

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

Establishment Record

For

TENNILE CREEK RESEARCH NATURAL AREA

Siuslaw National Forest

Coos County, Oregon



SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Tenmile Creek Research Natural Area

Oregon Dunes National Recreation Area

Siuslaw National Forest

Coos 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 *Dick Vander Schaaf* Date 11/22/96  
Dick Vander Schaaf, The Nature Conservancy

Recommended by *Ed Becker* Date 11/19/96  
Ed Becker, Area Ranger,  
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*for* Thomas J. Mills, Director,  
Pacific Northwest Research Station

TITLE PAGE

Establishment Record for  
Tenmile Creek Research Natural Area  
within Oregon Dunes National Recreation Area  
Siuslaw National Forest  
Coos County, Oregon

ESTABLISHMENT RECORD FOR  
TENMILE CREEK RESEARCH NATURAL AREA  
WITHIN OREGON DUNES NATIONAL RECREATION AREA  
SIUSLAW NATIONAL FOREST  
COOS COUNTY, OREGON

INTRODUCTION

Tenmile Creek Research Natural Area (RNA) is located in the coastal sand dunes along the central Oregon coast. The site is immediately north of Tenmile Creek, occupying an area of 1190 acres that stretches from near the high tide line on the beach to the eastern boundary of the Oregon Dunes National Recreation Area along the Coast Highway, US 101. The RNA contains an excellent representation of the coastal dune mosaic that includes major dune features, deflation plains, tree islands, stabilized forests, and small freshwater ponds. Long identified as a potential RNA, the site contains many elements of diversity that may be found in the Oregon Dunes and yet has relatively minor recreational use compared to many other areas within the National Recreation Area. There is considerable research potential at the site with studies involving tree island stability and dune mushrooms already underway.

Land Management Planning

Tenmile Creek RNA was proposed as a candidate RNA by the Oregon Dunes National Recreation Area to meet two unfilled natural area cell needs for the Oregon Coast Range Physiographic Province (Oregon Natural Heritage Advisory Council 1993)<sup>1</sup>. The site also provides partial representation for three aquatic and wetland natural area needs in the Coast Range. It was included as a candidate RNA in the FEIS for the Oregon Dunes National Recreation Area (USDA Forest Service 1994a), in the Dunes Management Plan (USDA Forest Service 1994b) and in the Record of Decision (USDA Forest Service 1994c). The Umpqua Dunes have long been noted as portraying the greatest development of coastal sand dunes vegetation types (Franklin and Dyrness 1973). The Tenmile site was specifically recognized as containing high quality examples of coastal dune communities during statewide natural area surveys during the 1970's (Oregon Natural Heritage Program 1977). A significant portion of the coastal dune community classification work was developed from ecological research that took place at the site of the proposed RNA (Wiedemann 1984).

Tenmile Creek includes the following RNA cell needs (or elements) in the Oregon Coast Range Physiographic Province:

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<sup>1</sup> Author's names in parentheses refer to references cited.

## TERRESTRIAL ECOSYSTEMS

20. Coastal dune mosaic with tree islands and early successional stages.

22. Native stabilized dune grassland with red fescue (*Festuca rubra*)<sup>2</sup> and dune wildrye (*Elymus mollis*).

## WETLAND & AQUATIC ECOSYSTEMS

36. Pond in active sand dune area. (partial representation)

41. Sparsely-vegetated deflation plain marsh, with sickle-leaved rush and springbank clover. (partial representation)

42. Deflation plain marsh, dominants including slough sedge, silverweed and Nevada rush. (partial representation)  
(Oregon Natural Heritage Advisory Council 1993)

## OBJECTIVE

The objective of the Tenmile Creek RNA is to preserve in a relatively undisturbed (by humans) condition the coastal dune mosaic of open sand dunes with tree islands, native stabilized dune grasslands with red fescue, and associated terrestrial and aquatic communities in the RNA. The RNA will serve as a reference area for study, as a baseline area for determining long-term ecological changes, and as a monitoring area to determine effects of management techniques and practices applied to similar ecosystems.

## JUSTIFICATION

Tenmile Creek RNA was selected to meet unfilled RNA cell needs for coastal dune mosaic of open sand dunes with tree islands and native stabilized dune grasslands with red fescue. The Oregon coastal dune sheet ecosystem is a rich and diverse system that has been significantly altered by the introduction of European beachgrass (*Ammophila arenaria*) and the planting of other dune stabilization species such that locating a representative site in relatively natural condition is difficult. More recently recreation pressures in the coastal dunes has further altered open sand dune communities and deflation plains so that the entire coastal dune system is now undergoing changes in plant and animal composition as well as ecosystem processes. The need for protected natural areas is thus critical in this larger coastal dune ecosystem so that the effects of the changes taking place in it can be evaluated. Inclusion of a mosaic of dune communities in the RNA also allows for monitoring the interactions of the communities present. Succession of Sitka spruce (*Picea sitchensis*) and Douglas-fir (*Pseudotsuga menziesii*) forests in the tree islands

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<sup>2</sup>Nomenclature for vascular plants follows Hitchcock and Cronquist (1973).

as well as successional stages of other natural communities is one of many important research opportunities present at this site.

### PRINCIPAL DISTINGUISHING FEATURES

Tenmile Creek RNA contains the following principal features:

1. Coastal dune mosaic including tree islands. Tenmile Creek RNA contains all major dune features known from the Oregon Dunes, except parabola dunes (i.e., transverse ridges, oblique dunes, and parallel ridges). European beachgrass is present throughout the area, however, the largest concentrations occur in the foredune and in the dune hummock areas which are inland from the deflation plains. The dune hummock area contains the largest number of dune ponds that are rainwater fed and mostly ephemeral. Within the extensive dunes are several large tree islands that are dominated by Douglas-fir, Sitka spruce, and shorepine (*Pinus contorta*). The tree islands, unique ecosystems onto themselves, harbor relatively depauperate floras but nevertheless provide habitat for a considerable number of wildlife species, adding to the biological richness of the dunes system.
2. Native stabilized dune grassland. Native stabilized dune grasslands are one of the rarest natural communities in Oregon due in large part to the effects of the rapid spread of the European beachgrass. The introduced beachgrass displaces the native dune grassland species where they occur; in addition European beachgrass stabilizes dunes to a greater extent than the native plant communities thereby altering the ecology of the active sand dunes. The RNA has several small, relatively intact examples of red fescue dune grassland communities that occur both within the sand dunes and adjacent to the deflation plains. Native dune grasslands contain a diversity of flowering plants and have associated with them a host of insects species.
3. Deflation plains wetlands. Deflation plains are sites in the dunes which, for the most part, lie immediately inland of the foredune and are characterized by being below the water table and containing diverse wetlands. They occupy an area that is now restricted from inland sand movement due to the highly stabilized nature of the foredunes by European beachgrass. Small deflation wetlands also occur in the interior of the dune sheet where they lie between large transverse dunes. The extent of deflation plain wetlands has greatly expanded due to the effects of European beachgrass and it is unclear how widespread these wetlands were before the beachgrass introduction. Early seral deflation plain wetlands are herb dominated with slough sedge (*Carex obnupta*) common in wetter areas. Over time the wetlands become more shrub dominated with Hooker's willow (*Salix hookeriana*) and Pacific wax-myrtle (*Myrica californica*) being prominent. At the later seral stages shorepine invades many of the deflation plains with a variety of understories present, and eventually Sitka spruce becomes established with the shorepine. The deflation plains wetlands figure prominently into the wildlife habitat available in the Oregon dunes.

4. Dune Forests. Dune forests occur inland of the open sand dunes area, occupying older stabilized dune formations. The forests are similar in composition to the tree islands located within the dune system but they are larger in extent and are not as influenced by moving sand dunes. Soil development is more advanced in the dune forests than in other habitats present in the dune ecosystem. The dune forests are dominated by Sitka spruce and Douglas-fir with dense understories composed of evergreen huckleberry (Vaccinium ovatum), salal (Gaultheria shallon), rhododendron (Rhododendron macrophyllum), bristly manzanita (Arctostaphylos columbiana), and Pacific wax-myrtle.

## LOCATION

Maps 1, 2, and 3 show the location of Tenmile Creek RNA. The RNA is located in the Oregon Dunes National Recreation Area which is administered by the Siuslaw National Forest. The center of the RNA is at latitude 43° 36' 00" north and longitude 124° 11' 30" west. The 1190 acre (482 hectare) site lies within sections 1, 2, 11, 12 Township 23 South, Range 13 West Willamette Meridian.

### Boundary

Basis of bearing is astronomic north. Basis of elevation is mean sea level as shown on the Lakeside, Oreg. 1985 USGS 7.5 minute topographic quadrangle map.

### Area

Total area for the Tenmile Creek Research Natural Area is approximately 1190 acres (482 hectares).

### Elevations

Elevations range from near sea level along the western edge of the RNA to over 200 feet (61 m) along the eastern edge of the site and within the interior tree islands.

### Access

The Tenmile Creek RNA is in the central portion of the Oregon Dunes National Recreation Area (Map 2) near Lakeside, Oregon. It is accessible directly from Highway 101, the Coast Highway, by traveling through the North Eel Campground whose entrance is located 0.2 miles south of the northern access road to Lakeside, Oregon. To get to the RNA from the Campground follow the

campground loop road to the signed day use parking area (Map 3). From the parking area follow the Umpqua Dunes trail to the dunes; the RNA begins approximately 0.1 mile north and west of the campground. The trailhead is planned to be moved to the Middle Eel Campground loop in 1997; signs will be posted as to its location.

The northern end of the RNA can be accessed from the Hall Lake area as well as from the beach access road that runs south from Winchester Bay past the Umpqua Lighthouse (Map 2). For the Hall Lake area travel approximately 1 mile north of the Eel Campground entrance to Wildwood Drive road which exits Highway 101 to the west. Follow this road for half a mile and park on the road shoulder in turn-out areas provided. From the turn-out follow unmarked hiker trails heading west toward Hall Lake; the RNA begins directly to the south and west of Hall Lake. Private lands are intermixed with federal lands in this area, thus care must be taken to respect private property rights. For the beach access leave Highway 101 in Winchester Bay, Oregon and follow signs to the beach access road. Follow the road to the third or last parking lot, cross over the foredune to the beach, and walk south on the beach for approximately 1.4 miles. The Douglas--Coos County line marks the northerly border of the Tenmile Creek RNA and it is marked on the foredune by a Off-Road-Vehicle closure sign. The east-west running county line is marked by a series of these signs delineating the RNA boundary across the open dunes.

### Maps

Tenmile Creek RNA is located on the Lakeside, Oregon 7.5' topographic quadrangle map. The Oregon Dunes National Recreation Area Map, 1981, is useful for ownership and general access information, however, this map does not delineate the RNA boundaries.

### Photos

The following aerial photos of the Tenmile Creek RNA site are available in the Forest Supervisor's and Area Ranger's offices:

1990 USDA 2089: nos. 44, 46  
1990 USDA 2089: nos. 74, 76

### AREA BY TYPES

Vegetation of the RNA has been surveyed and inventory plots have been established at the periphery of the site. The following determination of cover types and plant associations and their corresponding coverages have been made from the survey information derived from the inventory plots, air photo interpretation and plant association delineation of Tenmile Creek RNA



(Christy 1995, Hemstrom and Logan 1986, Wiedemann 1984). Map 4 depicts the locations of the natural landforms on the RNA which encompass the natural communities described below.

The most current information regarding the plant associations found on the RNA is described in the draft plant community guide of Christy (1995). The dune plant community-types are also described in Wiedemann (1984) and Hemstrom and Logan (1986). The table below lists vegetation cover in the RNA Society of American Forester (SAF) Types, Kuchler Types of Potential Natural Vegetation, and by Christy (1995).

Vegetation Types

	Estimated Acres	Hectares
<u>SAF Cover Types</u> (Eyre 1980)		
225 Sitka spruce-western hemlock	160	65
Non-forested sand dunes, not described by SAF	1030	417
<u>Kuchler Types</u> (Kuchler 1966)		
1 Spruce-cedar-hemlock forest ( <u>Picea-Thuja-Tsuga</u> )	1190	482
<u>Plant Associations</u> (Christy 1995)		
1) Seashore lupine dunes ( <u>Lupinus littoralis</u> )	34	14
2) European beachgrass dunes ( <u>Ammophila arenaria</u> )	223	90
3) Red fescue-salt rush grassland ( <u>Festuca rubra- Juncus lesueurii</u> )	25	10
4) Hooker's willow/slough sedge-Pacific silverweed ( <u>Salix hookeriana/Carex obnupta-Potentilla pacifica</u> )	24	10
5) Shorepine/slough sedge ( <u>Pinus contorta-Carex obnupta</u> )	50	20
6) Shorepine-Sitka spruce/evergreen huckleberry ( <u>Pinus contorta-Picea sitchensis/Vaccinium ovatum</u> )	40	16
7) Sitka spruce/evergreen huckleberry ( <u>Picea sitchensis/Vaccinium ovatum</u> )	85	34
8) Douglas-fir/western rhododendron-evergreen huckleberry ( <u>Pseudotsuga menziesii/ Rhododendron macrophyllum-Vaccinium ovatum</u> )	10	4
9) Open sand dunes	699	283
Total	1190	481

## PHYSICAL AND CLIMATIC CONDITIONS

### Physical Conditions

Tenmile Creek RNA encompasses a portion of the coastal dune sheet north of the Tenmile Creek estuary and generally west of the Coast Highway, U.S. 101. In this region of the central Oregon Coast the dune sheet ecosystem is relatively continuous, broken only by the mouths of rivers and larger streams. The current dune sheet dates back to the end of the Pleistocene when great amounts of sand were transported down rivers and streams and then deposited by wind and waves in the pattern that is evident today. The presence of older dunes lying inland of the present dune surfaces indicate that dune advances have occurred a number of times in this area. There is little topographic relief evident at the RNA with elevation differences ranging only 200 feet (61 m.) but the dune features and tree islands create a remarkable amount of physical habitat diversity that is reflected in the different natural communities present. Along the coast the gently sloping beach abruptly ends at the foredune, a stabilized dune feature that rises upwards to 30 feet (10 m) above the beach and is noted for the dense European beachgrass stands that have replaced native dune grass species and formed a substantial hill along the beach. Previous to the introduction of European beachgrass the foredune was actually a series of low sand hummocks that were stabilized by native dune species. Since the introduction of beachgrass, however, the foredune has considerably altered the leeward dune ecosystem as the moving sands have now been impeded to a great extent (Wiedemann 1984).

Behind the foredune there typically lies an area that has been eroded away by the wind such that the surface becomes closer to the underlying water table. This area is called the deflation plain and is usually wetter than the surrounding sandy areas and contains a variety of wetland habitats. The deflation plains are expanding because of the stabilized foredune and in some areas primary succession is occurring as vegetative material builds up and the wetlands transition to shorepine forests. Deflation plains can also be found to the windward of particularly large sand dunes; here too the deflation plains are formed by wind erosion that is actively building up the large dunes to leeward.

East of the deflation plain, open sand areas dominate much of the remainder of the RNA (Map 4). In this area there are a number of different types of sand dunes features including sand hummocks which are low hills vegetated with European beachgrass that often have small ponds in the intervening areas. Inland from the sand hummocks are transverse dunes which lie at slightly less than right angles to the prevailing winter winds, and oblique dunes which lie at right angles to the prevailing summer winds. As winter winds tend to blow from the south to southwest, large oblique dunes move in a northerly direction while transverse dunes generally move in a southerly direction in response to the summer winds which blow from the north-northwest (Wiedemann 1984). In addition to sand dunes, there are large areas of open sand in the RNA which have negligible dune features and are classified as sand plains. All of the above

mentioned dune features can potentially be vegetated to some extent by native dune species that are adapted to the shifting sands; nevertheless, most of the dune sheet is unvegetated.

One of the more unique physical features in the Tenmile Creek RNA are the tree islands which occur as isolated sites in the dunes. There are several theories for the existence of these areas that can contain old growth forests as well as younger stands but it is clear that the islands have developed soils that provide a suitable substrate for the forest stands. In some instances it appears that the tree islands are remnant forest stands that have been inundated by the advancing dune sheets. In other instances it is possible that the tree islands may have developed as a result of primary succession on vegetated dunes, much as is now happening in the deflation plains mentioned above.

Along the eastern edge of the RNA, old growth dune forests grow on the most stabilized substrate at the site. These stabilized dune surfaces date back to before the most recent Pleistocene advances of the dunes. Here soils are relatively well developed and have more normal levels of soil nutrients when compared to substrates in the rest of the RNA. These developed soils are shallow, though, and lie as a thin mantle over the older dune sands below.

### Climatic Conditions

The Oregon coast climate is characterized by mild temperatures year round, with wet winters and dry summers. Tenmile Creek RNA lies immediately adjacent to the ocean shore and has typical coastal weather. Rainfall at the RNA totals nearly 70 inches (180 cm) a year and falls predominantly in the winter months as the jet stream dips to the south and brings a continuous series of winter storms to the coast. During the winter, storms are accompanied by strong south to southwesterly winds. In general, coastal forests and tree islands are susceptible to windthrow during winter storm events. Summer winds are predominantly from the northwest and are usually moderate in intensity. The winter and summer winds are particularly important to the sand dunes as they are key determinants in the dune formations present at the RNA. East winds may occur in the fall and spring, blowing at higher velocities and causing drying conditions that enhance the usually low fire hazard for the region (Franklin and Dryness 1973).

An important ecological consideration regarding precipitation is the proximity of the site to the actual coast. Near-coastal sites receive considerable fog during the summer months such that fog drip in coastal forests can account for significant increases in actual precipitation (Hemstrom and Logan 1986). Most of the RNA is within the fog belt.

The closest recording NOAA weather station is located in North Bend, Oregon, 10 miles (16 km) to the south of the RNA. Climatic conditions at North Bend are a good approximation for Tenmile Creek RNA although there may be greater rainfall at the RNA than at North Bend. The station receives an annual precipitation of 66.79 inches (169.4 cm) and the mean annual temperature is 52.5 °F (10.2 °C). (National Oceanographic and Atmospheric Administration

1993). Approximately 75% of the precipitation falls between October and March, but as noted above these recorded precipitation amounts do not take into account the additional moisture that is received in forested sites in the form of fog drip within the fog belt. Summer high temperatures rarely reach into the 80's, while winter lows only occasionally dip below freezing. The monthly climatic data for North Bend, Oregon averaged over the past 92 years is listed below (National Oceanographic and Atmospheric Administration 1993).

Climatic Records for North Bend FAA Airport, Oregon  
Elevation 6 feet (2 m); 1901-1993 (NOAA 1993)

Month	Mean Temperature		Mean Precipitation	
	°F	°C	inches	cm
January	45.4	7.3	9.73	24.7
February	47.3	8.5	7.76	19.7
March	48.0	8.9	7.83	19.9
April	49.2	9.6	4.65	11.8
May	53.4	11.9	6.38	16.2
June	57.3	14.0	1.60	4.1
July	59.4	15.2	0.45	1.1
August	60.1	15.6	0.96	2.4
September	58.7	14.8	1.80	4.6
October	54.9	12.7	4.59	11.6
November	50.1	10.0	10.27	26.1
December	46.1	7.8	10.77	27.4
Mean Annual	52.5	11.4		
Total Annual			66.79	169.6

DESCRIPTION OF VALUES

Flora

The flora of Tenmile Creek RNA is representative of the Oregon Coast dunes and dune forests with a relatively high number of taxa present due to the diversity of habitats. The flora has not been systematically collected or studied other than those taxa encountered during the establishment of inventory plots by the Forest Service and other researchers (Wiedemann 1984). There are no federally listed threatened or endangered plant species known to occur within the RNA but there is potential habitat for several species on the Forest Service sensitive list. Some of these species are also Category 2 Candidates for federal listing taxa. Observations by Vander Schaaf (1995), Forest Service inventory plot data, and Wiedemann (1984) have resulted in the following list of plants. The habitats listed in conjunction with the plant species are groupings of

the plant communities noted previously on page 7. Habitat 1 includes the open sand dune plant associations: seashore lupine (Lupinus littoralis) dunes, European beachgrass dunes, red fescue-salt rush (Juncus lesueurii) grassland, open sand; Habitat 2 includes the deflation plain wetlands: Hooker willow/slough sedge-Pacific silverweed (Salix hookeriana/Carex obnupta-Potentilla pacifica), shorepine/slough sedge; and Habitat 3 includes the forested types: shorepine-Sitka spruce/evergreen huckleberry, Douglas-fir/rhododendron-evergreen huckleberry, Sitka spruce/evergreen huckleberry. Shrub and herb species identifications were determined from Hitchcock and Cronquist (1973) and trees were determined from Little (1979).

Scientific Name	Common Name	Habitat-types		
		1	2	3
<b>TREES</b>				
<u>Alnus rubra</u>	red alder			X
<u>Picea sitchensis</u>	Sitka spruce		X	X
<u>Pinus contorta</u>	shorepine		X	X
<u>Pseudotsuga menziesii</u>	Douglas-fir			X
<u>Tsuga heterophylla</u>	western hemlock			X
<b>SHRUBS AND SUBSHRUBS</b>				
<u>Arctostaphylos columbiana</u>	bristly manzanita			X
<u>Arctostaphylos uva-ursi</u>	kinnikinnick			X
<u>Baccharis pilularis</u>	chaparral broom		X	
<u>Cytisus scoparius</u>	Scot's broom		X	X
<u>Gaultheria shallon</u>	salal		X	X
<u>Myrica californica</u>	Pacific wax-myrtle		X	X
<u>Pyrus fusca</u>	crabapple		X	
<u>Rhododendron macrophyllum</u>	rhododendron			X
<u>Rubus spectabilis</u>	salmonberry			X
<u>Rubus ursinus</u>	trailing blackberry			X
<u>Salix hookeriana</u>	Hooker willow		X	X
<u>Vaccinium ovatum</u>	evergreen huckleberry		X	
<u>Vaccinium parviflorum</u>	red huckleberry			X
<b>FORBS</b>				
<u>Achillea millefolium</u>	yarrow	X	X	
<u>Allotropa virgata</u>	candystick			X
<u>Anaphalis margaritacea</u>	pearly everlasting		X	
<u>Cakile edentula</u>	American searocket	X		
<u>Cakile maritima</u>	European searocket	X		
<u>Cardamine occidentalis</u>	western bittercress			X
<u>Cerastium viscosum</u>	sticky chickweed			X

Scientific Name	Common Name	Habitat-types		
		1	2	3
<u>Convolvulus soldanella</u>	beach morning glory	X		
<u>Dicentra formosa</u>	bleeding heart		X	
<u>Digitalis purpurea</u>	foxglove			X
<u>Disporum hookeri</u>	Hooker's fairy-bell			X
<u>Epilobium watsonii</u>	willowweed			X
<u>Equisetum arvense</u>	field horsetail		X	
<u>Equisetum hymenale</u>	horsetail		X	
<u>Erigeron glaucus</u>	seaside daisy	X		
<u>Fragaria chiloensis</u>	coast strawberry	X	X	
<u>Hypochaeris radicata</u>	hairy cats-ear	X	X	
<u>Lathyrus japonicus</u>	beach pea	X		
<u>Lupinus littoralis</u>	seashore lupine	X		
<u>Maianthemum dilatatum</u>	false lily of the valley		X	
<u>Monotropa uniflora</u>	indian pipes			X
<u>Montia perfoliata</u>	miner's lettuce		X	
<u>Montia sibirica</u>	candyflower			X
<u>Montia spathulata</u>	common montia	X		
<u>Polystichum munitum</u>	sword fern			X
<u>Potentilla pacifica</u>	Pacific silverweed		X	
<u>Pteridium aquilinum</u>	braken-fern			X
<u>Solidago spathulata</u>	dune goldenrod	X		
<u>Tanacetum douglasii</u>	dune tansy	X	X	
GRAMINOIDS				
<u>Agrostis palustris</u>	creeping bentgrass			X
<u>Ammophila arenaria</u>	European beachgrass	X	X	
<u>Carex macrocephala</u>	large-headed sedge	X		
<u>Carex obnupta</u>	slough sedge		X	X
<u>Eleocharis palustris</u>	creeping spike-rush		X	
<u>Elymus mollis</u>	American dunegrass	X		
<u>Festuca rubra</u>	red fescue		X	X
<u>Juncus falcatus</u>	sickle-leaved rush		X	X
<u>Juncus lesueurii</u>	salt rush		X	X
<u>Poa macrantha</u>	dune bluegrass	X		

Tenmile Creek RNA has a number of natural communities represented within its boundaries. Many of the natural communities occur intermixed in a mosaic of communities with each specific community often occupying less than 2 acres (1 ha.). The small sizes of many of the natural community occurrences makes it difficult to map the distribution of these occurrences, therefore natural landforms are used as the basic mapping unit on Map 4. Natural landforms are also useful as the mapping unit because they can be more easily distinguished from air photos. Five natural landforms are shown in Map 4: beach and foredune, deflation plain wetlands, open sand dunes, tree islands and old dune forests, and European beachgrass hummocks. The RNA falls within the Sitka spruce zone along the coast, however most of the site is covered by sand dunes with only the eastern edge of the natural area being continuously forested. The dune ecosystem is well represented at the RNA with the natural communities being distributed according to physical parameters which have been discussed previously under the section entitled Physical Conditions (p.8). The natural communities are most easily described as a progression inland from the ocean beginning with the open beach to a more stabilized foredune and deflation plain system with various successional stages of wetlands. This is followed by expansive open dunes with tree islands and small deflation plains and finally terminating in stabilized forested dunes.

Along the immediate beach the sand is sparsely vegetated by plant species such as sea rocket (Cakile edentula) that are able to gain a foothold in this changing environment. Rising above the beach is the foredune which has become more stabilized due to the introduction of European beachgrass. The foredune is now essentially devoid of breaches and is higher than it was before the introduction of European beachgrass. Previously there were native species such as American dunegrass (Elymus mollis) that colonized dunes but which tended not to stabilize the dunes to the extent that the European species does. The foredune is vegetated primarily by European beachgrass but there remain native plant species scattered throughout the community. The beach and foredune are portrayed as a single landform on Map 4. Inland from the foredune is the deflation plain, an area of wetlands and recently established shorepine forests. The wetlands are diverse in and of themselves with Hooker willow and Pacific wax-myrtle dominating the shrub wetlands and slough sedge prominent in the herbaceous wetlands. Shorepine occurs with a variety of understories, including Sitka spruce, in the deflation plains as well as in wet dune hollows and swales. Deflation plains, both those immediately behind the foredune as well as those found amongst the dunes, are shown as deflation plain wetlands on Map 4.

The central portion of the RNA is covered by sand dunes and sand plains where features of varying aspects and topography create habitats for a number of dune plant communities. Much of the interior sand dunes are open and unvegetated and thus have no plant communities associated with them, but on some open dunes with blowing sand there are several communities present that act to stabilize the dunes to varying degrees. The European beachgrass community is the most prominent of these dune stabilizing communities, occurring in dune hummock areas as well as on larger open dunes and in association with native plant species. Natural communities dominated by American dunegrass (Elymus mollis) and seashore bluegrass (Poa macrantha) are much less common, occupying negligible acreage within the RNA. On the more level sand



plains, where sand movement is more moderate, there are several additional native plant communities that are less tolerant of sand burial which generally occur in small patches of less than 2 acres (1 ha.). These communities are dominated by red fescue-salt rush (Festuca rubra-Juncus leseuerii) and seashore lupine (Lupinus littoralis). The introduced beachgrass community is located in the Sand Hummocks landform as well as in the Open Sand Dunes landform; the native dune communities are all located within Open Sand Dunes landform (Map 4).

Several of the open dunes plant communities are considered to be rare (Oregon Natural Heritage Program 1995) or Globally Significant Plant Communities by the Oregon Dunes NRA (USDA 1994a) as they have become very limited in extent due to beachgrass invasion and ORV based recreation. The rare communities include: red fescue dunes, American dunegrass dunes, seashore bluegrass dunes, and shorepine/slough sedge wetlands. Locations of these communities are maintained within the Geographic Information System (GIS) for the Oregon Dunes NRA at the Siuslaw National Forest headquarters in Corvallis, Oregon.

Forested communities make up a relatively small percentage of the land area in the Oregon Dunes, however, they are quite unique as they differ so greatly from the dune communities and yet they are found in close proximity to them. The two types of habitats for forested communities are tree islands and stabilized, forested old dunes. Tree islands occupy small sites, usually less than 20 acres, that are typically surrounded by dunes which are constantly encroaching on the boundaries of the islands. Origins of tree islands are unclear, however they do possess developed soils which are underlain by sand. These soils may be relict soils that date back to times before the post Pleistocene advance of the dunes or these soils may have been formed in place in localized pockets of stabilized dune communities. Early seral stages of dune forests are dominated by shorepine, while mid seral and late seral stages may include Sitka spruce, Douglas-fir, and western hemlock. The forested communities usually contain dense thickets of shrubby species including western rhododendron, evergreen huckleberry, and bristly manzanita.

### Fauna

Faunal species have not been systematically studied or inventoried in Tenmile Creek RNA. The following vertebrates are among those likely to be found in the RNA (Oregon Natural Heritage Program 1995):

Scientific name

Common name

**Ambystomatidae**

Ambystoma gracile

Ambystoma macrodactylum

Northwestern salamander

Long-toed salamander

**Plethodontidae**

Aneides ferreus

Ensatina eschscholtzii

Plethodon dunni

Plethodon vehiculum

Clouded salamander

Ensatina

Dunn's salamander

Western redback salamander

**Salamandridae**

Taricha granulosa

Roughskin newt

**Dicamptodontidae**

Dicamptodon ensatus

Rhyacotriton olympicus

Pacific giant salamander

Olympic salamander

**Ascaphidae**

Ascaphus truei

Tailed frog

**Bufo**

Bufo boreas

Western toad

**Hylidae**

Hyla regilla

Pacific treefrog

**Ranidae**

Rana aurora

Red-legged frog

**Anatidae**

Aix sponsa

Anas platyrhynchos

Bucephala albeola

Wood duck

Mallard

Bufflehead

**Cathartidae**

Cathartes aura

Turkey vulture

**Alcidae**

Brachyramphus marmoratus

Marbled murrelet

**Accipitridae**Accipiter striatus

Sharp-shinned hawk

Accipiter cooperii

Cooper's hawk

Buteo jamaicensis

Red-tailed hawk

**Pandionidae**Pandion haliaetus

Osprey

**Phasianidae**Callipepla californica

California quail

Oreortyx pictus

Mountain quail

**Charadriidae**Pluvialis squatarola

Black-bellied plover

Charadrius semipalmatus

Semipalmated plover

Charadrius alexandrinus

Snowy plover

Charadrius vociferus

Killdeer

**Scolopacidae**Numenius phaeopus

Whimbrel

Limosa fedoa

Marbled godwit

Actitis macularia

Spotted sandpiper

Heteroscelus incanum

Wandering tattler

Catoptrophus semipalmatus

Willet

Tringa melanoleucus

Greater yellowlegs

Tringa flavipes

Lesser yellowlegs

Limnodromus griseus

Short-billed dowitcher

Limnodromus scolopaceus

Long-billed dowitcher

Aphriza virgata

Surfbird

Arenaria interpres

Ruddy turnstone

Erolia alpina

Dunlin

Crocethia alba

Sanderling

Erolia minutilla

Least sandpiper

Ereunetes mauri

Western sandpiper

**Phalaropodidae**Phalaropus lobatus

Red-necked phalarope

Phalaropus fulicarius

Red phalarope

**Columbidae**Columba fasciata

Band-tailed pigeon

**Strigidae**Otus kennicottii

Western screech-owl

Bubo virginianus

Great horned owl

Glaucidium gnoma

Northern pygmy-owl

Asio flammeus

Short-eared owl

**Caprimulgidae**Chordeiles minor

Common nighthawk

**Apodidae**Chaetura vauxi

Vaux's swift

**Trochilidae**Selasphorus rufus

Rufous hummingbird

**Alcedinidae**Ceryle alcyon

Belted kingfisher

**Picidae**Sphyrapicus ruber

Red-breasted sapsucker

Picoides pubescens

Downy woodpecker

Picoides villosus

Hairy woodpecker

Colaptes auratus

Northern flicker

Dryocopus pileatus

Pileated woodpecker

**Tyrannidae**Contopus borealis

Olive-sided flycatcher

Contopus sordidulus

Western wood-pewee

Empidonax traillii

Willow flycatcher

Empidonax difficilis

Western flycatcher

**Hirundinidae**Progne subis

Purple martin

Tachycineta bicolor

Tree swallow

Tachycineta thalassina

Violet-green swallow

Stelgidopteryx serripennis

Northern rough-winged swallow

Hirundo pyrrhonota

Cliff swallow

Hirundo rustica

Barn swallow

**Corvidae**

Cyanocitta stelleri  
Corvus brachyrhynchos  
Corvus caurinus  
Corvus corax

Steller's jay  
American crow  
Northwestern crow  
Common raven

**Paridae**

Parus atricapillus  
Parus rufescens

Black-capped chickadee  
Chestnut-backed chickadee

**Aegithalidae**

Psaltriparus minimus

Bushtit

**Sittidae**

Sitta canadensis

Red-breasted nuthatch

**Certhiidae**

Certhia americana

Brown creeper

**Troglodytidae**

Thryomanes bewickii atrestus  
Troglodytes aedon  
Troglodytes troglodytes  
Cistothorus palustris

Warner valley bewick's wren  
House wren  
Winter wren  
Marsh wren

**Muscicapidae**

Regulus satrapa  
Regulus calendula  
Sialia mexicana  
Catharus ustulatus  
Catharus guttatus  
Turdus migratorius  
Ixoreus naevius  
Chamaea fasciata

Golden-crowned kinglet  
Ruby-crowned kinglet  
Western bluebird  
Swainson's thrush  
Hermit thrush  
American robin  
Varied thrush  
Wrentit

**Motacillidae**

Anthus rubescens

Water pipit

**Bombycillidae**

Bombycilla cedrorum

Cedar waxwing

**Sturnidae**Sturnus vulgaris

starling

**Vireonidae**Vireo solitarius

Solitary vireo

Vireo huttoni

Hutton's vireo

Vireo gilvus

Warbling vireo

**Emberizidae**Vermivora celata

Orange-crowned warbler

Dendroica coronata

Yellow-rumped warbler

Dendroica nigrescens

Black-throated gray warbler

Dendroica townsendi

Townsend's warbler

Dendroica occidentalis

Hermit warbler

Oporornis tolmiei

Macgillivray's warbler

Geothlypis trichas

Common yellowthroat

Wilsonia pusilla

Wilson's warbler

Piranga ludoviciana

Western tanager

Pheucticus melanocephalus

Black-headed grosbeak

Passerina amoena

Lazuli bunting

Pipilo erythrophthalmus

Rufous-sided towhee

Spizella passerina

Chipping sparrow

Passerculus sandwichensis

Savannah sparrow

Passerella iliaca

Fox sparrow

Melospiza melodia

Song sparrow

Zonotrichia atricapilla

Golden-crowned sparrow

Zonotrichia leucophrys

White-crowned sparrow

Junco hyemalis

Dark-eyed junco

**Ploceidae**Passer domesticus

House sparrow

**Icteridae**Agelaius phoeniceus

Red-winged blackbird

Sturnella neglecta

Western meadowlark

Euphagus cyanocephalus

Brewer's blackbird

Molothrus ater

Brown-headed cowbird

Icterus galbula

Northern oriole

**Fringillidae**Carpodacus purpureus

Purple finch

Carpodacus mexicanus

House finch

Loxia curvirostra

Red crossbill

Carduelis pinus  
Carduelis tristis  
Coccothraustes vespertinus

Pine siskin  
American goldfinch  
Evening grosbeak

**Soricidae**

Sorex vagrans  
Sorex pacificus  
Sorex trowbridgii

Vagrant shrew  
Pacific shrew  
Trowbridge's shrew

**Talpidae**

Neurotrichus gibbsii  
Scapanus orarius

Shrew-mole  
Coast mole

**Verperilionidae**

Myotis lucifugus  
Myotis yumanensis  
Myotis californicus  
Lasiurus cinereus

Little brown myotis  
Yuma myotis  
California myotis  
Hoary bat

**Leporidae**

Sylvilagus bachmani

Brush rabbit

**Sciuridae**

Tamias townsendii  
Spermophilus beecheyi  
Tamiasciurus douglasii  
Glaucomys sabrinus

Townsend's chipmunk  
California ground squirrel  
Douglas' squirrel  
Northern flying squirrel

**Castoridae**

Castor canadensis

Beaver

**Muridae**

Peromyscus maniculatus  
Neotoma cinerea  
Clethrionomys californicus  
Microtus townsendii  
Microtus oregoni  
Ondatra zibethicus

Deer mouse  
Bushy-tailed woodrat  
Western red-backed vole  
Townsend's vole  
Creeping vole  
Muskrat

<b>Zapodidae</b>	
<u>Zapus trinitatus</u>	Pacific jumping mouse
<b>Erethizontidae</b>	
<u>Erethizon dorsatum</u>	Porcupine
<b>Canidae</b>	
<u>Canis latrans</u>	Coyote
<u>Urocyon cinereoargenteus</u>	Gray fox
<b>Ursidae</b>	
<u>Ursus americanus</u>	Black bear
<b>Procyonidae</b>	
<u>Procyon lotor</u>	Raccoon
<b>Mustelidae</b>	
<u>Mustela frenata</u>	Long-tailed weasel
<u>Mustela vison</u>	Mink
<u>Spilogale gracilis</u>	Western spotted skunk
<u>Mephitis mephitis</u>	Striped skunk
<u>Lutra canadensis</u>	River otter
<b>Felidae</b>	
<u>Felis concolor</u>	Mountain lion
<u>Felis rufus</u>	Bobcat
<b>Cervidae</b>	
<u>Odocoileus hemionus</u>	Black-tailed deer
<b>Anguidae</b>	
<u>Elgaria coerulea</u>	Northern alligator lizard
<b>Colubridae</b>	
<u>Thamnophis ordinoides</u>	Northwestern garter snake
<u>Thamnophis sirtalis</u>	Common garter snake

The coastal population of the western snowy plover, (Charadrius alexandrinus nivosus), is federally listed as Threatened under the Endangered Species Act. This bird nests in open sand along the beach zone and has been seen on active nests in and near the RNA. Disturbance by humans is a threat to the species in the coastal area as is nest predation by skunks, crows and ravens, snakes and other animals. Habitat alteration due to the introduction of European



beachgrass has also impacted snowy plover at the coast. The marbled murrelet (Brachyramphus marmoratus) has also been listed as Threatened under the Endangered Species Act. The species is not known to occur at the RNA but limited, suitable habitat for nesting is present there.

### Aquatic

Aquatic habitat types are represented in the deflation plains and a few of the scattered ponds which can be found throughout the dunes. The aquatic habitats found in the deflation dunes are primarily emergent wetlands and shrub-dominated wetlands with small areas of open water present in the more expansive sites. During the rainy winter months the open water areas increase in size but then decrease over the dry summer months. The small ponds are found where the water table is close to the surface. They also increase and decrease in size with the seasons as almost all of the water found in the ponds, and the deflation plains as well, comes into these systems directly as rainwater or rising water tables. Because there is little nutrient input into the wetland systems found in the dunes, productivity of these systems is relatively lower than comparable wetlands that have inflow from streams or from overland flow. The ponds and deflation plains have amphibians, waterfowl, and some mammals associated with them, but there are no fishes present in the RNA.

### Geology

The Oregon coast was submerged until well into the Miocene epoch or approximately 25 million years when gradual uprising of the coastal plain began and volcanic activity started forming the Coast Range mountains. During the Pliocene (7 million years ago), uplift of the Coast Range reached its maximum height and erosion of the range began. Near the end of the Pliocene, sea level was about 90 meters below present level and rivers and streams cut their channels across the landscape during this period (Baldwin 1964; Wiedemann 1984). Not until the Pleistocene did the coastline begin to take the shape we see today. With the Pleistocene glaciation the coastline emerged and submerged a number of times with the rise and fall of the world's oceans due to glacier retreat and advance. Associated with each resubmergence there was renewed sand dune formation activity along the coast where shoreline topography allowed it to occur. Resubmergence usually obliterated earlier dune formations but in some areas dunes which stretched far inland remain today and are termed "Pleistocene dunes". These older dunes can be distinguished from the post-Pleistocene dunes by their reddish color.

The dunes which make up the present day Oregon Dunes National Recreation Area were formed at the end of the Pleistocene glaciation after the last great glacial advance, the Wisconsin Maximum. This occurred approximately 18,000 years ago. These dunes are called the "Flandrian dunes" in conjunction with the rise in sea level after the last glaciation, the "Flandrian transgression" (Wiedemann 1984).

## Soils

Soils in the Tenmile Creek RNA fall into two distinct categories. In one case, the beaches, open sand areas and the dunes themselves have no real soil development and there is no soil to speak of except for small amounts of unconsolidated organic matter that may have accumulated beneath herbaceous vegetation. In the other category, soil has developed in place usually over a very long period of time. Organic material accumulation is relatively thick and often consists of coniferous forest material as well as herbaceous vegetation. Developed soils in this situation may have buried sand horizons as well as additional buried soil horizons.

In places where soil development has not taken place, sand is the basic soil. Dune sands are very poor soils. There is little or no accumulation of organic material in these sands and nutrient levels are extremely low or non-existent. Sand also is excessively drained and thus may be prone to summer drought when rainfall is less frequent.

Where soil development has taken place it occurs in dune forests and in dune wetlands. Under dune forests the soil profile is characterized by a thin, dark surface horizon which grades into a lighter gray-brown horizon and finally a horizon which resembles the original sand. Drainage is termed excessive in these soils and nutrients remain low. Soil depths for the first two layers ranges from 12-50 cm. (5-20 inches). In dune wetlands a different soil type has developed that consists of a single, thin dark organic surface layer that grades into gray sands underneath. Because of poor drainage and standing water, these soils tend to be acidic and may develop into peat soils with incompletely decomposed organic material. Soil depths may reach 1.5 m. (5 feet) (Wiedemann 1984).

Soils descriptions based on the Soil Survey of Coos County, Oregon (USDA Soil Conservation Service 1989) are summarized below. The Soil Survey classifies the Oregon Dunes National Recreation Area lands in soil map units which relate to soil types, landform types, and geomorphology. The Tenmile Creek RNA is covered by 8 map units (Map 5). The basic soil map units, displayed on Map 5, that are found within the Tenmile Creek RNA are described below.

## Soil Types

### MAP UNIT

### DESCRIPTION

- 3 Beaches.** These soils are composed of loose sand and shell fragments that are being actively worked by waves, tides, and wind. Slopes are 1-8 percent along the immediate shoreline.
- 8C Bullards sandy loam, 7-12 percent slopes.** These are deep, well drained soils on dissected marine terraces. Coniferous vegetation is typical with a thick surface mat of undecomposed organic matter present. A sand dominated layer is present at 60 inches of depth. These soils are a minor component in the RNA found in stabilized dune forests.
- 16 Dune land.** Dune land consists mainly of hills and ridges of shifting fine and medium textured sand. It formed in eolian deposits derived from deflation basins near coastal beaches. Slopes are 0-30 percent and permeability is rapid.
- 29B Heceta-Waldport fine sands, 0-7 percent slopes.** Found in deflation plains with sedges, rushes and shrubs as dominant vegetation. Heceta soils are found on level deflation plains while Waldport soils are on small stabilized dunes. soil development is poor in these soils.
- 43D Netarts loamy fine sand, 2-30 percent slopes.** A deep, well drained soil found on old stabilized sand dunes. Native vegetation is mainly conifers and shrubs; the surface layer is covered with a mat of leaves and partially decomposed roots. The soil substratum extends to a depth of 60 inches or more.
- 59E Waldport fine sand, 30-70 percent slopes.** Deep, excessively well drained soil found on stabilized sand dunes. Native vegetation is mainly conifers and shrubs located on tree islands in active dunes.
- 60D Waldport-Dune land complex, 12-30 percent slopes.** This soil complex is located on stabilized and active foredunes vegetated mainly by European beachgrass. The soil is deep and excessively drained with a relatively thin, 4 inch (10 cm) surface layer that has some organic components.
- 61D Waldport-Heceta fine sands, 0-30 percent slopes.** This soil is found in stabilized sand dunes and in depressional areas between sand dunes including some deflation basins. Native vegetation is mainly conifers, shrubs and forbs with more water tolerant species found on the Heceta soil. Heceta soils are poorly drained in contrast with the Waldport soil which is excessively drained.

## Lands

Tenmile Creek RNA is managed under guidelines for Research Natural Areas, Management Area 10(K), that are detailed in the Area Management Plan (USDA Forest Service 1994b). Lands adjacent to the RNA are mostly owned by the Forest Service except for a small parcel on the east boundary which is in private ownership. Lands to the south of the RNA are classified as Non-motorized Undeveloped (Management Area 10(A)), lands to the west are classified as Snow Plover Habitat (Management Area 10(E)), and lands to the north are classified as Off-Road Vehicle Open (Management Area 10(B)). Vehicle trespass into the RNA is possible from the north in Management Area 10(B), although the Douglas-Coos countyline, which forms the northern border of the RNA, is well signed as being closed to ORV use. Unless trespass occurs, none of these adjacent ownership's are likely to seriously impact the natural values of the RNA.

## Cultural

There have been no cultural resources inventories conducted in the RNA to date. It is possible that cultural resources may be located within the Tenmile Creek RNA when such inventories are conducted.

## IMPACTS AND POSSIBLE CONFLICTS

### Mineral Resources

There are no mining claims within Tenmile Creek RNA. In portions of the Oregon Dunes National Recreation Area, there have been claims filed for sand mining with the sand to be used in the manufacture of glass; some of these claims have become patented. Since the establishment of the Congressionally designated National Recreation Area, mineral entry was withdrawn from area.

### Grazing

There are no grazing allotments associated with the RNA.

## Timber

A small portion of the RNA consists of timbered lands which could be harvested in support of other management objectives on the Dunes National Recreation Area. Timber harvest as a principal objective, is inconsistent with the goals of the RNA, however, and will not occur. There is a slight potential for impact to the RNA if timber is cut on adjacent lands. Windthrow is common in coastal forests and sites adjacent to harvest areas could be susceptible to this event. Harvest areas, even small thinnings designed to enhance biological diversity, may also act as sites for invasions of introduced noxious weeds, such as scots broom (Cytisus scoparius), tansy ragwort (Senecio jacobaea), bull thistle (Cirsium edule) and European beachgrass. Timber harvest can easily disturb the thin dune soils such that underlying sands are exposed and sand blowouts may then occur.

## Miscellaneous Forest Products

The harvest of forest products has historically taken place in the Oregon Dunes. Small transplants of several species of trees and shrubs (Pacific wax-myrtle, evergreen huckleberry, and shorepine) used for nursery stock have been removed from deflation plains in the past. The harvest of these forest products is regulated under a permit system by the Forest Service; no permits have been issued in the RNA for at least 5 years. Recently, the harvest of matsutake mushrooms in coastal forests has become very popular as the mushrooms command high prices on the wholesale market. No permits for commercial mushroom harvest are issued for the RNA but illegal harvest does occur in the RNA. Commercial harvest of mushrooms results in significant disturbance to the site as rakes are used to remove the duff and upper layer of soil in searching for the crop.

## Watershed Values

There are no streams present in Tenmile Creek RNA but there is open water present in the deflation plain wetlands and ephemeral ponds scattered throughout the dunes. These wetlands serve as habitat for a number of wildlife and waterfowl species and add to the natural community diversity present in the Oregon dunes. A less obvious watershed value for the dunes is the dunes aquifer which underlies the dunes area and contains a considerable quantity of high quality water. The dunes aquifer also extends under the ocean for some distance and is important as the dune sands capture the abundant rainfall at the coast with little loss to evaporation due to high percolation rates. With the available high recharge rates the aquifer is estimated to have the potential to supply 1.6 million gallons/acre/year (Wiedemann 1984). Some nearby coastal towns rely on the dunes aquifer for drinking and industrial water supplies.

Future uses of water resources in the dunes is expected to grow. Concerns regarding salt water intrusion into the aquifer that may result from additional groundwater withdrawal have addressed through modelling the water resources (USDA 1994a). There have also been concerns about surface water resources under the scenario of additional removal of water resources. It is evident that removal of large quantities of groundwater will affect the surface water resources (USDA 1994a) but there is no mention in the FEIS for the Oregon Dunes National Recreation Area about what affect water withdrawal will have on vegetation or, more specifically, the natural features present at the RNA. The Act establishing the Oregon Dunes National Recreation Area "protects the continuance of groundwater withdrawal provided that natural resources are not significantly degraded by drawdown of the watertable", (pg. III-68, FEIS, USDA 1994a).

### Recreation Values

Tenmile RNA receives some recreation use, mostly in the form of day hikers that start out from Eel Campground and Hall Lake on the east side of the RNA. Hikers typically set off for the shoreline or nearby tree islands but rarely venture far into the dunes. There is also some use of the RNA from recreationists accessing the area from the beach access road near the north boundary. The beach is closed to motor vehicles but used by hikers who hike the Oregon Coast Trail. There is the potential for unauthorized vehicle use along the northern boundary of the RNA which borders a management area designated for off-road vehicle use, however, the boundary is well signed. There has also been historical use of vehicles in the RNA along the Tenmile Creek Wild & Scenic River corridor to the south of the protected area.

The RNA is popular with hikers familiar with the Oregon Dunes National Recreation Area because its scenic beauty and because it is closed to vehicle use. This is not the only site in the National Recreation Area that is closed to vehicles, thus recreation pressure in the RNA could be reduced with visitor education as to additional vehicle closed areas. Recreation in the RNA is a concern if use increases as expected in the Oregon Dunes National Recreation Area. Education of users as to the research values of a protected research area in the dunes may be needed if site disturbance or research experiment disturbance is experienced.

There is a proposal to move the trailhead for the Umpqua Dunes Trail to a site south of the RNA and adjacent to Highway 101. This could have the potential to increase recreation use in the RNA and in a sensitive red fescue plant community that will near the trail. Fencing and signing will be used to educate and control hikers in the area.

### Wildlife and Plant Values

There are several federally listed wildlife species with known occurrences or potential habitat within or adjacent to the Tenmile Creek RNA. The most prominent of the federally listed species is the Listed Threatened western snowy plover, which nests in open sand areas on coastal

beaches and is threatened by nest disturbance from humans, nest predation, and loss of habitat due to dune stabilization. Designated snowy plover habitat runs along the beach to the west of the RNA and the beach is closed to vehicle use as well. Also listed as Threatened are the marbled murrelet and the Aleutian Canada goose (Branta canadensis leucopareia), both of which have potential habitat at the RNA but which have no recorded sightings within the site. The one Listed Endangered species that has limited potential habitat at the RNA is the brown pelican (Pelecanus occidentalis).

There are no occurrences of threatened, endangered or sensitive plant species present in the RNA although the area contains potential habitat for the pink sand verbena (Abronia umbellata ssp. breviflora). The pink sand verbena is considered a Category 2 candidate for federal listing by the U.S. Fish & Wildlife Service. The habitat for the pink sand verbena and the western snowy plover are similar and management strategies for the two species are being coordinated on the Oregon Dunes NRA.

#### Adjacent Private Lands

Private lands abut the RNA to the east with a common border of less than 1/4 mile (0.4 km). The adjoining private lands are minimally managed at the present time and do not pose a threat to the integrity of the RNA.

### MANAGEMENT PRESCRIPTION

Management and protection of Tenmile Creek RNA will be directed toward maintaining natural ecological processes. Activities of man that disturb or modify ecological processes will be discouraged.

Tenmile Creek RNA is managed according to guidelines for Management Area 10(K) (Research Natural Areas) in the Oregon Dunes National Recreation Area Plan (USDA Forest Service 1994b). The RNA is within the Oregon Dunes National Recreation Area which is managed as a separate management unit of the Siuslaw National Forest.

Also applicable to RNA management are the standards and guidelines for management of listed species which have been found in the area. The western snowy plover populations will be managed to comply with the recovery plan developed by the U.S. Fish & Wildlife Service.

## Vegetation Management

Standards and guidelines for RNAs, Management Area 10(K), generally addresses the issue of vegetation management in terms of the overall management goal for RNAs (USDA Forest Service 1994b). The overall management direction for all RNAs is to preserve the naturally occurring physical and biological processes at the site.

Wildfire is not specifically addressed in the Dunes Management Plan but in general wildfire will be suppressed using suppression methods and equipment that will minimize disturbance to the special features of the area. The desired condition of the Sitka spruce and Douglas-fir/western hemlock forests dictates that fires be aggressively suppressed. Prescribed fires are of limited ecological utility in these forested ecosystems when the goal is to promote the development of naturally sustainable old growth forests.

Introduced species and weedy native species are a continuing concern at the RNA. Exotic species introductions are a major concern in the Oregon Dunes because of the establishment of European beachgrass throughout the foredune area. Coastal forest ecosystems typically are less susceptible to weedy plant infestations than other ecosystems but problem species do exist in forested habitats.

While it is extremely unlikely that beachgrass can ever be eradicated from the Pacific Northwest Coast it is important to realize its effects on coastal dune ecosystems and to prevent it from establishing itself in existing natural dune communities. The Oregon Dunes NRA Management Plan (USDA 1994b) identifies the entire foredune and portions of open sand dunes within the Tenmile RNA as Primary Potential Vegetation Treatment Areas. Primary treatment areas total over 5000 acres in the NRA; it is extremely unlikely that all acres can be treated during the life of the management plan. Treatment areas will be further refined through site-specific planning and analysis where treatment methods will be considered. Vegetation management will target restoration of snowy plover habitat and globally significant plant communities as some of its objectives pertaining to the Research Natural Area.

## Transportation Plan

No new roads or trails are planned for this area, however, there is consideration being given to relocating the trailhead for the Umpqua Dunes Trail to Highway 101 that has the potential to increase visitor use in the RNA.



### Fences and Protective Barriers

Fences are not required at the RNA. There is a short drift fence established near the eastern boundary of the RNA and there are several signs warning off-road-vehicle users that the area is closed to vehicle use. No other fences are anticipated in the area.

### ADMINISTRATION RECORDS AND PROTECTION

Administration and protection of Tenmile Creek RNA will be the responsibility of the Oregon Dunes National Recreation Area. The Area Ranger, Oregon Dunes National Recreation Area, has direct responsibility.

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

Records for the Tenmile Creek RNA will be maintained in the following offices:

- Regional Forester, Portland, Oregon
- Forest Supervisor, Siuslaw National Forest, Corvallis, Oregon
- Area Ranger, Oregon Dunes National Recreation Area, Reedsport, Oregon
- Director, Pacific Northwest Research Station, Portland, Oregon
- Forest Sciences Laboratory, Oregon State University, Corvallis, Oregon

### Archiving

The Corvallis Forest Sciences Laboratory of the Pacific Northwest Research Station will be responsible for maintaining the Tenmile Creek RNA research data file and list of herbarium and species samples collected. The Forest Sciences Lab is establishing a data base for maintaining research data and lists of species for all RNAs in the region. Computerized files for the RNA will be maintained at the Forest Sciences Lab.

## REFERENCES

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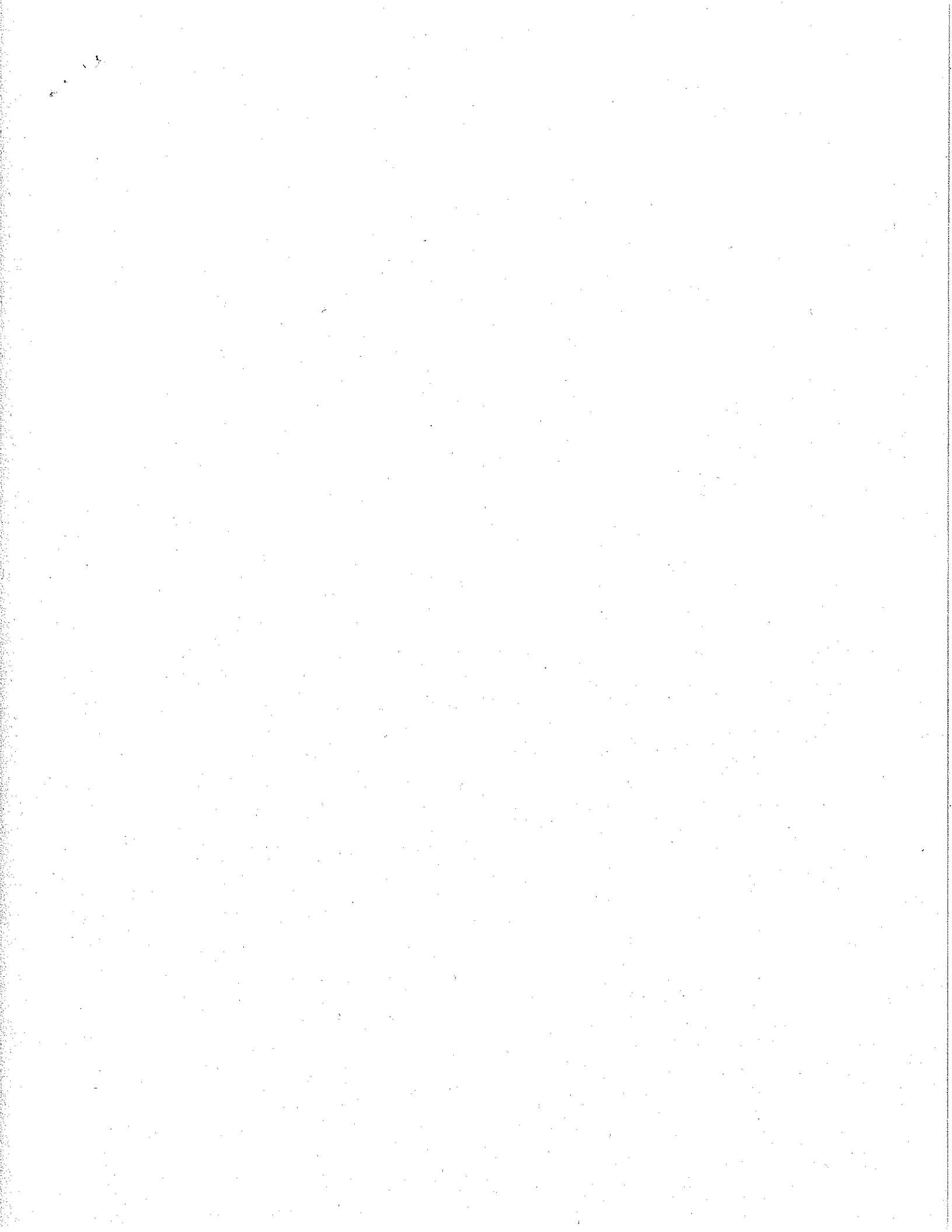
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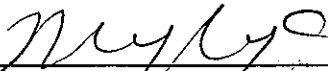
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TENMILE CREEK RESEARCH NATURAL AREA

I certify the enclosed boundary description of the Tenmile Creek  
Research Natural Area was prepared under my direct supervision

1922 - ONE  
State Reg. No.

  
MICHAEL J. SCHWARTZ  
Forest Land Surveyor

9-12-96  
Date

TENMILE RESEARCH NATURAL AREA

The Tenmile RNA boundary was created by using a combination of digital information from the Siuslaw National Forests Geographical Information System(GIS) and recent Cadastral survey information from the Bureau of Land Management(BLM). The initial point for the description is the corner to sections 1 & 12, T.23 S., R.13 W., and sections 6 & 7, T.23 S., R.12 W., W.M., as monumented by the BLM. The beginning coordinate value for the description was taken from the Forest's GIS Public Land Survey System (PLSS) layer and the subsequent Landline Corner values were computed from the BLM's survey. The remaining control points were digitized through the Forest's GIS. All values relate to the 1927 NAD, State Plane Coordinate (South Zone) System.

Latitude: 43-35-47.45  
Longitude: 124-10-55.31

X-COORD(EAST): 1,024,919.0625 (feet)  
Y-COORD(NORTH): 724,757.8125 (feet)

Theta(mapping) Angle: -2-32-00  
Grid Factor: 0.9999234

Conversion factor used for feet to meters: 1 meter = 3.28084 feet

QUAD SHEET NAME	ANGLE POINT	BEARING	DISTANCE FEET (METERS)	DESCRIPTION
LAKESIDE				
1				Corner to sections 1,12,6, & 7, T.23 S., R.12 & 13 W., W.M., and the True Point of Beginning (POB).
		S 2-23-00 W	199.98 (60.954)	Across open sand along the range line between Ranges 12 & 13 (sections 12 and section 7),
2				to Angle Point #2 on the Range line which is defined by the line between the sand and vegetation,

TENMILE RESEARCH NATURAL AREA

2			Angle Point #2,
	N 85-01-54 W	1119.95 (341.361)	Across open sand, through, vegetation, through sand,
3			To Angle Point #3 which is defined by the line between sand and vegetation,
	S 22-38-02 W	3131.15 (954.375)	Through open sand,
4			To Angle Point #4, which is north of the existing trail,
	N 84-14-11 W	2688.59 (819.482)	Through open sand,
5			To Angle Point #5, which is north of the existing trail,
	N 60-08-02 W	3223.05 (982.386)	Through open sand,
6			To Angle Point #6, which is north of the existing trail,
	N 2-17-59 W	1246.00 (379.781)	Through open sand to the edge of the deflation plain,
7			To Angle Point #7, which is north of the existing trail,
	N 62-28-13 W	2390.70 (728.685)	Through vegetation and across the deflation plain,
8			To Angle Point #8 which is on the Mean High Tide Line and is north of the existing trail,
	N 14-18-16 E	4599.10 (1401.806)	Along the Mean High Tide Line,
9			To Angle Point #9 which is the intersection point of the Mean High Tide line and the extension of the Township line (as per the BLM survey),

TENMILE RESEARCH NATURAL AREA

9			Angle Point #9
	S 87-28-00 E	85.79 (26.149)	Along the Township line,
10			To the Meander Corner between section 32 & 5 as monumented by the BLM,
	S 87-28-00 E	1055.92 (321.844)	Along the Township line,
11			To the 1/4 corner between section 35 and section 2 as monumented by the BLM,
	S 87-28-00 E	2639.80 (804.611)	Along the Township line,
12			To the corner to sections 35,36, 1, & 2, as monumented by the BLM,
	S 87-28-00 E	2639.80 (804.611)	Along the Township line,
13			To the 1/4 corner between section 36 and section 1, as monumented by the BLM,
	S 2-32-00 W	2999.77 (914.330)	through vegetation and open sand,
14			To Angle Point #14,
	S 87-28-00 E	2658.24 (810.232)	through vegetation and open sand,
15			To Angle Point #15 which is the intersection point with the Range line (section 1 and section 6),
	S 2-38-00 W	2292.96 (698.894)	Along the Range line between sections 1 and 6,
1 (POB)			To the corner to sections 1,12,6, & 7 and the 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>RNA</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.

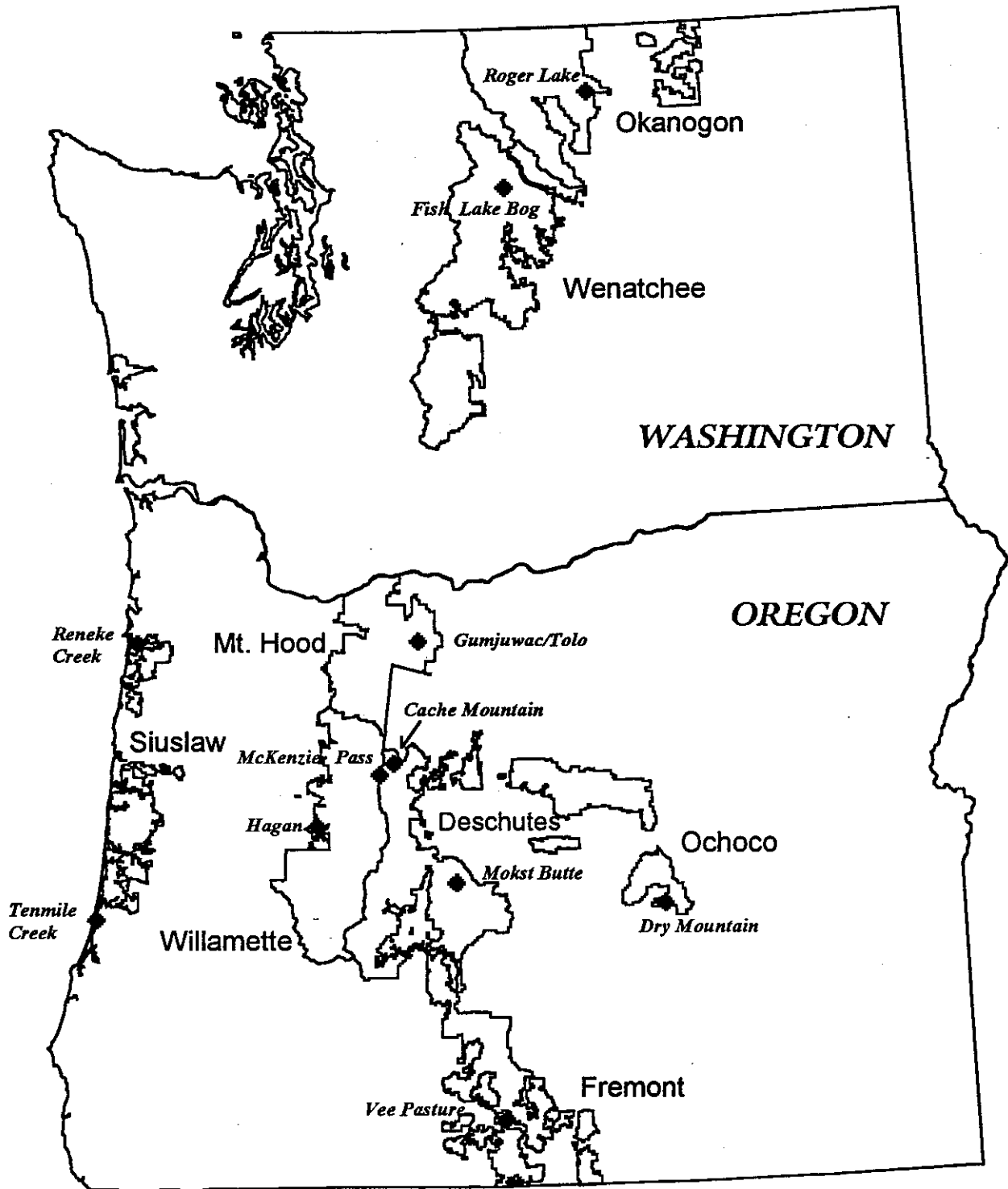


ROBERT W. WILLIAMS  
Regional Forester

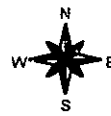
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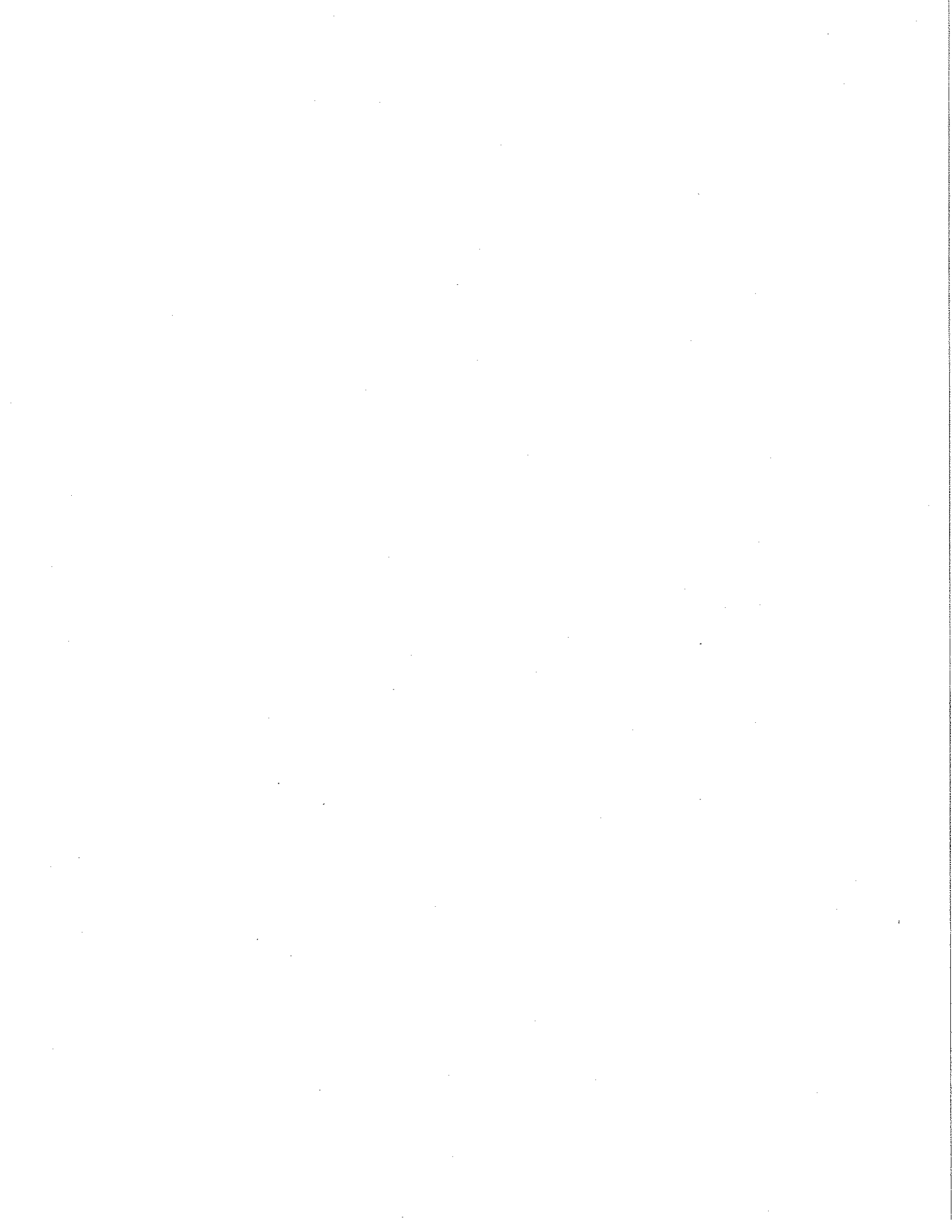
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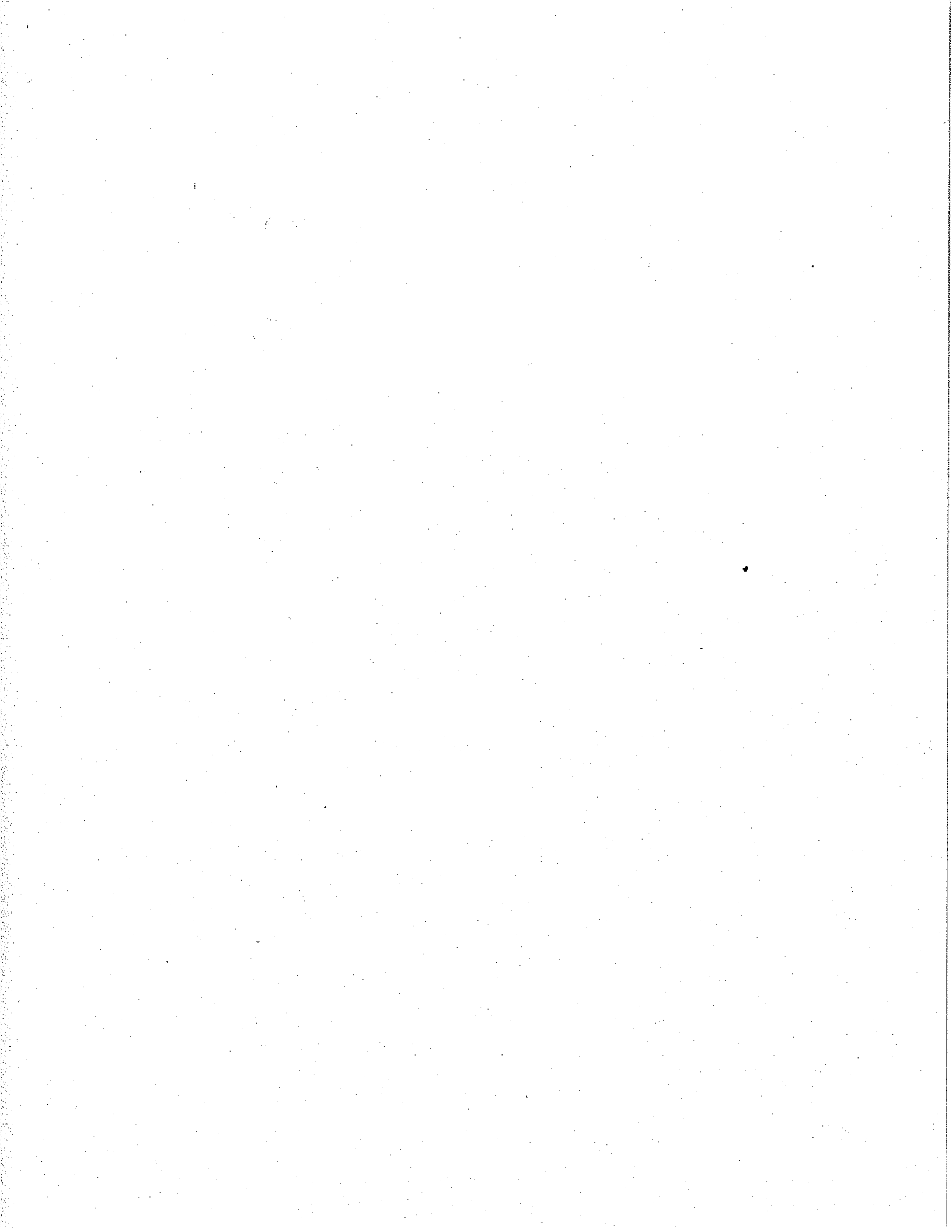
# Research Natural Area Locations

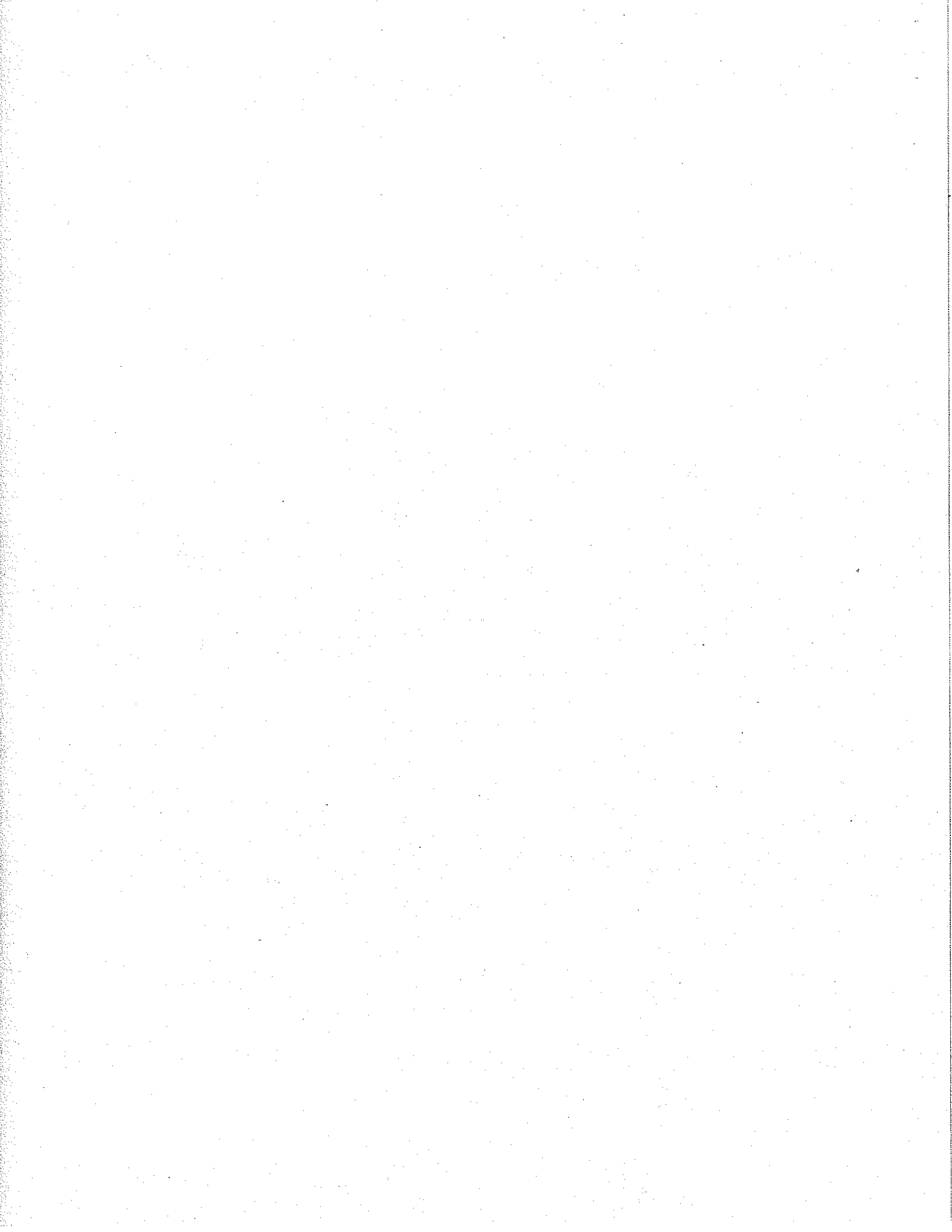


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# **ESTABLISHMENT OF ELEVEN RESEARCH NATURAL AREAS**

## **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:**

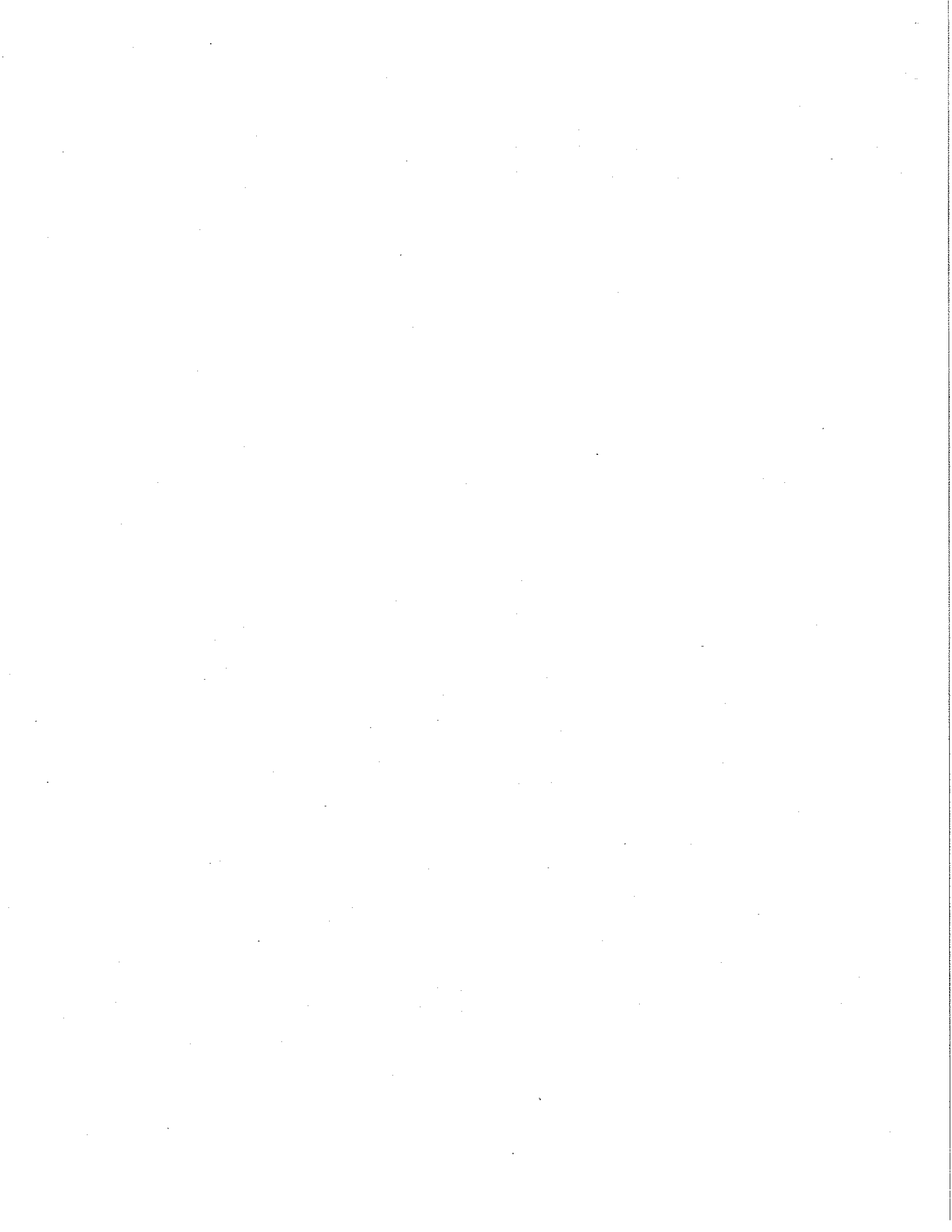
ROBERT W. WILLIAMS, Regional Forester  
Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

**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

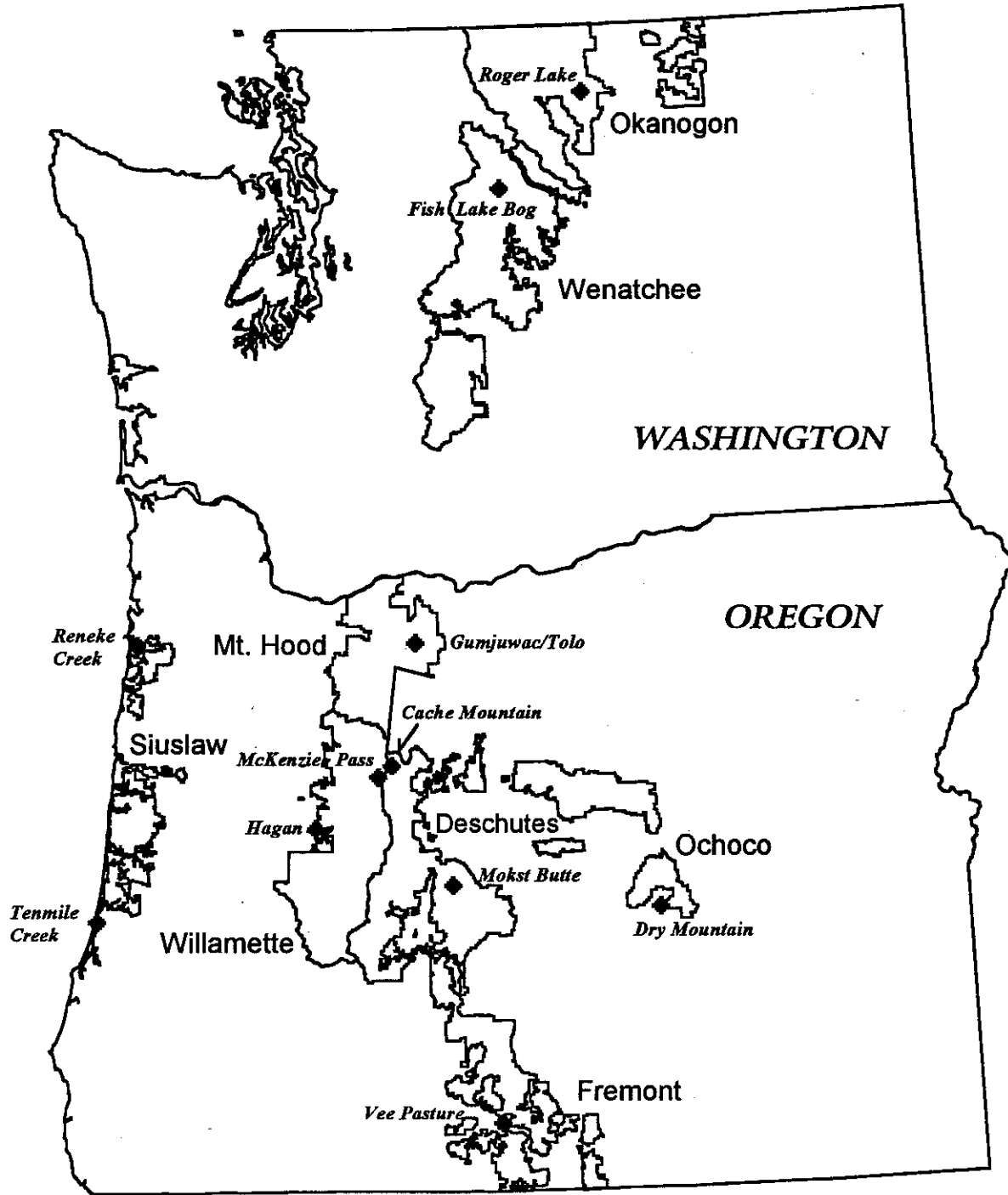
#### Proposed Action

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**

RNA	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	Lavaflows 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.

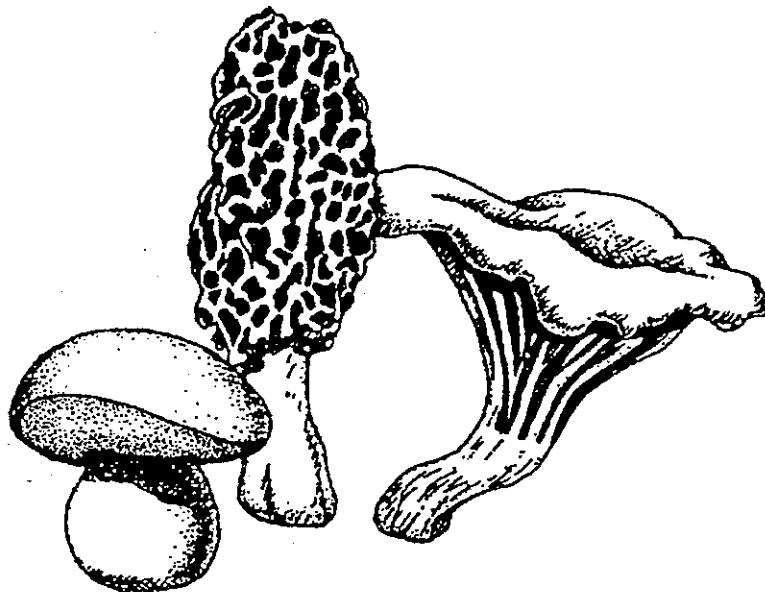
The direction in the National Forest management plans for established RNAs also includes reasonably foreseeable actions such as withdrawal of the area from mineral entry. The general consequences of withdrawal are discussed in the Final EIS's. Site-specific consequences will be disclosed in more detail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

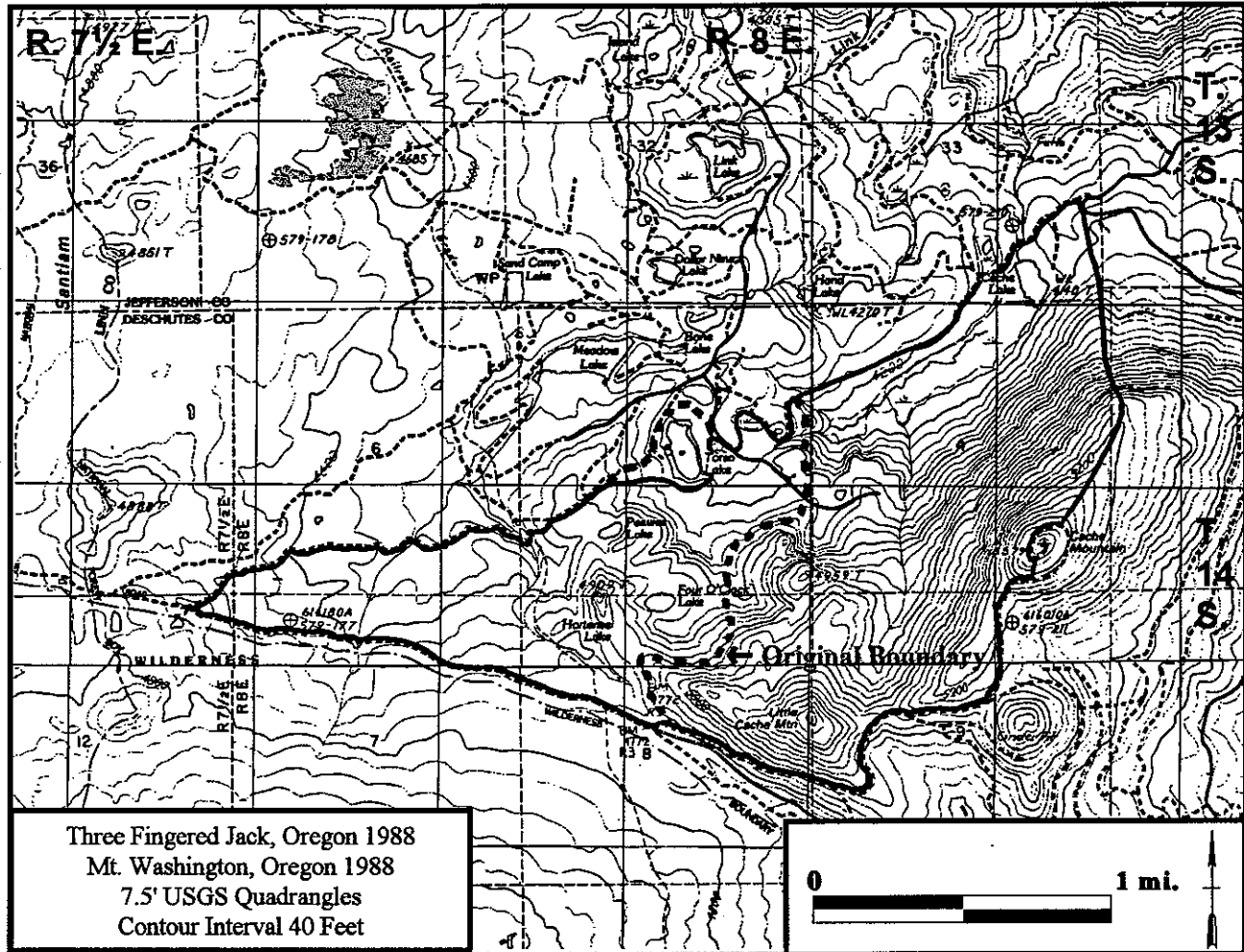
**Table 3: Land Management Plan References**

<b>RNA</b>	<b>Administrative Unit</b>	<b>Standards and Guidelines in Land and Resource Management Plan</b>	<b>Environmental Consequences in Final EIS</b>
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.

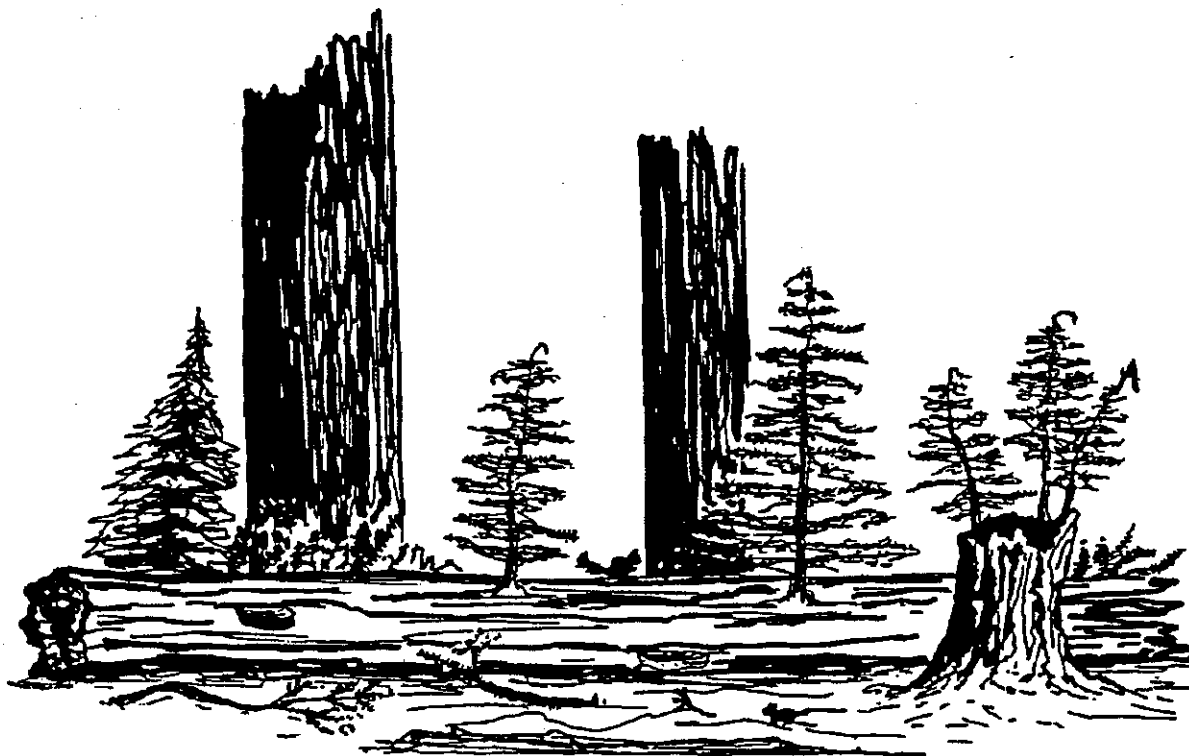
**Timber:** Of the 1400 total acres in the RNA, 1300 are within a Late-Successional Reserve and are unavailable for timber management purposes. The other 100 acres include Riparian Reserves and Forest



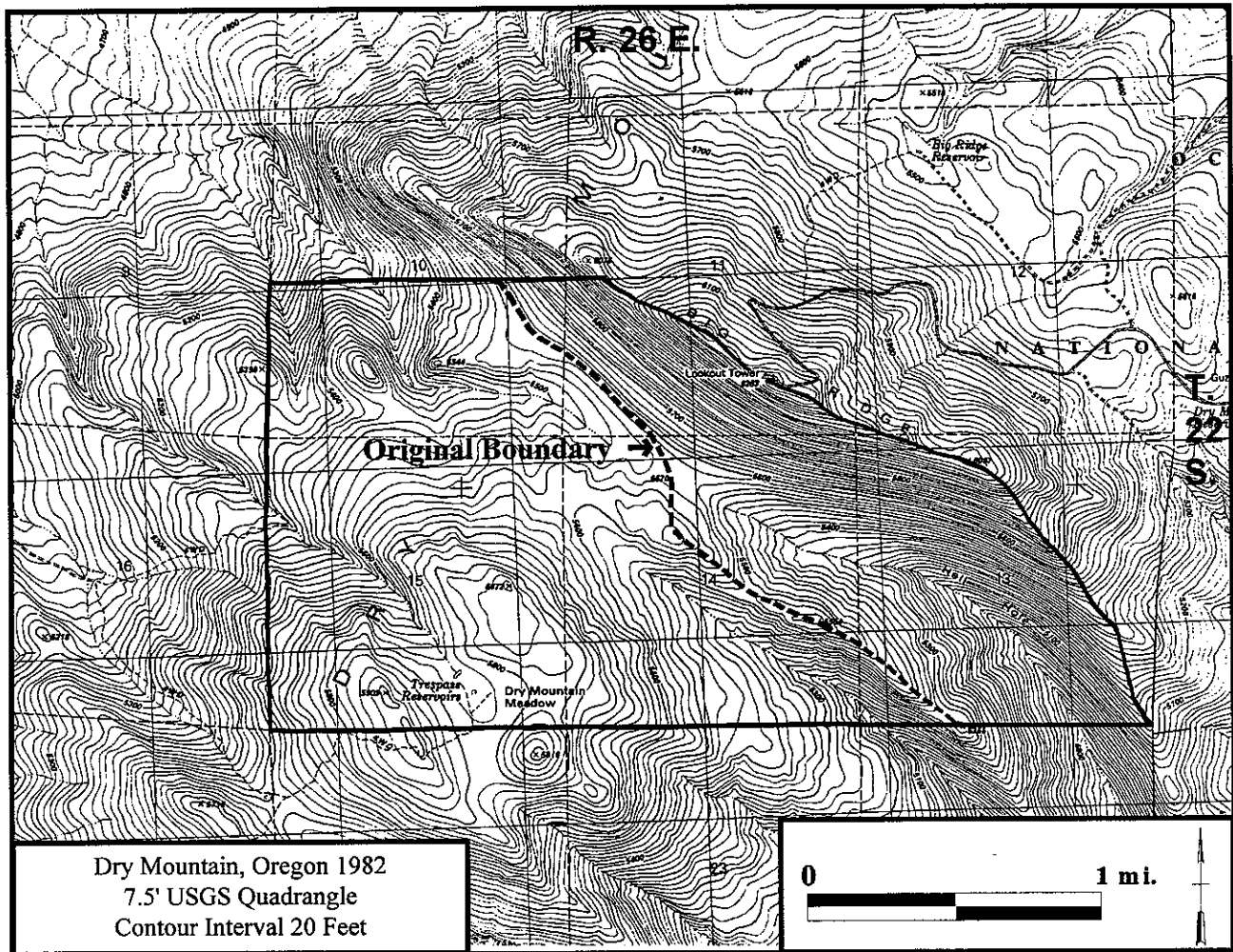
Matrix allocations. The Matrix lands are all within the proposed addition to the RNA and will no longer be available for timber harvest. The effect on the probable sale quantity will be negligible.

**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.

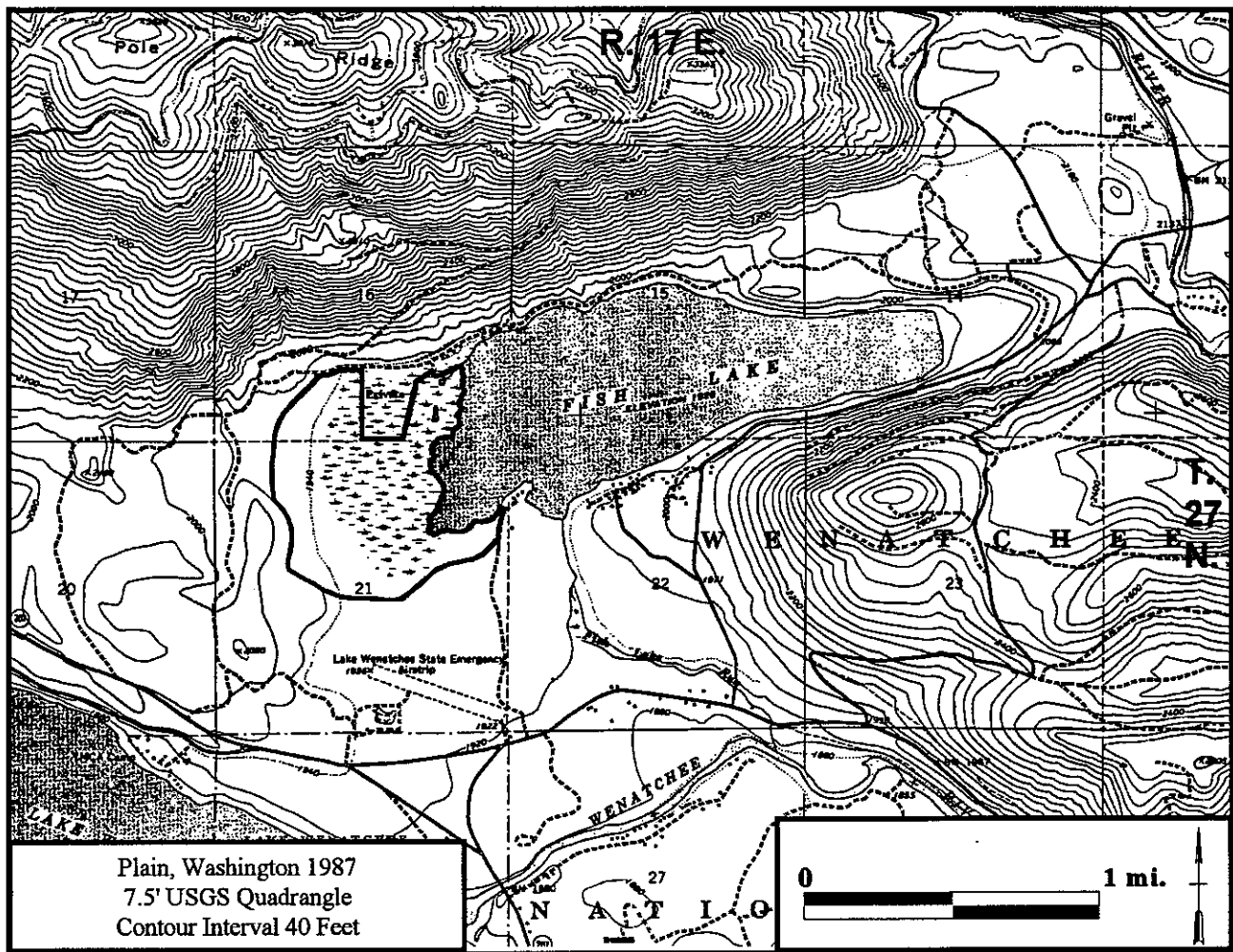
**Mineral Resources:** There are no reported hardrock mining claims in the RNA. The geology of the area does not lend itself to valuable mineral claims. Salable minerals, such as gravel, are potentially available on the RNA but recovery of these resources would be difficult due to the limited access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

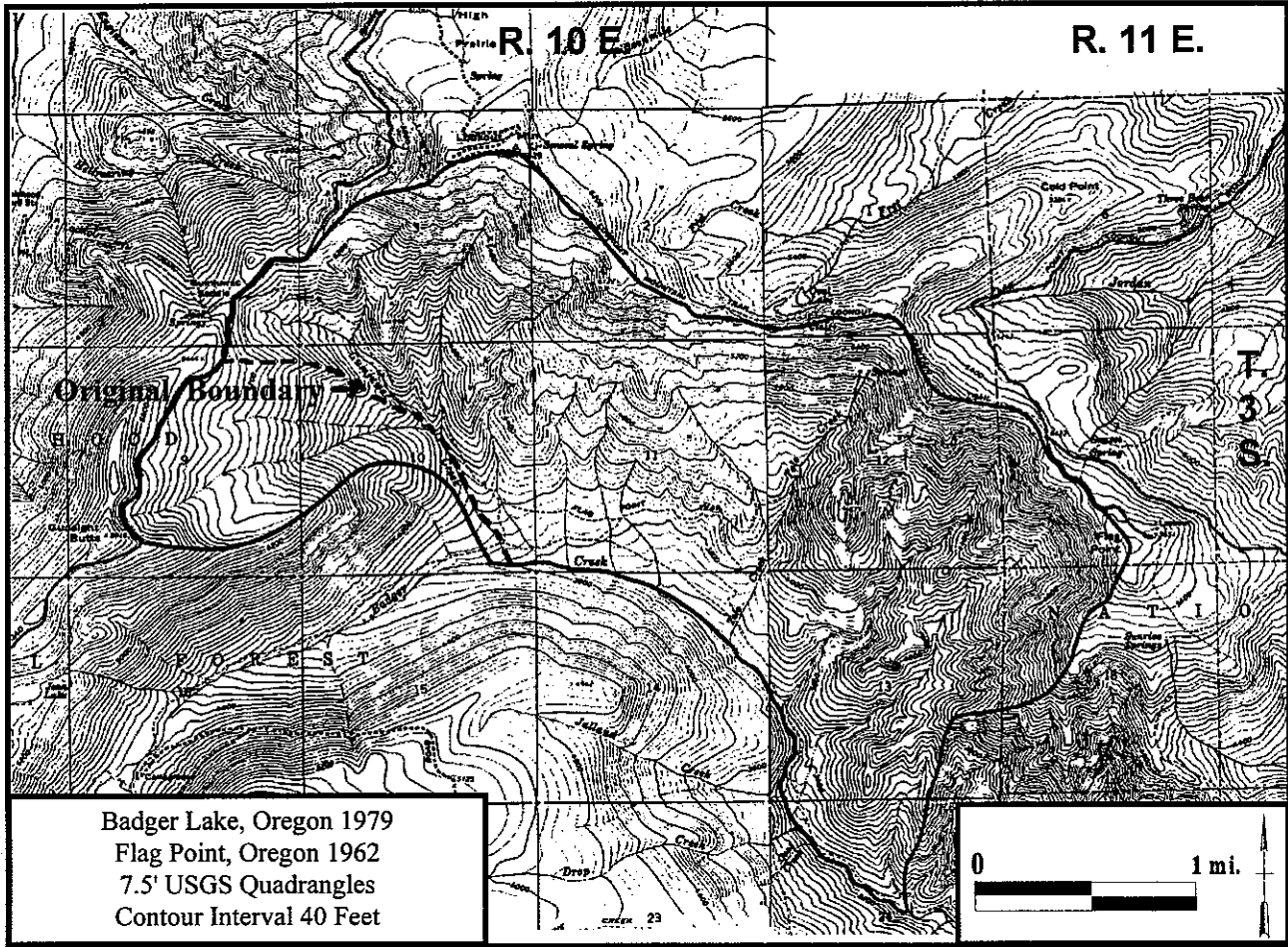
**Grazing:** There is no grazing allotment or potential for grazing associated with this RNA.

**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.

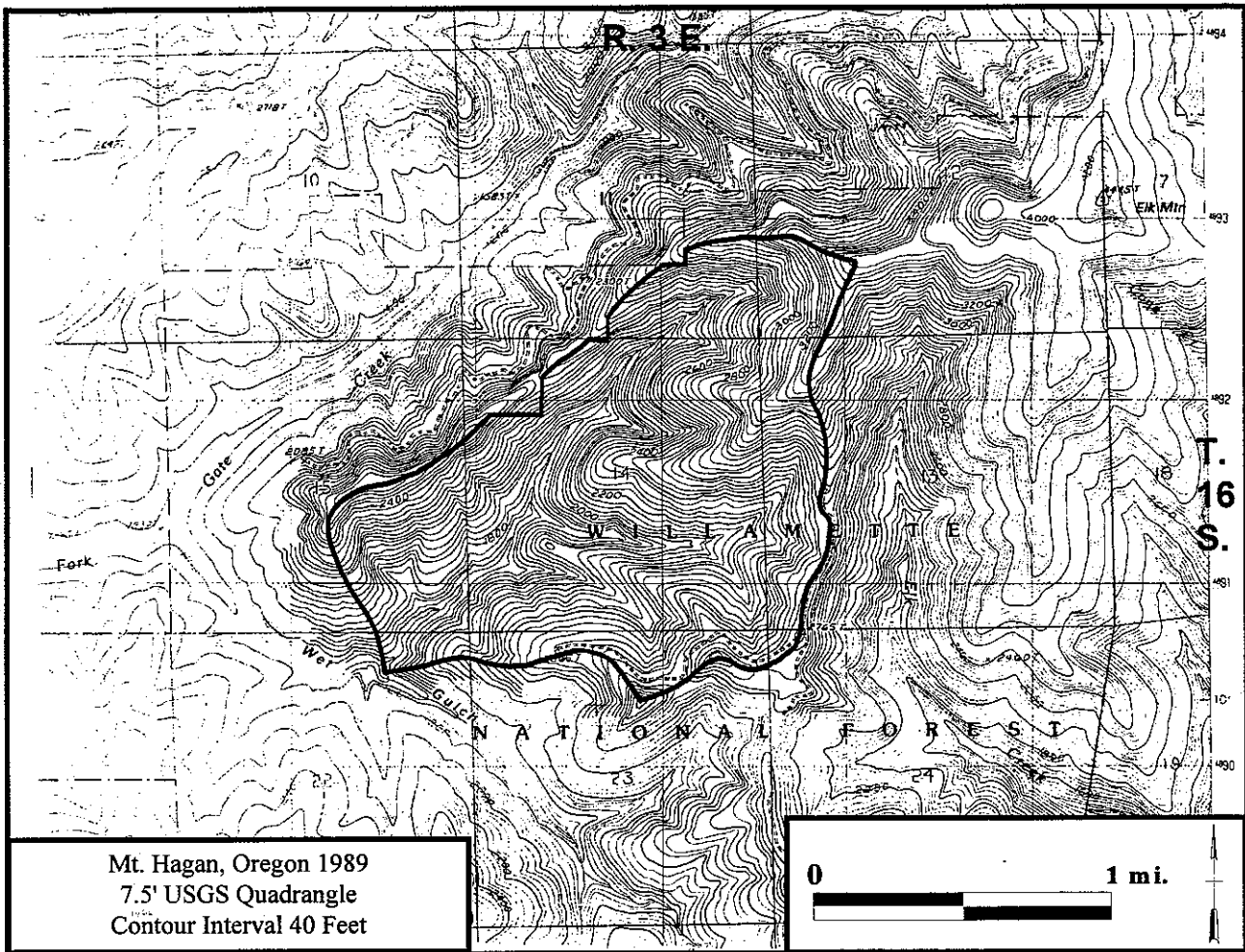
**Mineral Resources:** This area is considered to have low to very low potential for economic deposits of all minerals except construction rock. The RNA has already been withdrawn from future locatable mineral entry in conjunction with designation of the wilderness.

**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**



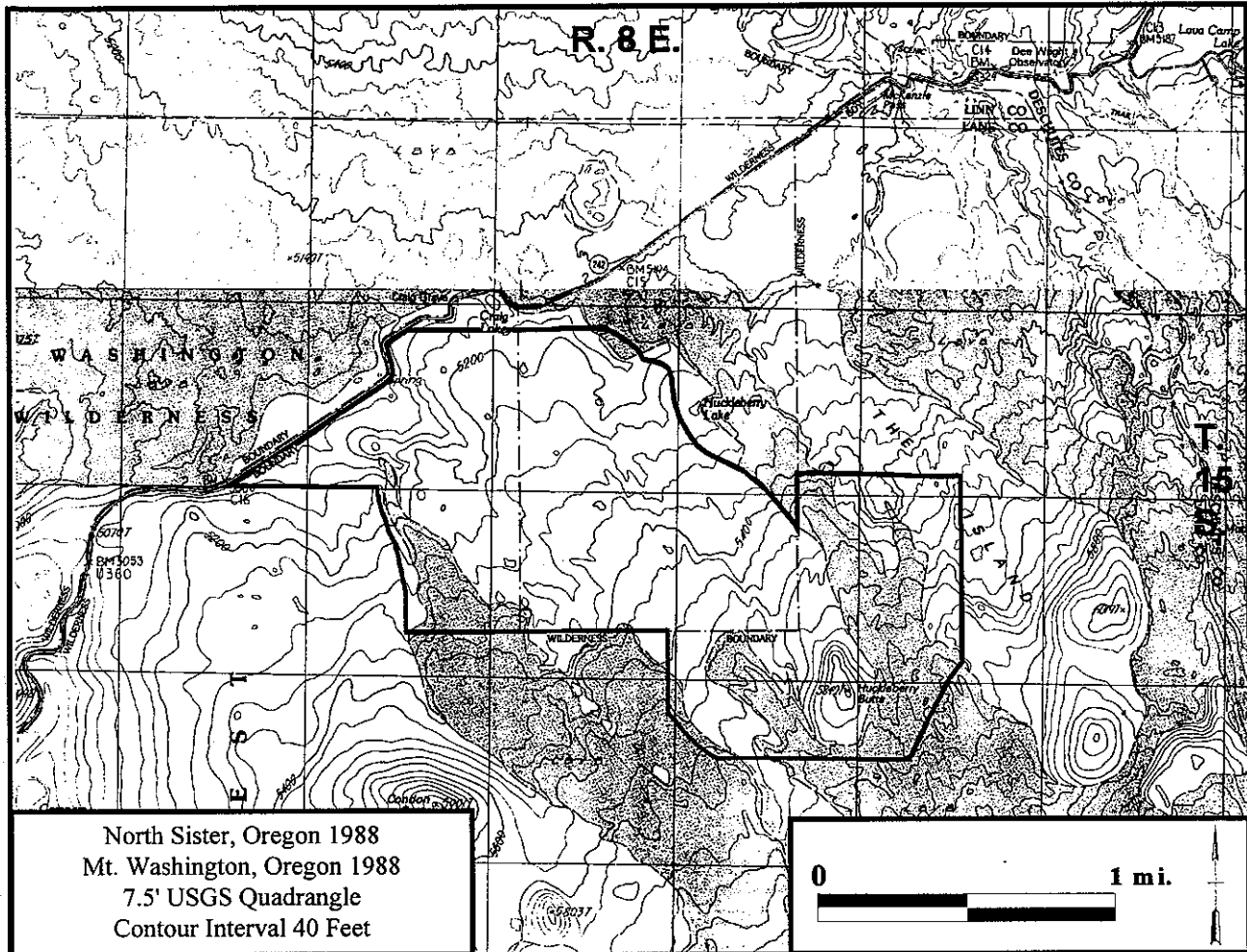
**Mineral Resources:** There are no known mineral resources in or adjacent to the RNA.

**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**



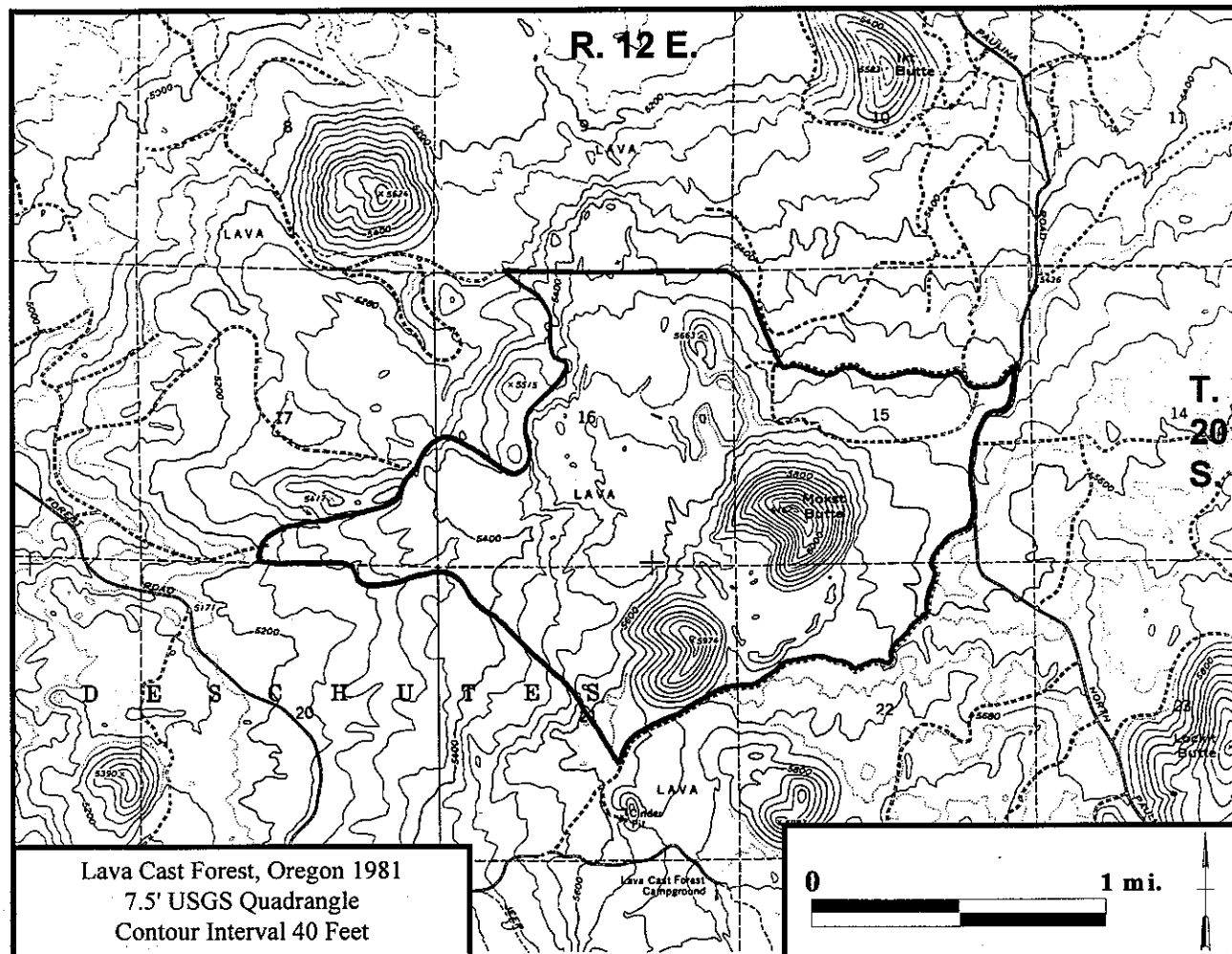
**Mineral Resources:** There are no known mineral resources in or adjacent to the RNA.

**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.

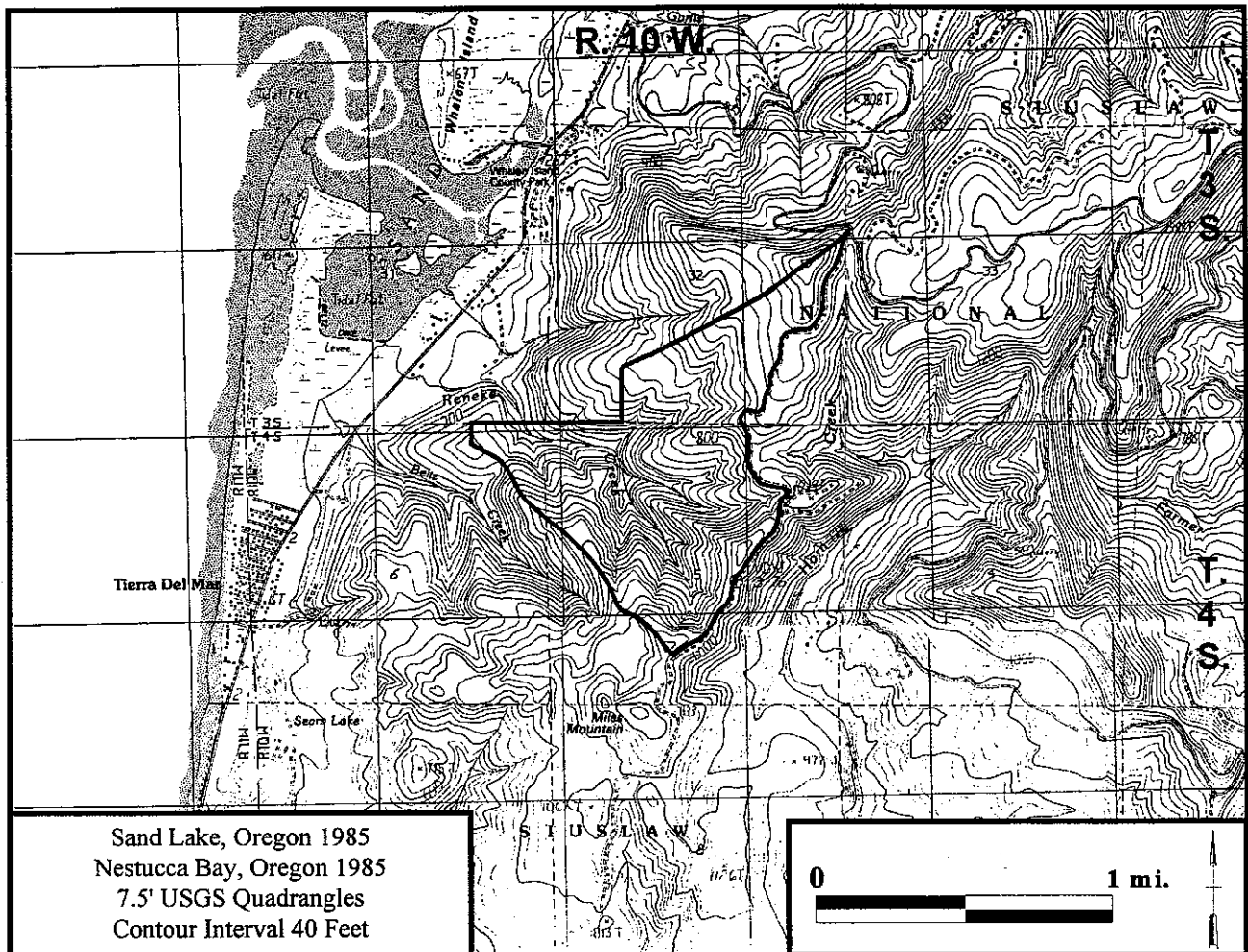
**Grazing:** There are two allotments adjacent to the RNA. Both are currently vacant and requirements for the Volcanic Monument already preclude grazing so establishment will have no effect on grazing.

**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.

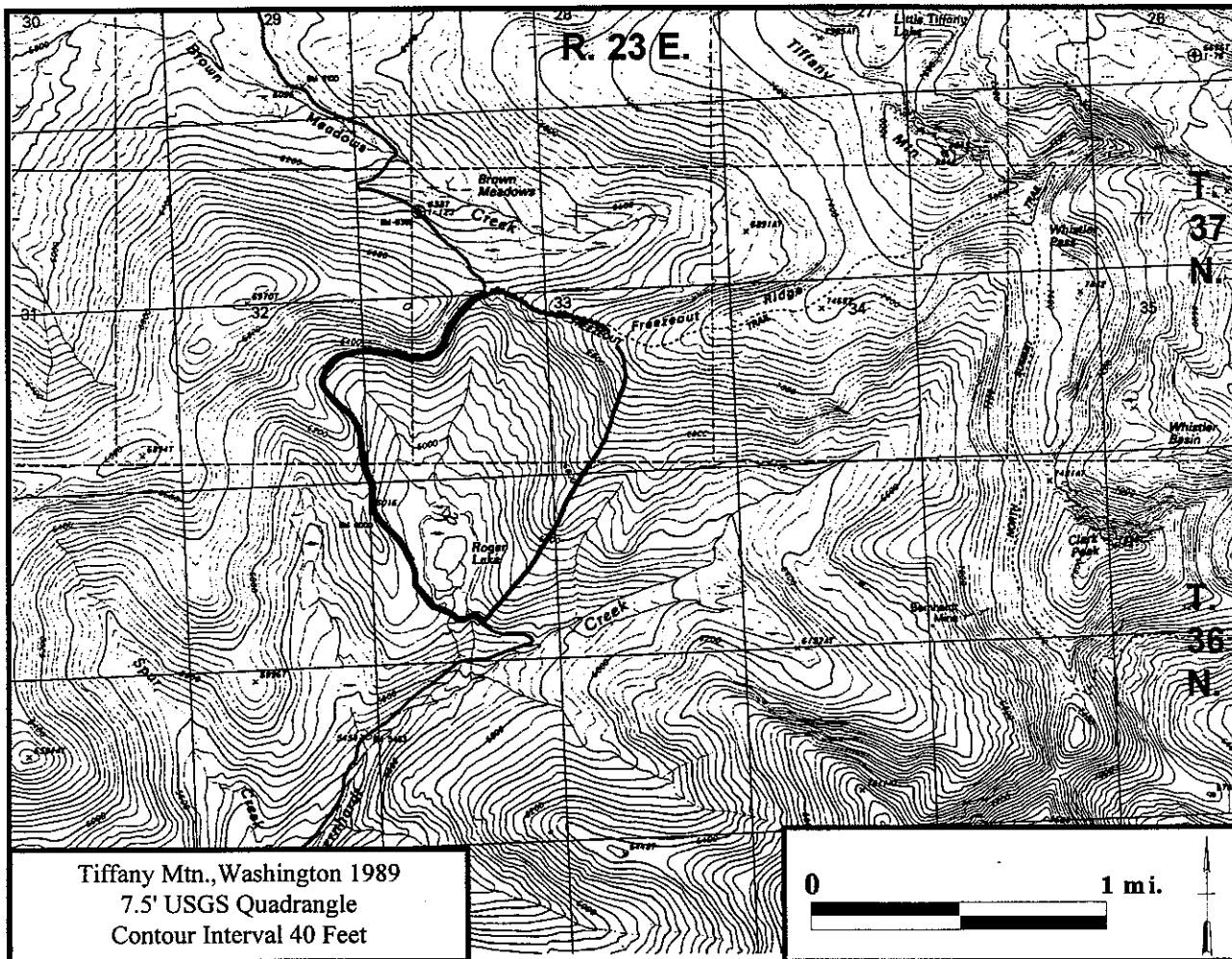
**Grazing:** There are no grazing allotments in or adjacent to the RNA.

**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**



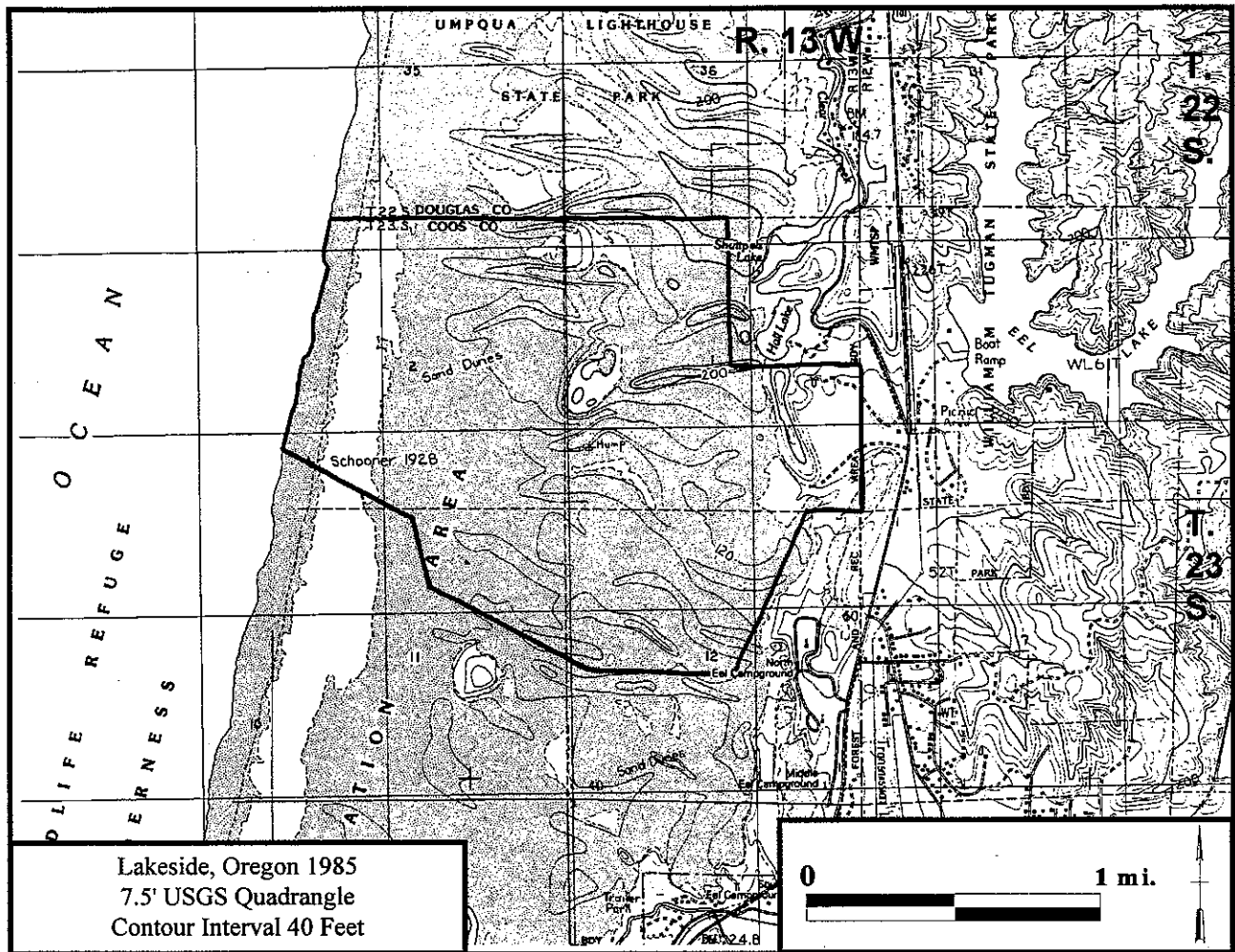
**Mineral Resources:** There are no known mineral resources in the RNA.

**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**



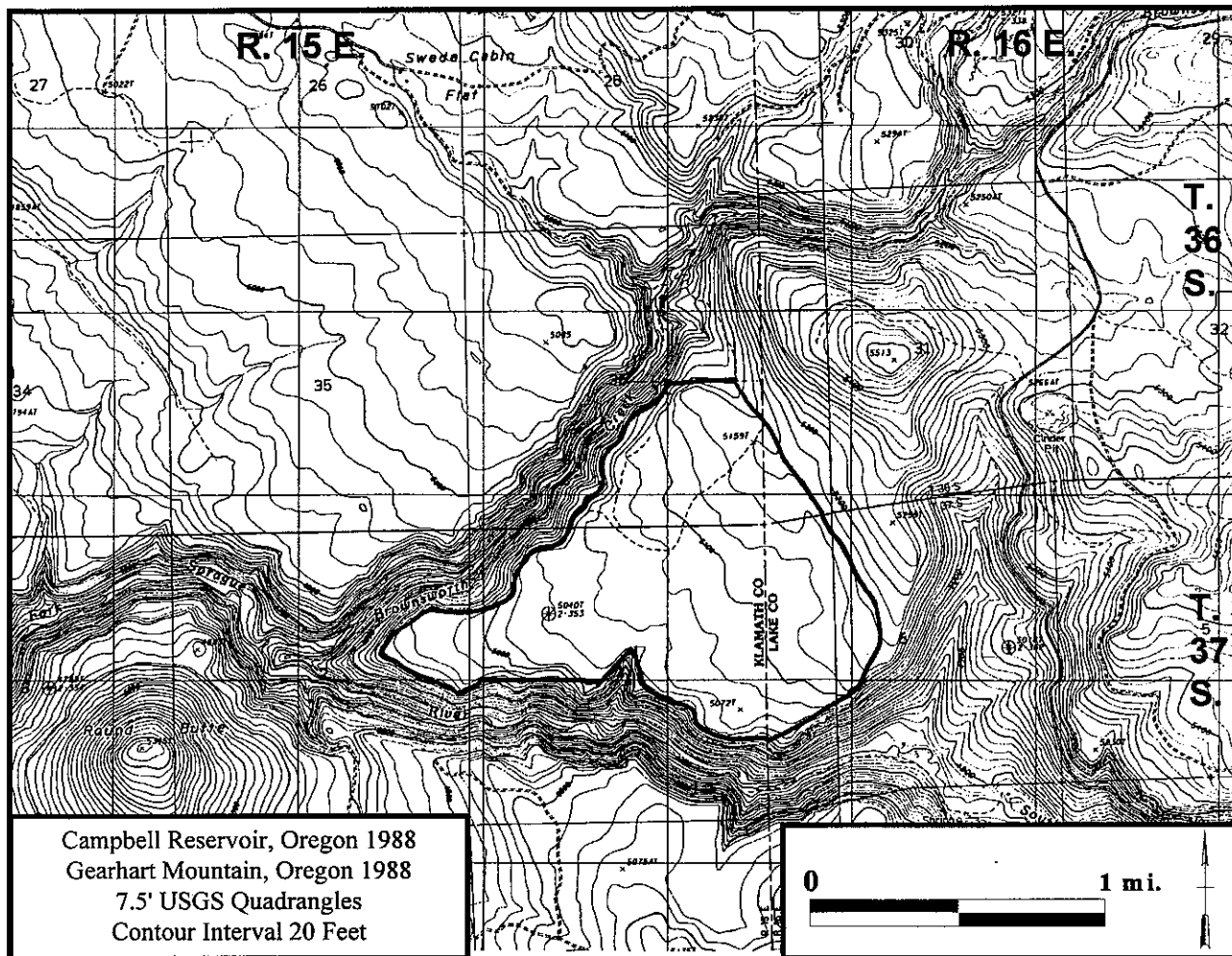
**Mineral Resources:** This area has been withdrawn from mineral entry as part of the Oregon Dunes National Recreation Area.

**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.

