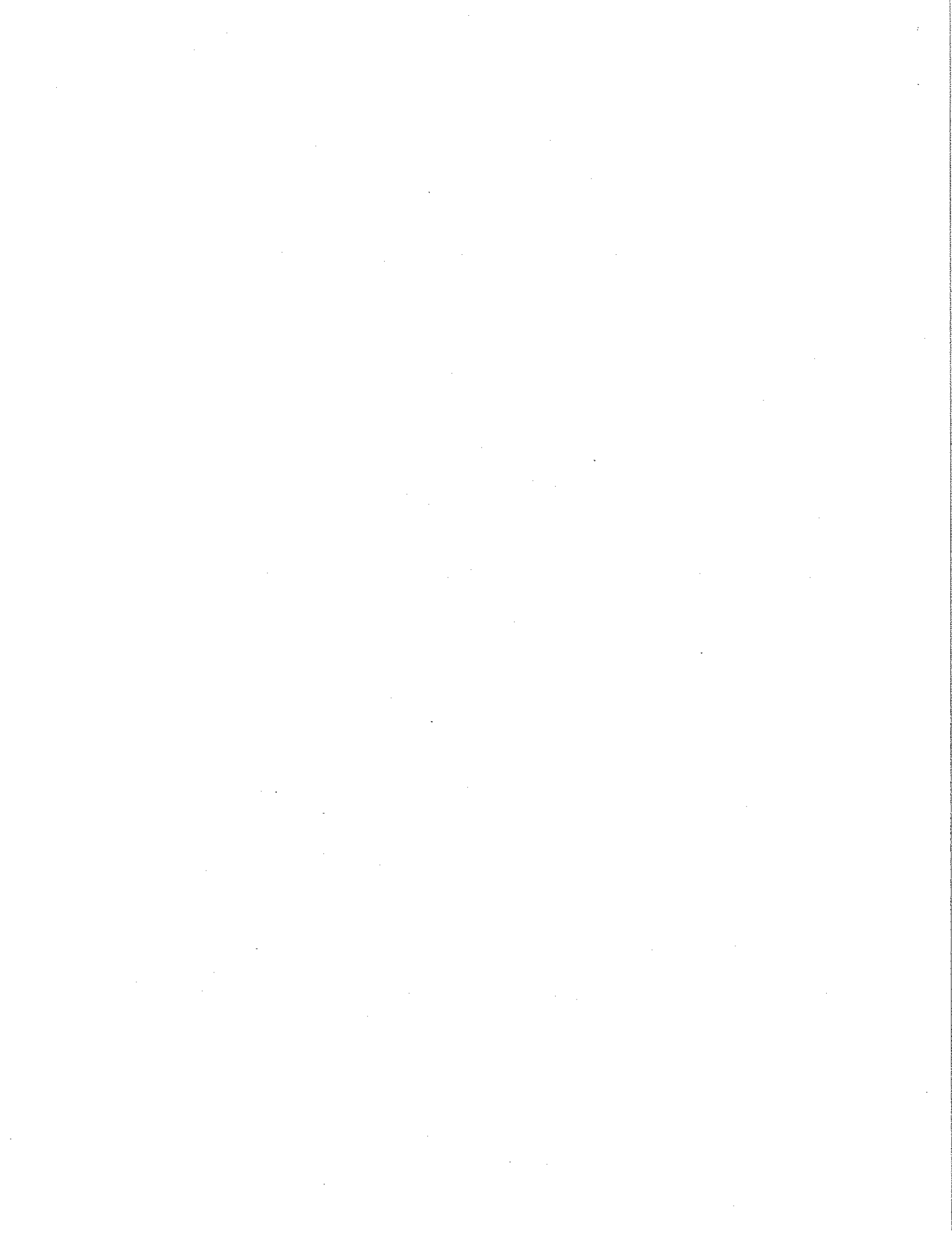
**Lead Agency:** USDA Forest Service  
P.O. Box 3623  
Portland, OR 97208

**Responsible Official:** ROBERT W. WILLIAMS, Regional Forester  
Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

**Prepared by:** Donna Short  
Sweet Home Ranger District  
Willamette National Forest  
3225 Highway 20  
Sweet Home, OR 97386  
541-367-5158

### **Abstract:**

This Environmental Assessment identifies the need for the proposed action, describes the analysis process and the alternatives formulated during that process. It discusses the environmental effects of each of the proposed alternatives. Two alternatives were evaluated and compared and are as follows: Alternative 1 - No Action and Alternative 2 - Finalize Establishment.



# ESTABLISHMENT OF ELEVEN RESEARCH NATURAL AREAS

## USDA FOREST SERVICE PACIFIC NORTHWEST REGION OREGON AND WASHINGTON

### ENVIRONMENTAL ASSESSMENT

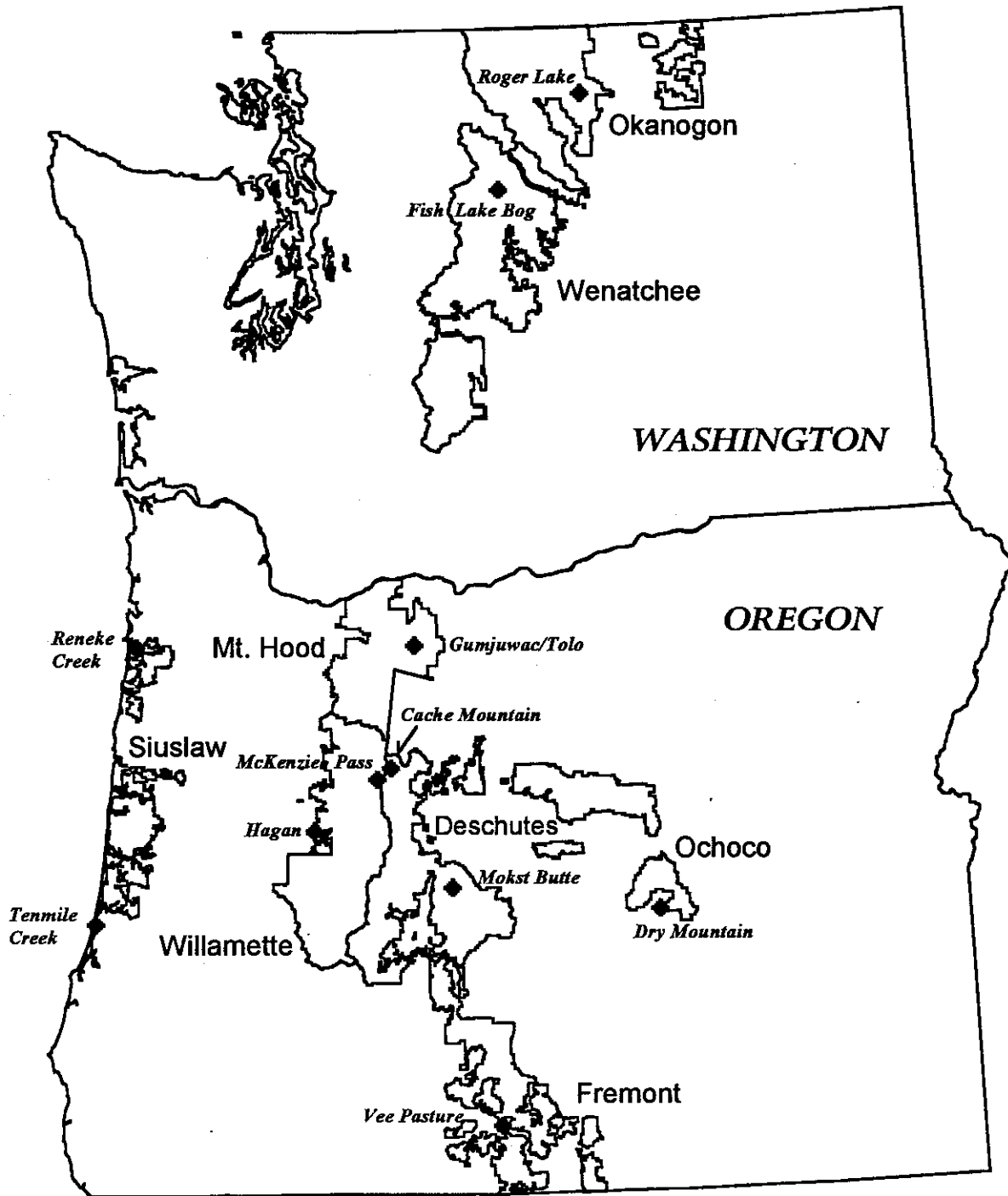
#### Proposed Action

The proposed action is to establish eleven Research Natural Areas (RNAs) as proposed in the Land and Resource Management Plans (Forest Plan) of each respective National Forest and the Oregon Dunes Management Plan (Tenmile Creek). These RNAs will be managed according to the direction provided in the management plans. This proposed action, formal designation of the RNAs by the Regional Forester, will amend each National Forest's Forest Plan. Table 1 lists the RNAs that are included in this environmental assessment and Figure 1 shows their locations.

**Table 1: Research Natural Area Locations**

R N A	National Forest	Ranger District	County	Acres
<b>Oregon</b>				
Cache Mountain	Deschutes	Sisters	Deschutes	1400
Dry Mountain	Ochoco	Snow Mountain	Harney	2205
Gumjuwac/Tolo	Mt. Hood	Barlow	Hood River	3600
Hagan	Willamette	Blue River	Lane	1126
McKenzie Pass	Willamette	McKenzie	Lane	1187
Mokst Butte	Deschutes	Bend/Fort Rock	Deschutes	1250
Reneke Creek	Siuslaw	Hebo	Tillamook	480
Tenmile Creek	Siuslaw	Oregon Dunes NRA	Coos	1190
Vee Pasture	Fremont	Bly	Klamath & Lake	620
<b>Washington</b>				
Fish Lake Bog	Wenatchee	Lake Wenatchee	Chelan	206
Roger Lake	Okanogan	Tonasket	Okanogan	436

**Figure 1: Vicinity Map**



50 0 50 Miles





## Purpose and Need for Action

The purpose of establishing these RNAs 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). An evaluation by the Regional RNA Committee, pursuant to direction in Forest Service Manual 4063.04b, identified the vegetation types represented by these RNAs as suitable and desirable for inclusion in the national network. Establishment of these RNAs will provide long-term protection and recognition of these representative vegetation types (see Table 2).

**Table 2: Representative Vegetative Types**

RNA	Physiographic Province	Major Vegetation Types		
Cache Mountain	East Slope Oregon Cascades	Mid-elevation lakes with marshy shores	Lodgepole pine/ beargrass and /grouse huckleberry	White fir - Pacific silver fir/snowberry
Dry Mountain	Blue Mountains	Western juniper/big sagebrush	Ponderosa pine/ mountain mahogany	Mountain mahogany/ bunchgrass
Fish Lake Bog	East slope Wash. Cascades	Low elevation wetland & sphagnum bog	Grand fir/vine maple	Western hemlock/ Oregongrape-twinflower
Gumjuwac/Tolo	East Slope Oregon Cascades	Grand fir/ Engelmann spruce/starry solomonseal	Grand fir/ skunkleaf polemonium	
Hagan	West slope Oregon Cascades	Western hemlock/salal-Oregongrape	Douglas-fir/ oceanspray/grass	
McKenzie Pass	High Cascades	Lavaflores with mountain hemlock associations		
Mokst Butte	East Slope Oregon Cascades	Cinder cones with mixed conifer/snowbrush	Ponderosa pine/ bitterbrush	Lava communities
Reneke Creek	Oregon Coast Range	Sitka spruce/ salmonberry	Red alder dominated riparian communities	
Roger Lake	East slope Wash. Cascades	Subalpine fir/ Engelmann spruce	Sedge dominated wetlands	
Tenmile Creek	Oregon Coast Range	Coastal dune mosaic with tree islands	Native stabilized dune grassland	Deflation plain marsh
Vee Pasture	East Slope Oregon Cascades	Western juniper/ low sage	Low sage/ bluegrass/fescue	Low sage/one-spike oatgrass/ junegrass

A more detailed description of the vegetation, wildlife, and physical and climatic conditions can be found in the Establishment Record for each RNA. Site conditions have been reviewed since these RNAs were proposed during the land management planning process and no significant changes have occurred.

## Public Involvement

Each National Forest included this project in their quarterly publication "Schedule of Proposed Actions" (FSH 1909.15, sec. 17) or sent a letter to interested parties. No comments were received from the public on continuing with the establishment process for ten of the RNAs. The proposed RNAs were also subjected to public review and comment during the land management planning process that resulted in the Forest Plans and the Oregon Dunes Management Plan (Tenmile Creek).

Several comments were received on Cache Mountain RNA on the Deschutes National Forest. Eunice Brandt and Donald Fontin expressed support for establishment of the RNA. Comments from the Blue Ribbon Coalition addressed the area proposed to be added to the original RNA boundary, road closures, and access for off-road vehicles. Northwest Antenna Site Services had concerns about use of the communications site on Cache Mountain. Sisters Sno-Go-Fers and William Rice expressed their opposition to placing restrictions on more public lands.

## Alternatives and Environmental Consequences

**Alternative 1, No Action:** This alternative continues management according to the direction in the each National Forest's Forest Plan for "proposed RNAs". This management generally limits recreation use to non-motorized use of existing trails and prohibits timber harvest and/or other vegetation management. There are no cumulative effects generated by this alternative. Other environmental consequences are described in the Final Environmental Impact Statement for each Forest Plan. For those RNAs with boundary changes (Cache Mountain, Dry Mountain, and Gumjuwac/Tolo) there is a possible loss of research potential in the areas that were not included in these RNAs originally.

**Alternative 2, Proposed Action:** This alternative will formally establish each RNA in the location described in their respective Establishment Record. The standards and guidelines listed in each respective Forest Plan will be applied to the management of these RNAs (see Table 3). Environmental consequences of this alternative have been discussed in the Final Environmental Impact Statements for each Forest Plan (Final EIS) and the Record of Decision and Final Environmental Impact Statement for the Oregon Dunes National Recreation Area (Tenmile Creek) (see Table 3). These consequences include the short-term loss of opportunities to change vegetation conditions through management. There are no significant cumulative effects from establishment of these RNAs beyond those already discussed in the Final EIS's.

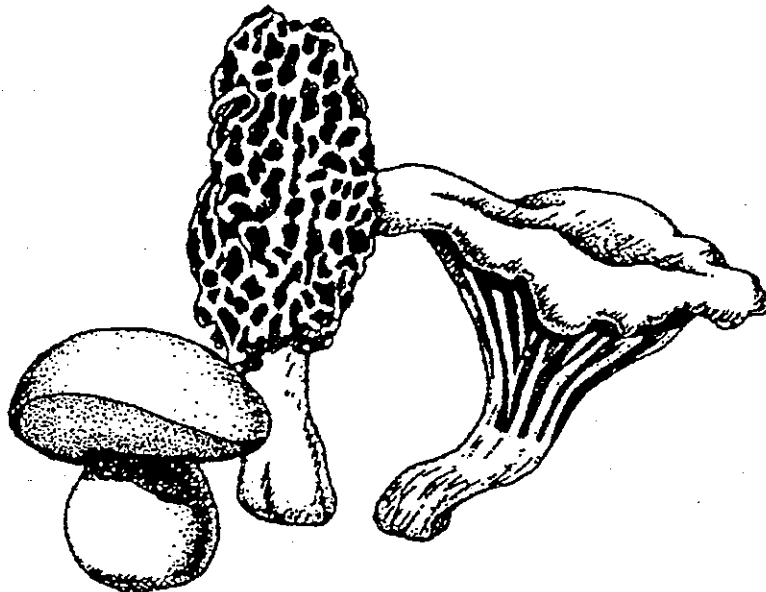
The direction in the National Forest management plans for established RNAs also includes reasonably foreseeable actions such as withdrawal of the area from mineral entry. The general consequences of withdrawal are discussed in the Final EIS's. Site-specific consequences will be disclosed in more detail when the mineral entry withdrawal recommendation is implemented.

A map of each RNA follows in Figures 2 - 12. A summary of the consequences associated with a particular RNA are listed below the map for that RNA. Those with proposed boundary changes (Cache Mountain, Dry Mountain, Gumjuwac/Tolo) also discuss any additional environmental consequences not covered by the Forest Plan Final EIS for that RNA.

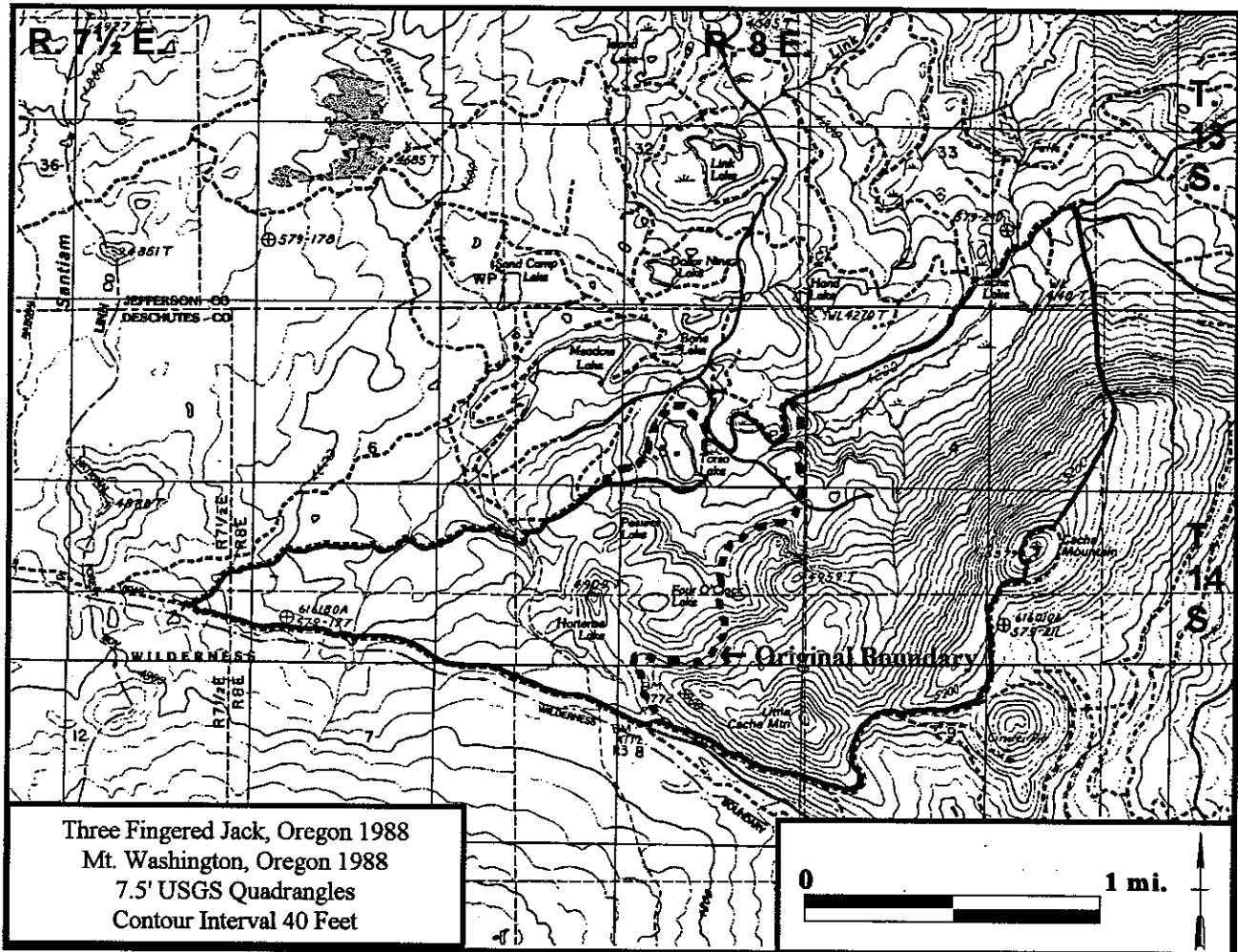
**Table 3: Land Management Plan References**

R N A	Administrative Unit	Standards and Guidelines in Land and Resource Management Plan	Environmental Consequences in Final EIS
Cache Mountain	Deschutes NF	Chapter 4 - pages 92-93	Chapter IV - pages 69-70
Dry Mountain	Ochoco NF	Pages 125-264*	Chapter IV - 9,10, 41, 51, 108
Fish Lake Bog	Wenatchee NF	Chapter IV - pages 189-197	Chapter IV - pages 83-85
Gumjuwac/Tolo	Mt. Hood NF	Chapter IV - pages 136-150	Chapter IV - pages 145-150
Hagan	Willamette NF	Chapter IV - pages 134-137	Chapter IV - pages 166-169
McKenzie Pass	Willamette NF	Chapter IV - pages 134-137	Chapter IV - pages 166-169
Mokst Butte	Deschutes NF	Chapter 4 - pages 92-93	Chapter IV - pages 69-70
Reneke Creek	Siuslaw NF	Chapter IV - pages 104-107	Chapter IV - pages 77-80
Roger Lake	Okanogan NF	Chapter 4 - pages 73-75	Chapter IV - pages 71-72
Tenmile Creek	Oregon Dunes NRA	Chapter III - pages 49-51	Chapter IV - pages 60-62
Vee Pasture	Fremont NF	Pages 126, 165-166	Chapter IV - pages 171-172

\*Specific pages that refer to RNA management include 125-127, 132, 136-138, 142-143, 147, 152, 155, 160, 163-168, 172-175, 178-179, 182, 190, 192, 198, 210, 228-234, 238-239, 250 and 262-264.



**Figure 2: Cache Mountain RNA**



**Boundary Change:** This RNA was originally proposed to include 600 acres in the Deschutes Forest Plan. Review of the area during the establishment process found that the uplands make a significant hydrologic contribution to the lakes and marshy areas that were the main objective for this RNA. To adequately maintain the hydrologic integrity of the system 800 acres were added to the RNA. Torso Lake was found to be significantly altered by previous recreational use and was therefore excluded from the final RNA boundary.

**Mineral Resources:** There are no known locatable or leasable mineral resources in the RNA and there is a low probability of finding them. Salable mineral resources include cinders and a potential hard rock resource. There has been no exploratory work done on the potential hard rock source.

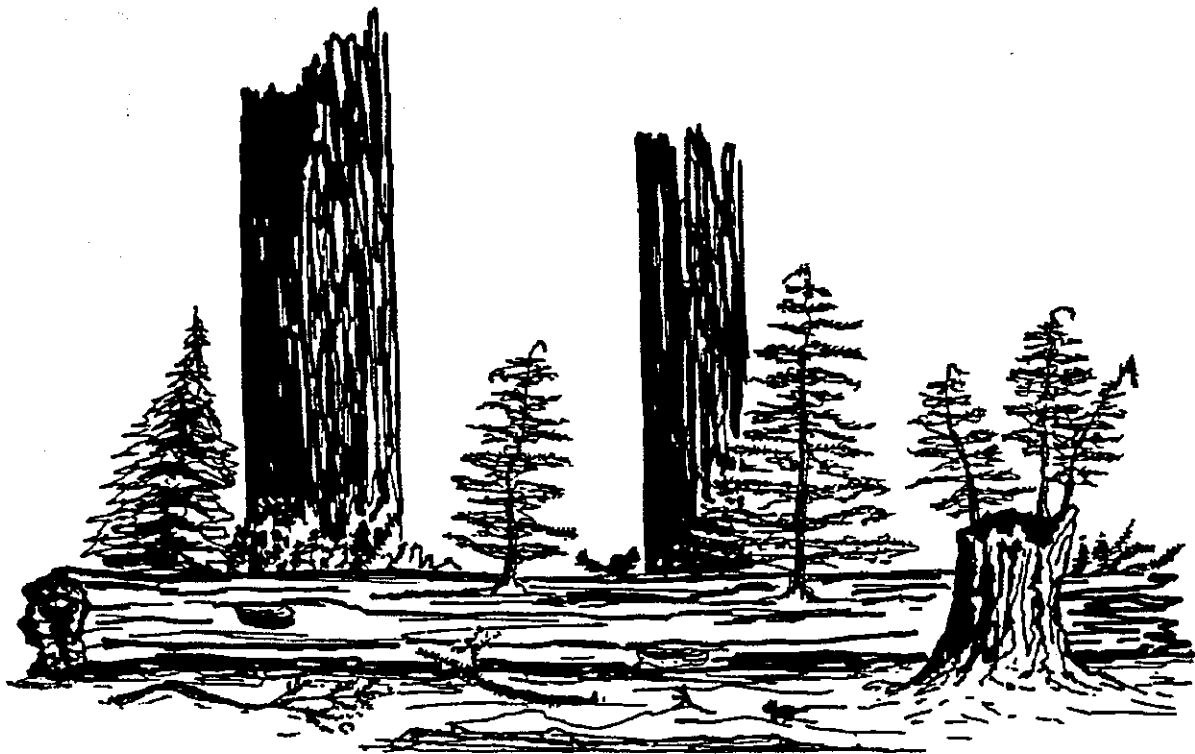
**Grazing:** One quarter of an existing but inactive sheep grazing allotment will no longer be available for grazing.

**Timber:** Of the 1400 total acres in the RNA, 1300 are within a Late-Successional Reserve and are unavailable for timber management purposes. The other 100 acres include Riparian Reserves and Forest

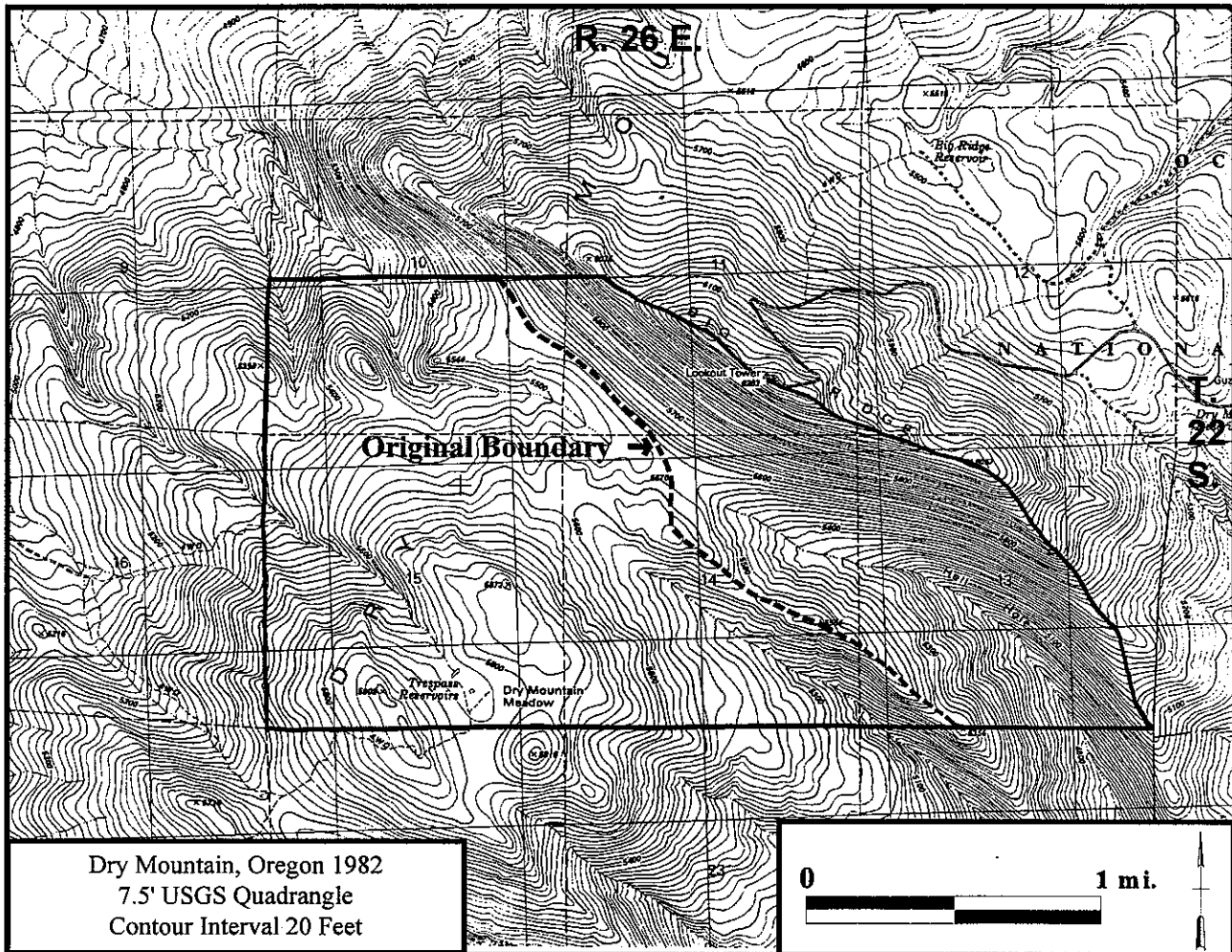
**Matrix allocations.** The Matrix lands are all within the proposed addition to the RNA and will no longer be available for timber harvest. The effect on the probable sale quantity will be negligible.

**Recreation:** Most recreation use is associated with the lakes. Due to limited road and trail access, use has been low in the proposed RNA. It is not anticipated that establishment of the RNA will affect this type of dispersed use. Off-highway vehicle (OHV) use in the area surrounding the RNA is high particularly along roads and the summit of Cache Mountain on the eastern boundary of the RNA. Much of the area added to the RNA is unroaded and is already off limits to this use because of wetlands standards and guidelines. Abundant down wood and steep topography in other areas has and will continue to limit OHV use in the remainder of the area that has been added. The summit area of Cache Mountain is outside the RNA. For these reasons it is anticipated that the effect of establishment on OHV use in the area will be minimal. About one half mile of Rd. 2076-800 lies within the RNA. If closure of this road to protect RNA values becomes desirable, a separate NEPA analysis will be completed.

**Communications Site:** The communications site on Cache Mountain is not included in the proposed addition to the RNA and the road to the site will remain open. There should be no conflict between use of the site and establishment of the RNA.



**Figure 3: Dry Mountain RNA**



**Boundary Change:** The proposed change incorporates natural watershed boundaries and is more consistent with the topography of the area. The additional acres are currently managed as big game winter range. This change will not have any measurable effect on Forest plan outputs.

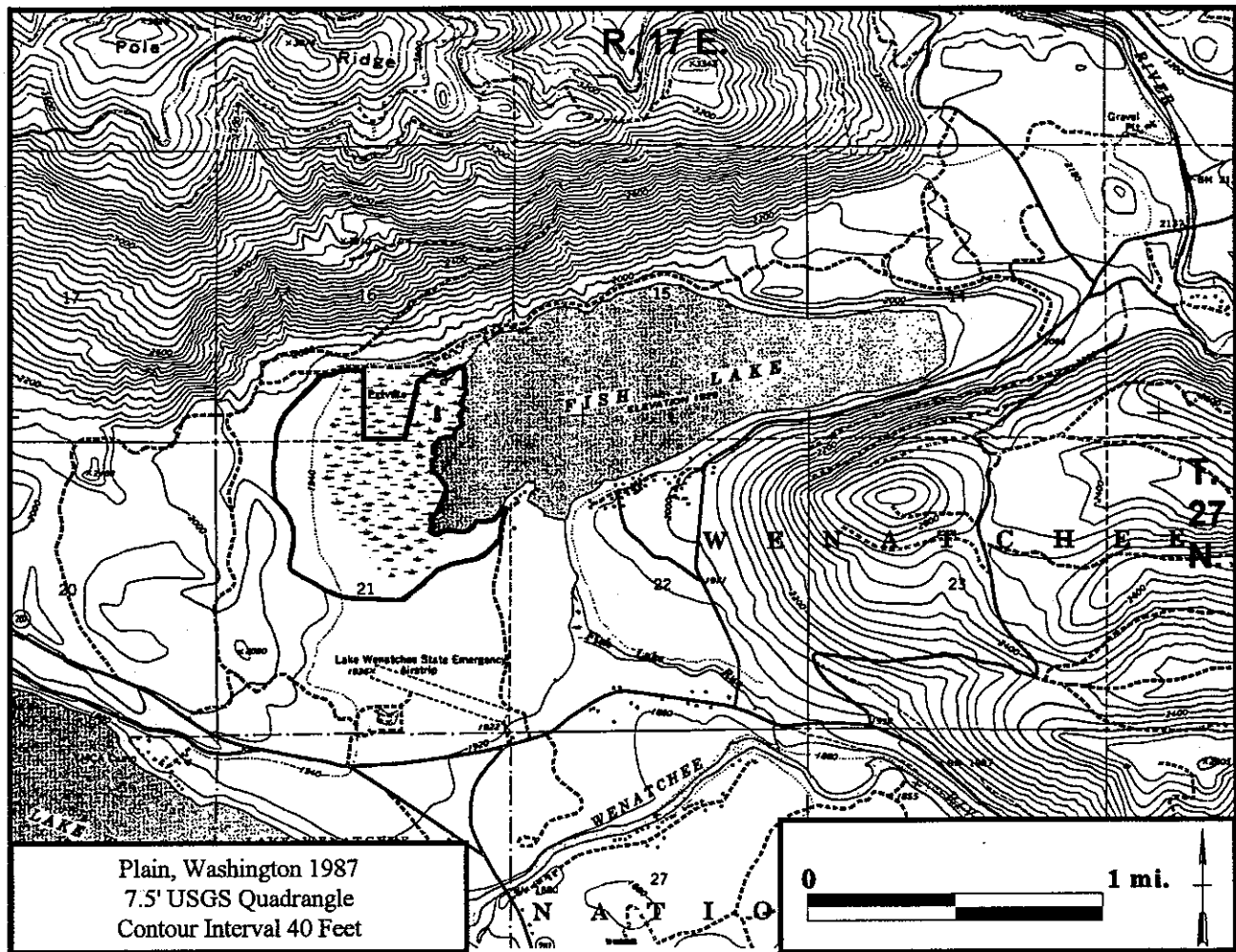
**Mineral Resources:** There are no reported hardrock mining claims in the RNA. The geology of the area does not lend itself to valuable mineral claims. Salable minerals, such as gravel, are potentially available on the RNA but recovery of these resources would be difficult due to the limited access to the area.

**Grazing:** Dry Mountain RNA is within the Green Butte grazing allotment but, because of the isolated nature of the site, there has been no recent cattle grazing on this part of the allotment.

**Timber:** The RNA has not been cruised to determine the volume of timber present but approximately half of the site contains 150-200 year old ponderosa pine in low to moderate densities.

**Recreation:** Dry Mountain RNA receives almost no recreation use therefore, establishment will have no effect on recreation.

**Figure 4: Fish Lake Bog RNA**



**Mineral Resources:** There are no known mineral resources within the RNA.

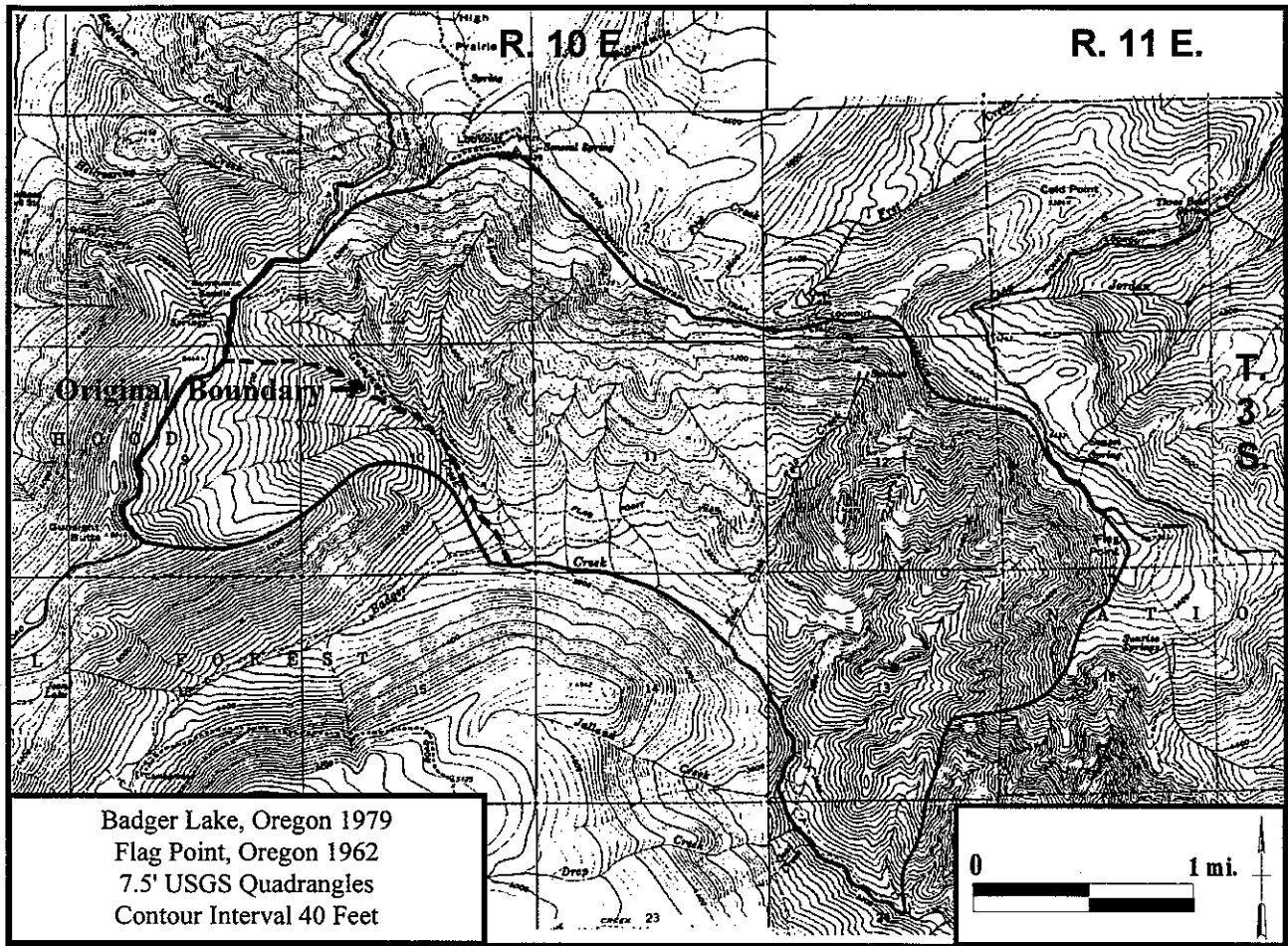
**Grazing:** There is no grazing allotment or potential for grazing associated with this RNA.

**Timber:** There about 64 acres of forest land within the RNA. This land was not included in the timber base for the Forest Plan therefore precluding timber harvest on these acres will have no effect on the probable sale quantity.

**Recreation:** Fish Lake which is adjacent to the RNA is a major fishing, boating, and snowmobiling area. There is a snowmobile trail along the western and northern boundaries of the RNA. This use is not expected to conflict with protection of RNA values. Because of the bog type of vegetation along the lake's boundary with the RNA there will be no impact on the water-based recreational uses of the lake.

**Private Land:** It is desirable to obtain the 44 acres of private land adjacent to the RNA in Section 16 in order to fully utilize the research potential of this RNA.

**Figure 5: Gumjuwac/Tolo RNA**



**Boundary Change:** The boundary was slightly modified during the establishment process to include all of Gumjuwac Creek. Since the whole RNA is within the Badger Creek Wilderness, this change is not expected to change the environmental consequences documented in the Final EIS.

**Mineral Resources:** This area is considered to have low to very low potential for economic deposits of all minerals except construction rock. The RNA has already been withdrawn from future locatable mineral entry in conjunction with designation of the wilderness.

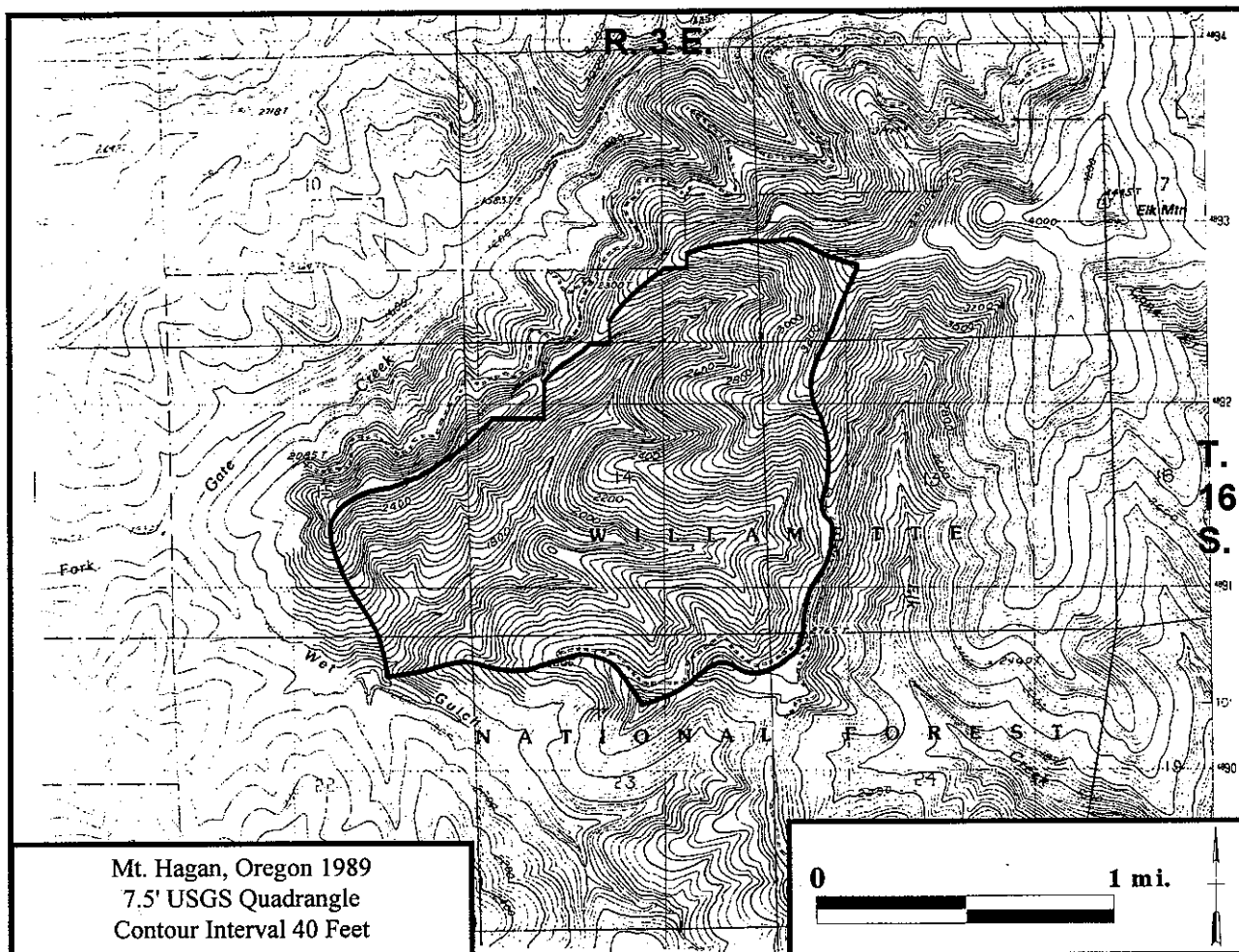
**Grazing:** No grazing allotments currently exist within the area.

**Timber:** There will be no change in the probable sale quantity by establishment of this RNA since the RNA lies entirely within the Badger Creek Wilderness, in which timber harvest is not permitted.

**Recreation:** Parts of several wilderness trails lie within the proposed RNA and roughly demarcate its perimeter. These trails receive relatively light use and do not appear to detract from the natural values of this area. Therefore, recreation use should not be effected by establishment of this RNA.



**Figure 6: Hagan RNA**



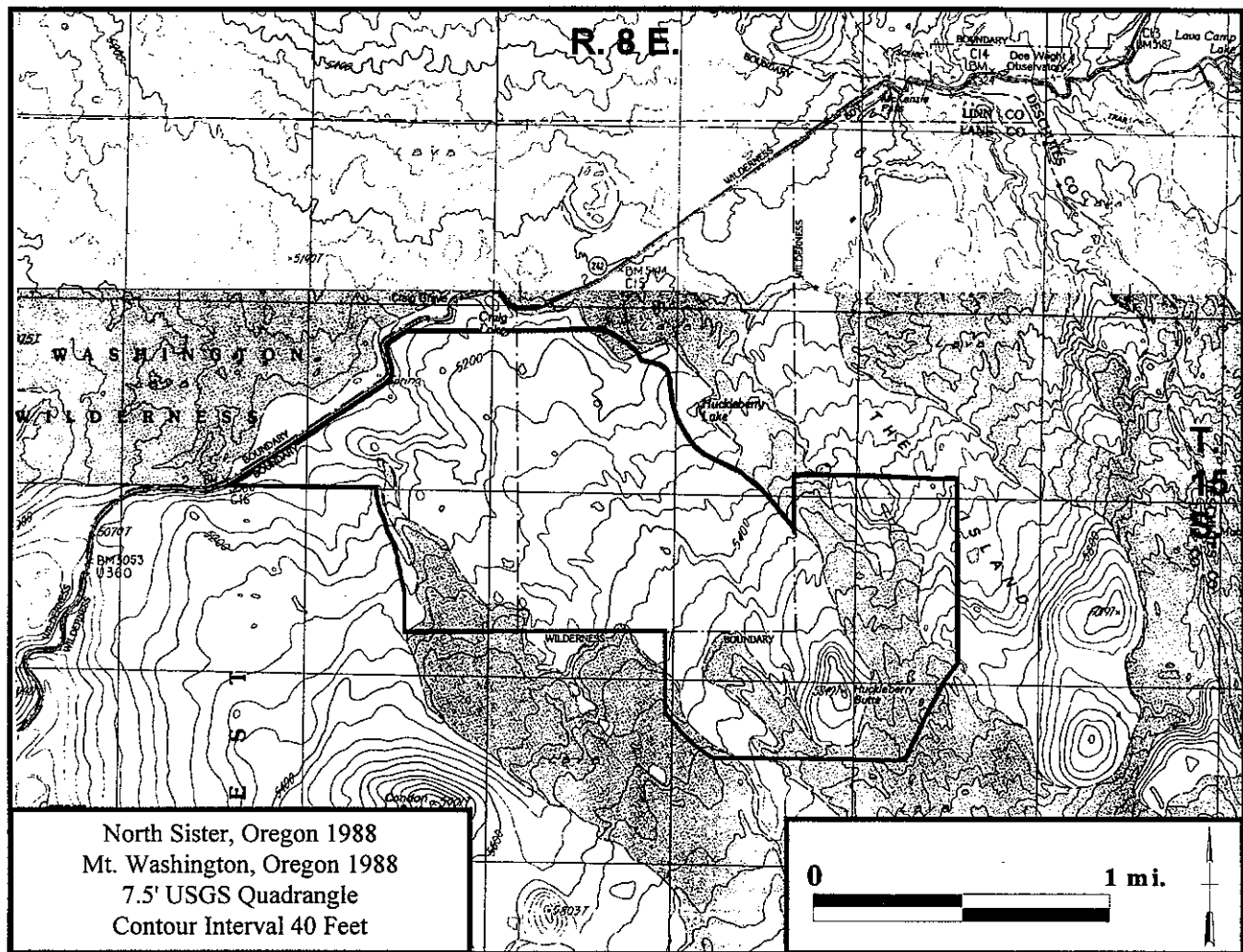
**Mineral Resources:** There are no known mineral resources in or adjacent to the RNA.

**Grazing:** There are no grazing allotments in or adjacent to the RNA.

**Timber:** The RNA includes 1126 acres of forested lands that meet the productivity requirements for commercial timber harvest. This land was not included in the timber base for the Forest Plan and is now within a Late-Successional Reserve. Therefore establishment will have no effect on probable sale quantity.

**Recreation:** Steep slopes and lack of public road access have limited recreational use of the RNA to some hunting use. Establishment is not expected to have any impact on this use.

**Figure 7: McKenzie Pass RNA**



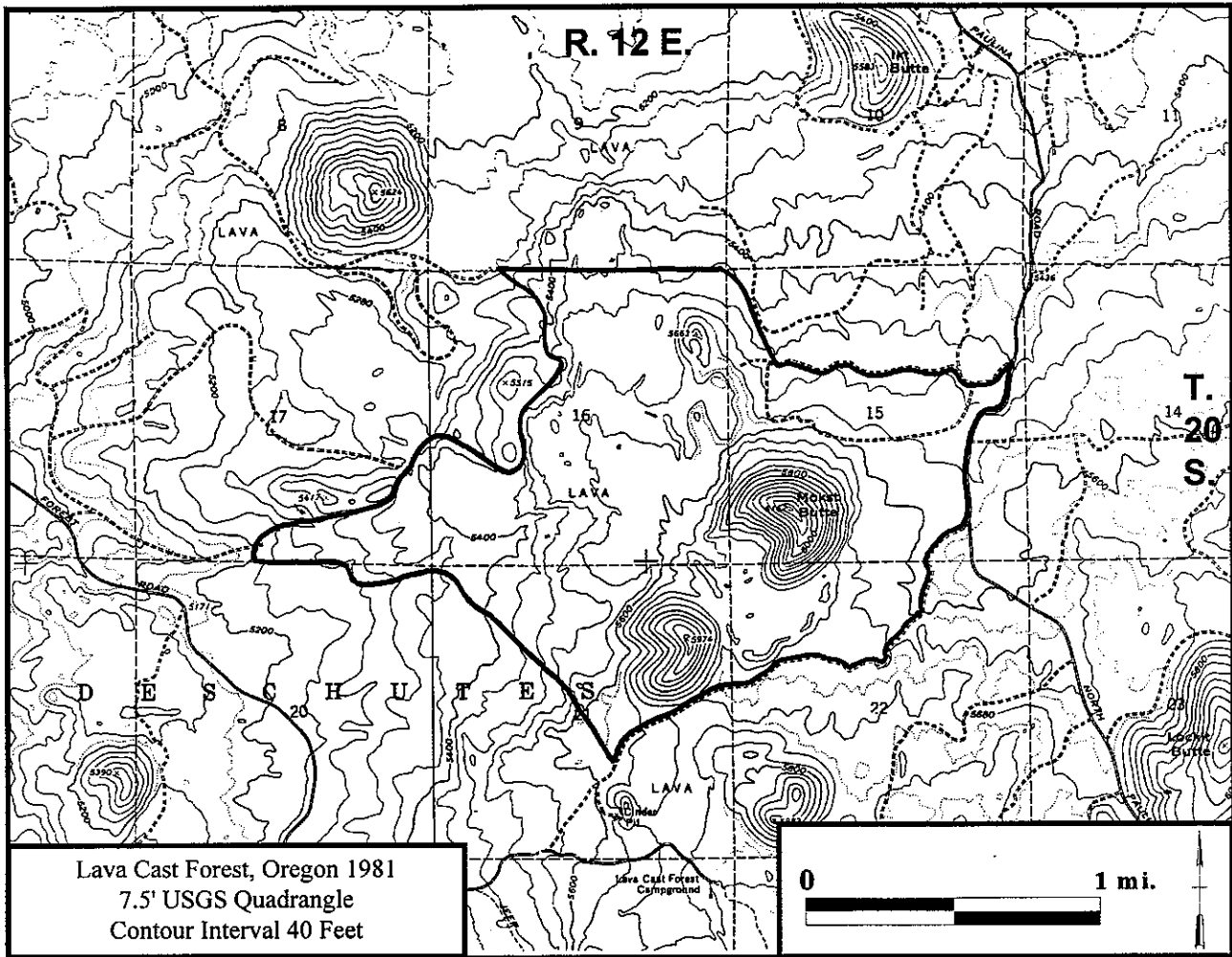
**Mineral Resources:** There are no known mineral resources in or adjacent to the RNA.

**Grazing:** There are no grazing allotments in or adjacent to the RNA because of lack of forage and inaccessibility of the area.

**Timber:** The RNA contains 926 acres (out of 1187 acres) of forested lands that meet the productivity requirements for commercial timber harvest. About half of these acres (471 acres) are in the Three Sisters Wilderness and are not available for harvest. The remainder were not included in the timber base for the Forest Plan. Therefore, establishment will have no effect on probable sale quantity.

**Recreation:** There is light to moderate use of the area by day hikers, mountain bikers, and hunters. Most of the use is concentrated around Craig Lake and Huckleberry Lake, both of which are outside the RNA boundary. The RNA includes 723 acres of the Three Sisters Wilderness. A trail in the eastern portion of the RNA that runs to Huckleberry Butte will continue to be used. No conflicts are anticipated with protection of RNA values therefore recreation use of the area will not be effected by establishment.

**Figure 8: Mokst Butte RNA**



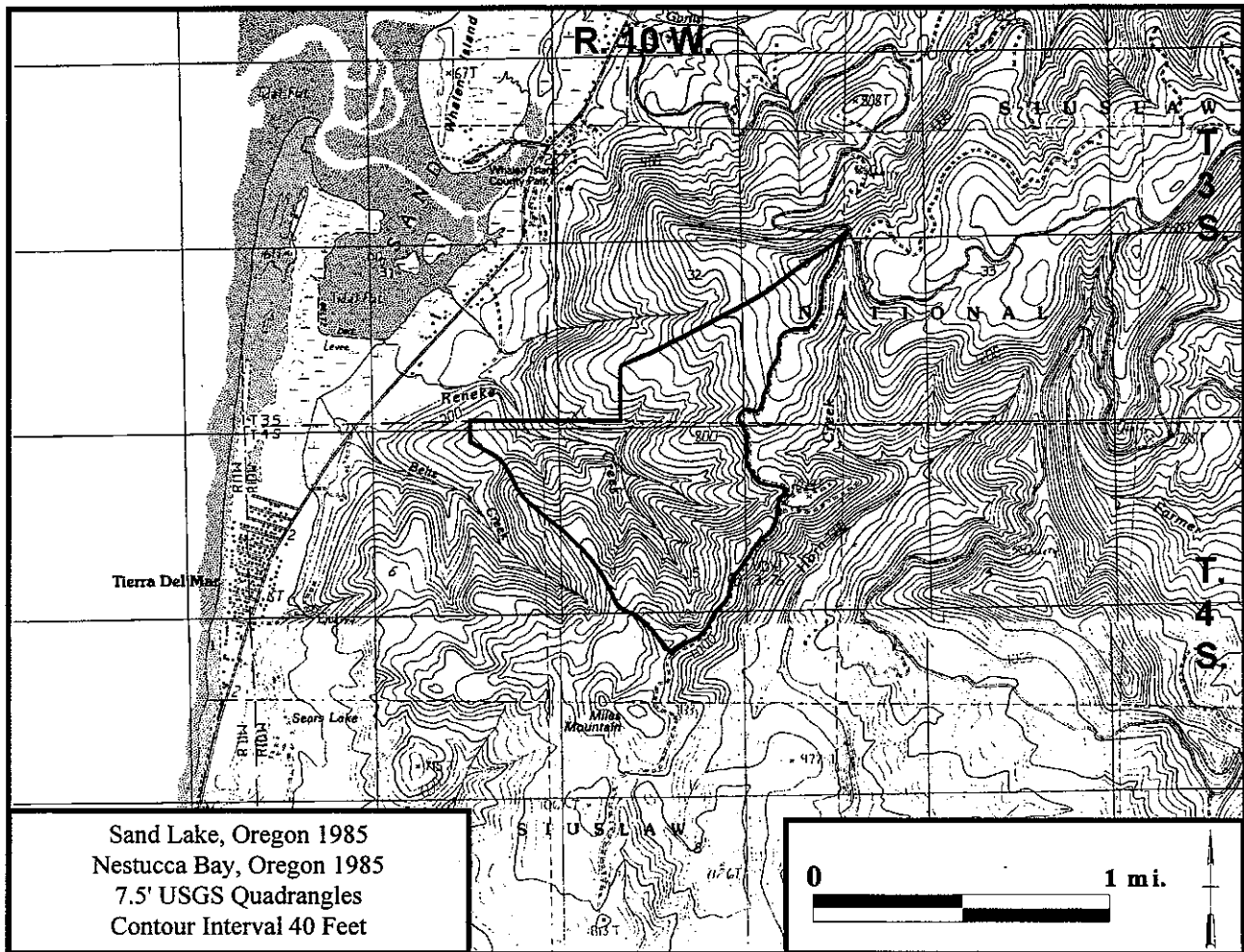
**Mineral Resources:** The State of Oregon has a mineral reservation covering 480 acres in section 16 of the RNA. The area is also withdrawn from mineral entry under the Newberry Crater National Volcanic Monument enabling legislation.

**Grazing:** There are two allotments adjacent to the RNA. Both are currently vacant and requirements for the Volcanic Monument already preclude grazing so establishment will have no effect on grazing.

**Timber:** The RNA contains approximately 500 acres (out of 1250 acres) of forested lands that meet the productivity requirements for commercial timber harvest. This land was not included in the timber base for the Forest Plan. Therefore, establishment will have no effect on probable sale quantity.

**Recreation:** The RNA receives limited recreation use, mostly hiking and dispersed camping. This use is not expected to conflict with protection of RNA values. Therefore, recreation use of the area will not be effected by establishment.

**Figure 9: Reneke Creek RNA**



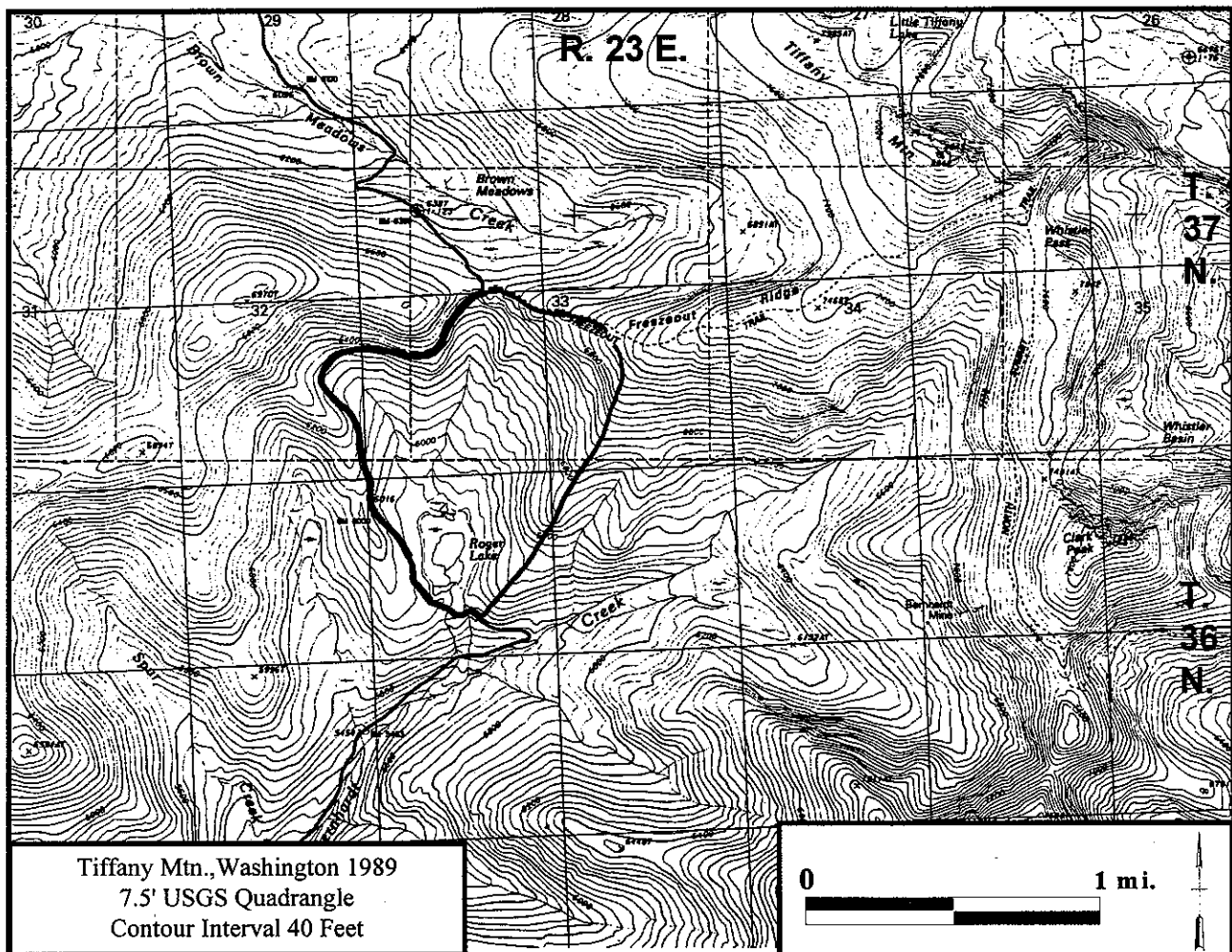
**Mineral Resources:** There are no known mineral resources in the RNA.

**Grazing:** There are no grazing allotments in or adjacent to the RNA.

**Timber:** The RNA is covered by forested lands that meet the productivity requirements for commercial timber harvest. This land was not included in the timber base for the Forest Plan and is within a Late-Successional Reserve. Therefore, establishment will have no effect on probable sale quantity.

**Recreation:** The RNA receives almost no recreation use. The site is not particularly inviting to hikers because it is densely forested and secluded by private lands. There is some use during hunting season. This use is not expected to conflict with protection of RNA values. Therefore, recreation use of the area will not be effected by establishment.

**Figure 10: Roger Lake RNA**



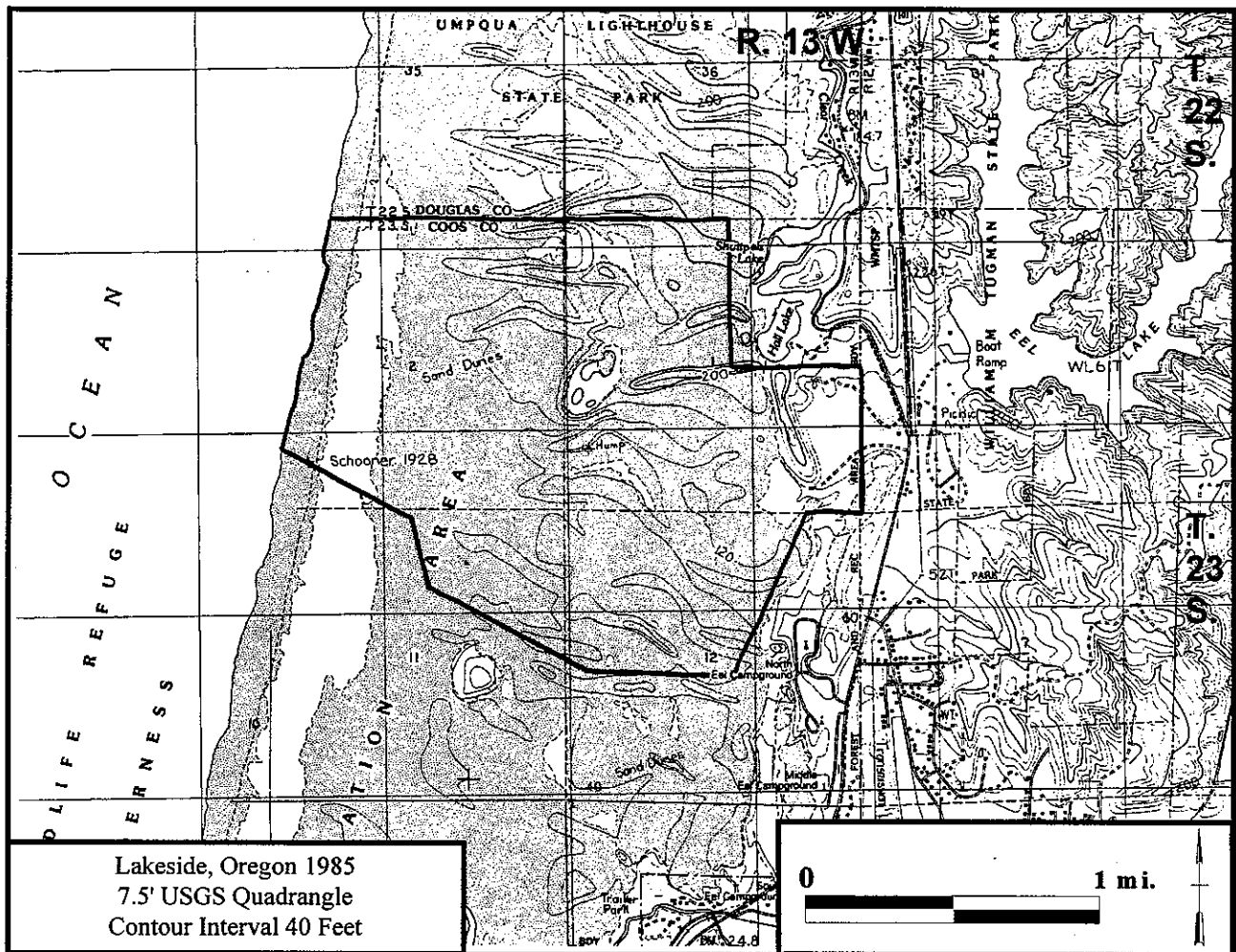
**Mineral Resources:** There are no known mineral resources in the RNA.

**Grazing:** The RNA is located within a grazing allotment that has not been grazed since 1987. If this allotment becomes active, the 436 acres in the RNA will be excluded from grazing.

**Timber:** Approximately 380 acres of the RNA are covered by forested lands that meet the productivity requirements for commercial timber harvest. This land was not included in the timber base for the Forest Plan. Therefore, establishment will have no effect on probable sale quantity.

**Recreation:** The RNA receives most of its recreation use in the area around Roger Lake where there is a parking area and two campsites. These facilities will be closed as required by the Forest Plan standards and guidelines. Dispersed recreation such as hunting and hiking will continue unless it reduces the research or educational values of the RNA.

**Figure 11: Tenmile Creek RNA**



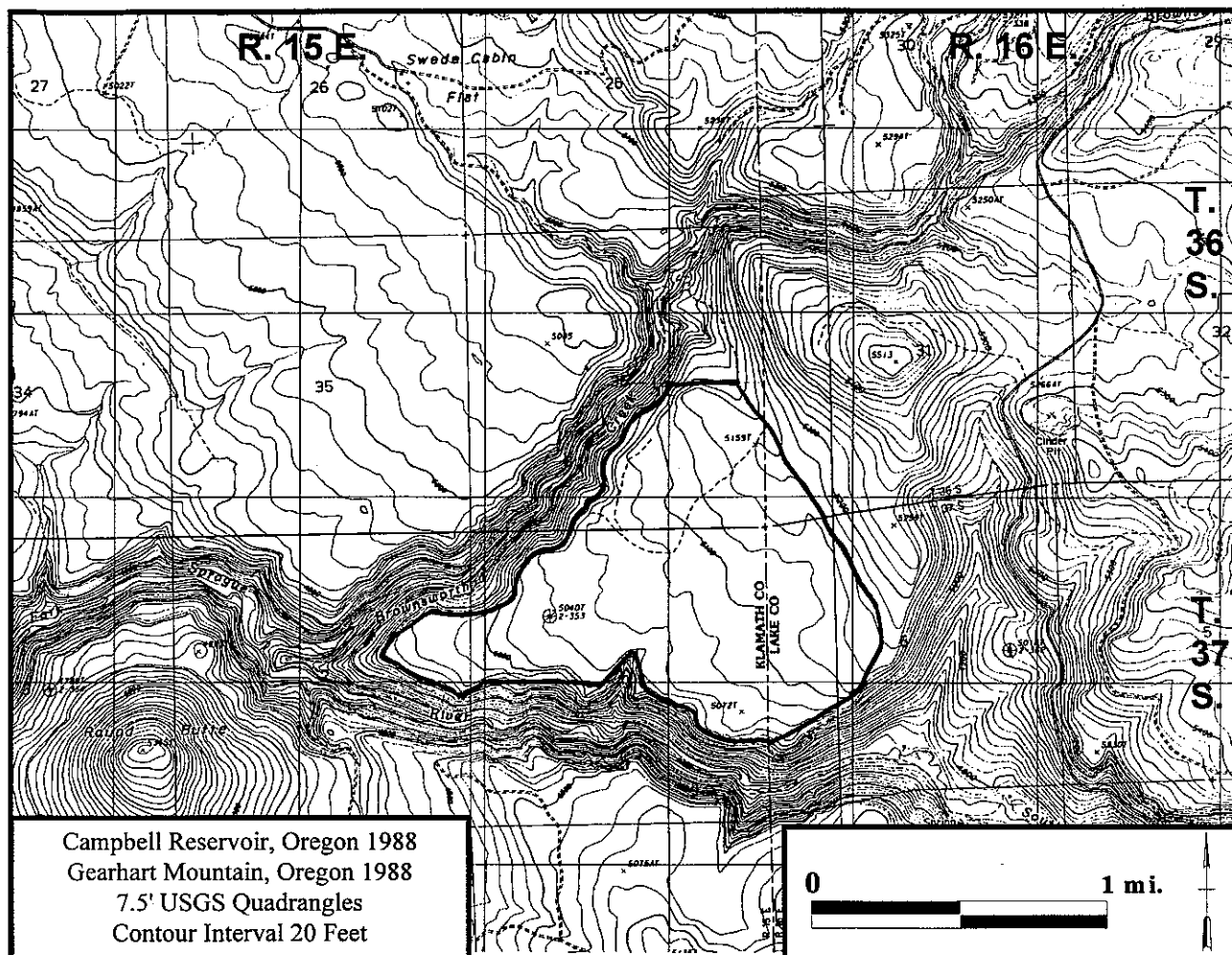
**Mineral Resources:** This area has been withdrawn from mineral entry as part of the Oregon Dunes National Recreation Area.

**Grazing:** There are no grazing allotments in or near the RNA.

**Timber:** A small portion of the RNA consists of timbered lands. These lands were considered unavailable for harvest during analysis for the Oregon Dunes Management Plan and EIS.

**Recreation:** The RNA receives some recreation use, mostly in the form of day hiking. Recreation in the RNA is a concern if use increases as expected in the Oregon Dunes National Recreation Area. It is anticipated that education of users will be used to minimize conflicts between continued recreational use of the RNA and protection of the research values of the RNA.

**Figure 12: Vee Pasture RNA**

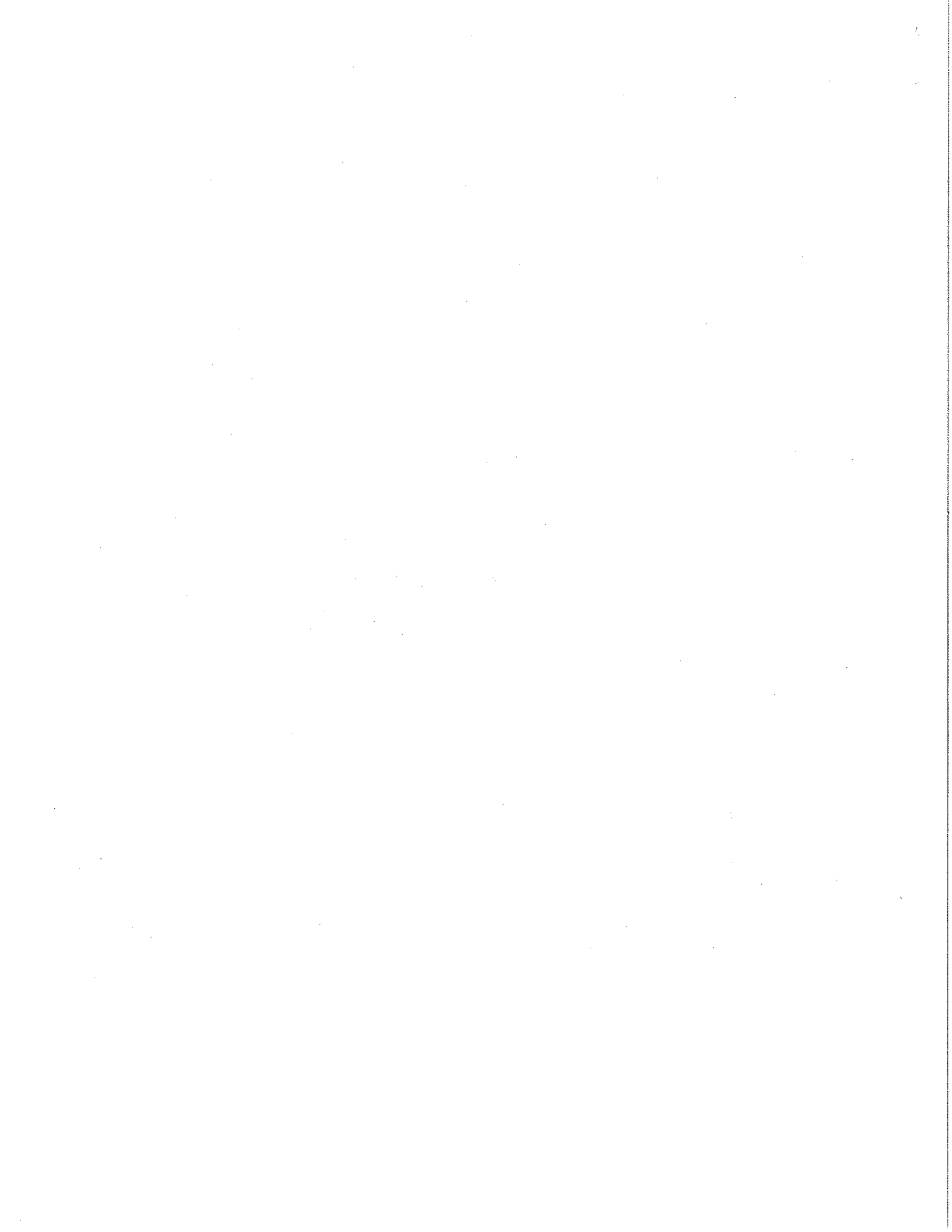


**Mineral Resources:** There are no known mineral resources in this RNA.

**Grazing:** Livestock have used this area to only a limited extent due to natural barriers, rocky soil surface, and distance from water. It is not part of any grazing allotment.

**Timber:** This RNA is covered with grasslands therefore, establishment will have no effect on timber outputs.

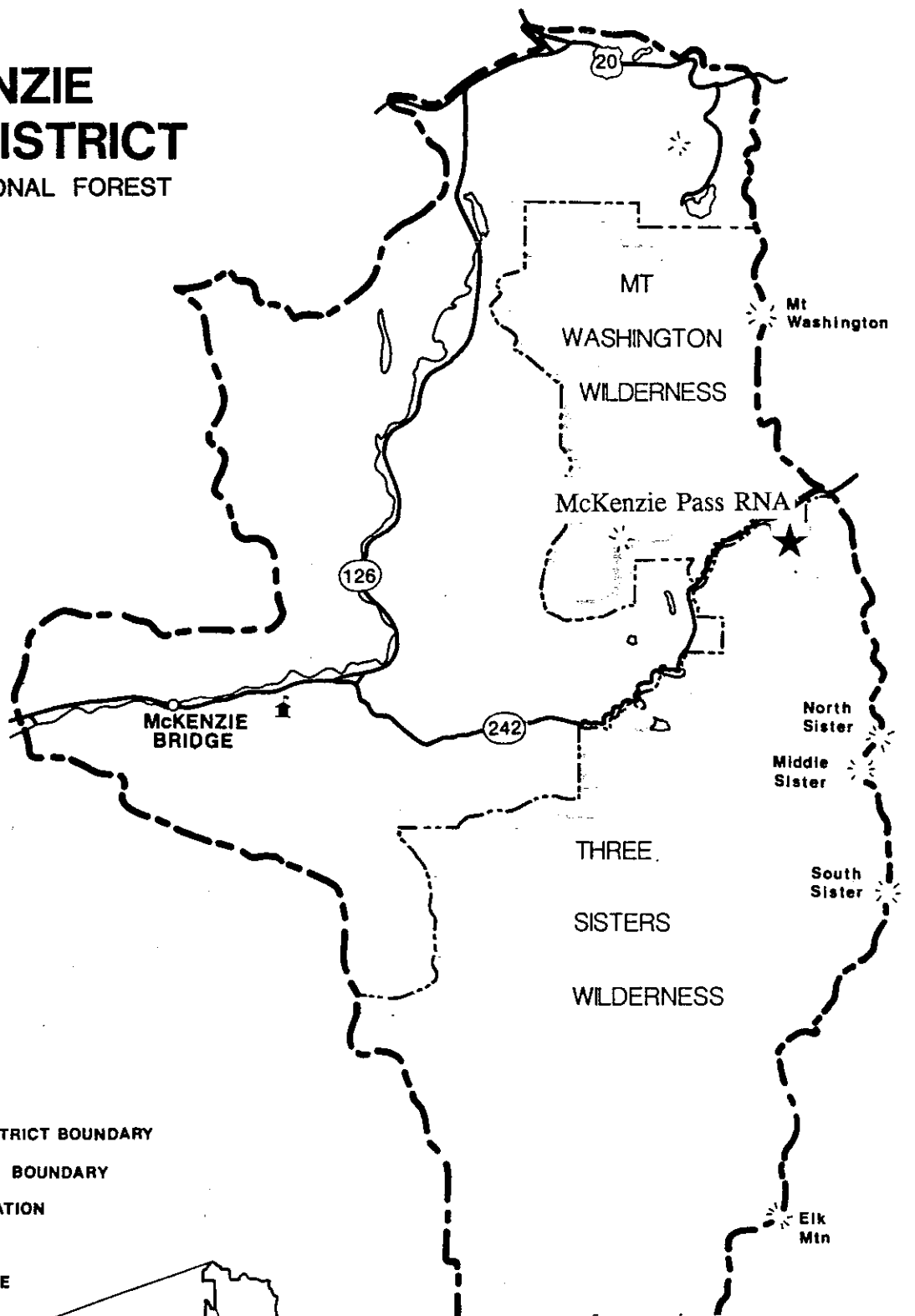
**Recreation:** There is very limited recreational use within the RNA due to its inaccessibility. The most likely use is some hunting. This use is not expected to conflict with the research or educational values of the RNA.



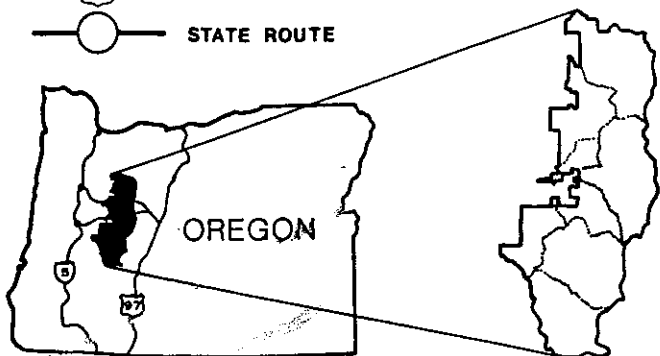


# McKENZIE RANGER DISTRICT

WILLAMETTE NATIONAL FOREST



- RANGER DISTRICT BOUNDARY
- ... WILDERNESS BOUNDARY
- ↑ RANGER STATION
- ⊕ US ROUTE
- STATE ROUTE



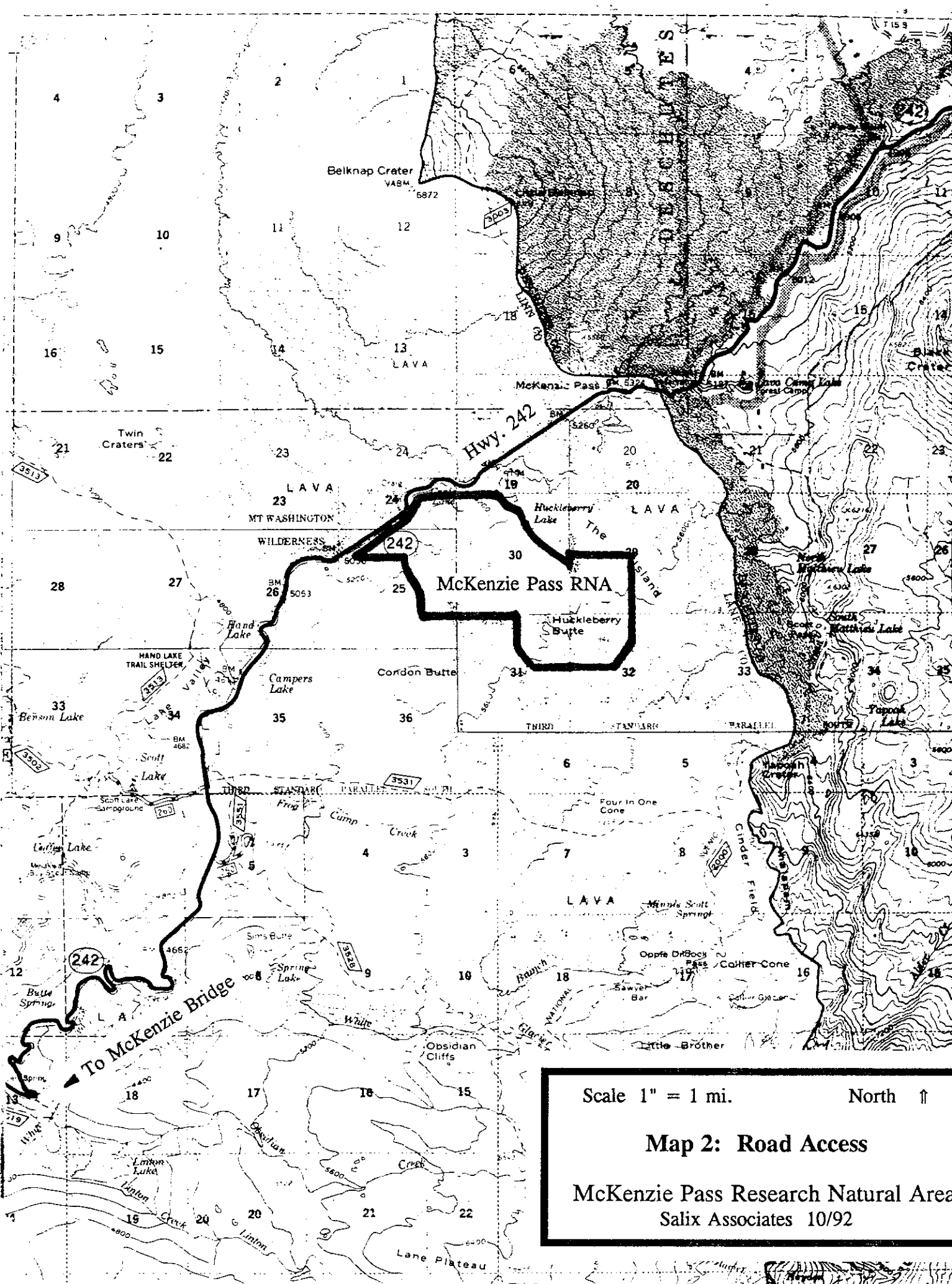
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## Map 1: Location

McKenzie Pass Research Natural Area  
Salix Associates 10/92

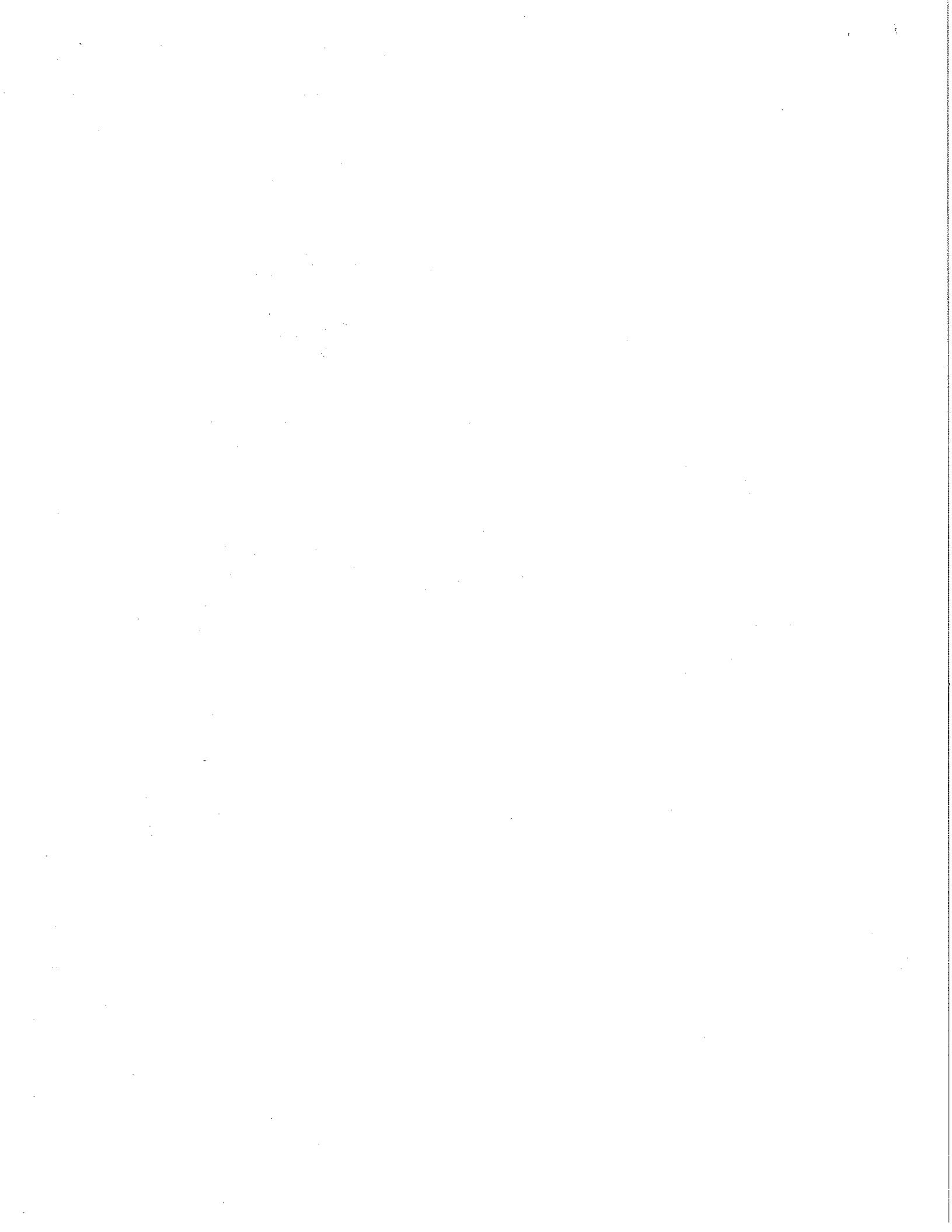




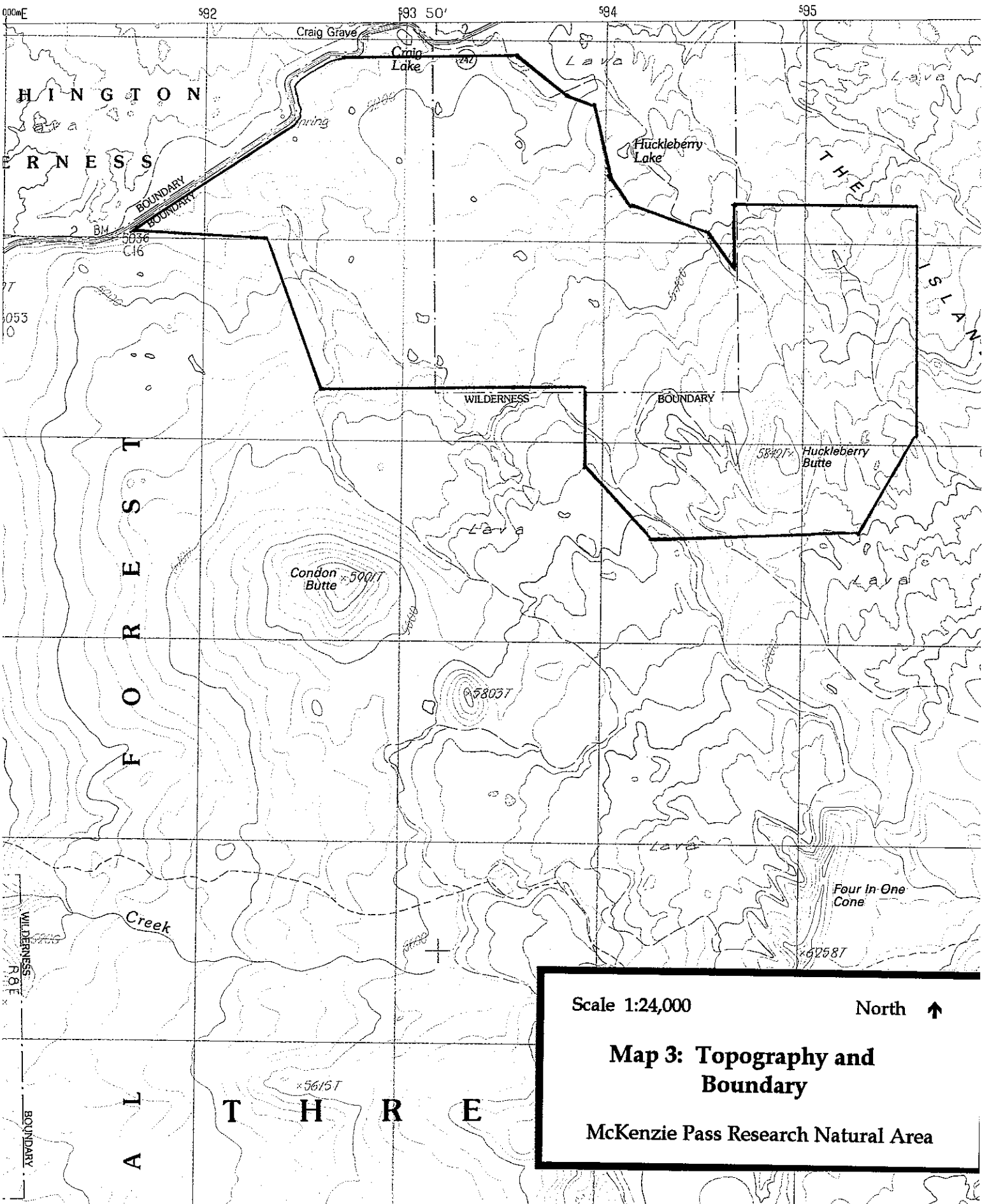
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**Map 2: Road Access**

McKenzie Pass Research Natural Area  
Salix Associates 10/92



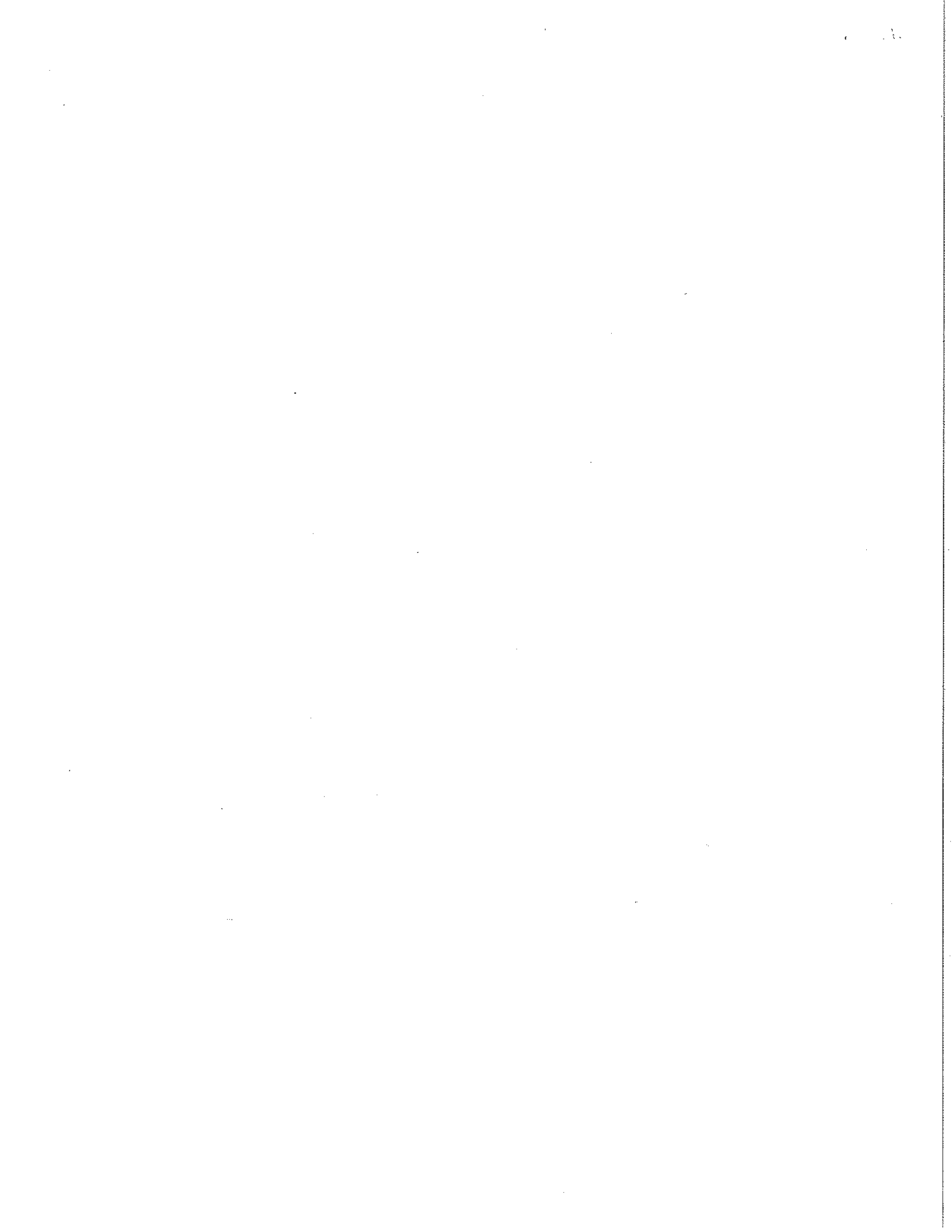
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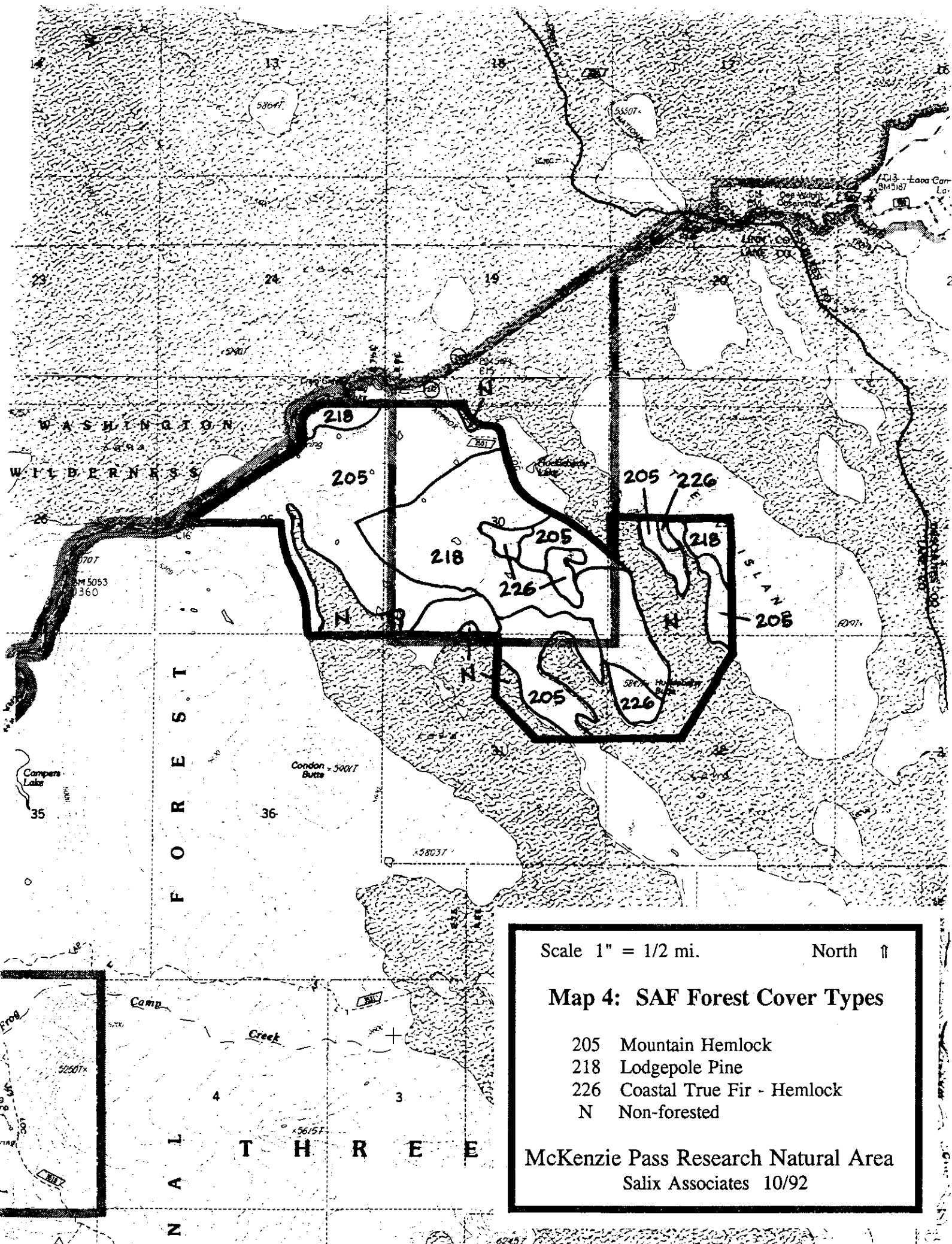


Scale 1:24,000 North ↑

**Map 3: Topography and Boundary**

McKenzie Pass Research Natural Area





Scale 1" = 1/2 mi.

North ↑

**Map 4: SAF Forest Cover Types**

- 205 Mountain Hemlock
- 218 Lodgepole Pine
- 226 Coastal True Fir - Hemlock
- N Non-forested

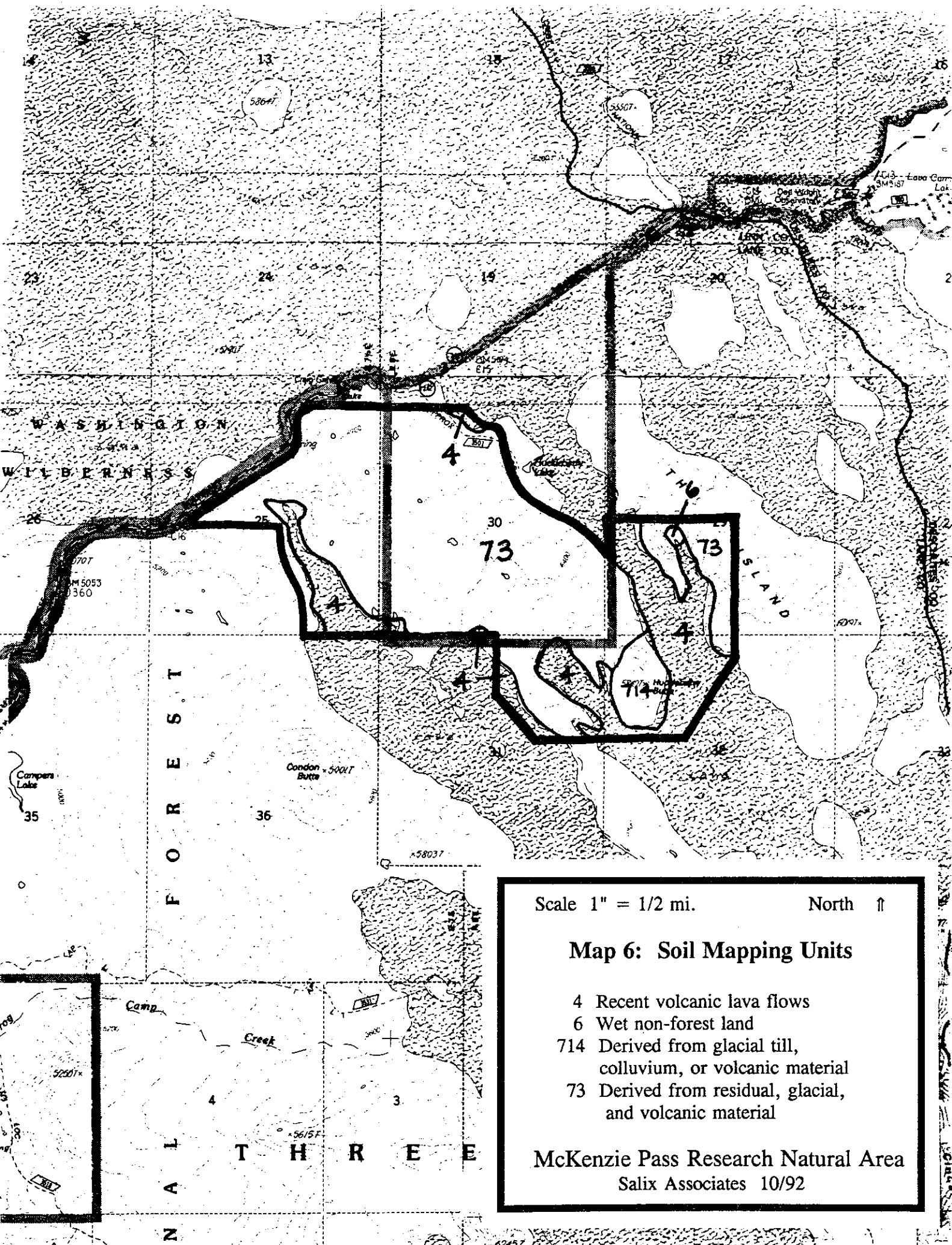
McKenzie Pass Research Natural Area  
Salix Associates 10/92











Scale 1" = 1/2 mi.

North ↑

### Map 6: Soil Mapping Units

- 4 Recent volcanic lava flows
- 6 Wet non-forest land
- 714 Derived from glacial till, colluvium, or volcanic material
- 73 Derived from residual, glacial, and volcanic material

McKenzie Pass Research Natural Area

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