UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

Establishment Record

For

ROGER LAKE RESEARCH NATURAL AREA

Okanogan National Forest

Okanogan County, Washington

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SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Roger Lake Research Natural Area

Okanogan National Forest

Okanogan County, Washington

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 _____
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Date 11/6/96

Recommended by _____
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Date 3/19/97

Recommended by _____
Sam Gehr, Forest Supervisor, Okanogan National Forest

Date 3/20/97

Concurrence of _____
for Dr. Thomas J. Mills, Station Director, Pacific NW Research Station

Date 5/1/97

ESTABLISHMENT RECORD FOR
ROGER LAKE RESEARCH NATURAL AREA
WITHIN OKANOGAN NATIONAL FOREST
OKANOGAN COUNTY , WASHINGTON

INTRODUCTION

The Roger Lake Research Natural Area (RNA) is comprised of diverse aquatic and terrestrial habitats. Roger Lake, several permanent and ephemeral streams, and impoundments created by active beaver dams are the most conspicuous aquatic habitats. The wetlands surrounding the lake are dominated by sedges and willows and sphagnum bogs. These wetlands are encircled by upland forests dominated by subalpine fir (*Abies lasiocarpa*), Engelmann spruce (*Picea engelmannii*), and lodgepole pine (*Pinus contorta*). Rock outcrops and dry to wet open meadows are common at the higher elevations. The RNA is on National Forest land and is entirely surrounded by National Forest. These lands have been managed for multiple use by the United States Forest Service since the 22nd of February 1897. Grazing, by sheep initially and more recently by cattle, has occurred in the area since the late 1890's. From 1937 to 1976 there was a maintained campground near Roger Lake. This site, located outside of the RNA, continues to be used for recreational purposes.

Land Management Planning

Roger Lake RNA was recommended as a candidate RNA by the Okanogan National Forest to meet the assigned RNA need for a subalpine fir forest and a sedge-dominated wetland. It was included as a candidate in the FEIS for the Okanogan National Forest Plan (USDA Forest Service 1989, section 3 - 12).

OBJECTIVE

The objective of the Roger Lake RNA is to preserve the assemblage of unique aquatic and terrestrial habitat types located in the RNA. The RNA will serve as a reference for study, a baseline area for determining long term ecological changes, and as a monitoring area to determine effects of forest management techniques and practices applied to similar ecosystems.

JUSTIFICATION

Roger Lake RNA was originally selected to meet assigned RNA needs for subalpine fir forest and sedge-dominated wetland habitat types. Upon examination the RNA was found to contain sensitive species of animals and plants. Some of the identified species are the lynx, *Lynx canadensis*; the spotted frog, *Rana pretiosa*; the sedges, *Carex atrata* and *Carex tenuiflora*; a berry, *Rubus acaulis*; and a willow, *Salix glauca*. Two of these sensitive plant populations are only known to exist, in the lower 48 states, in the RNA. The wetland habitats are similar in character to habitats in adjacent areas where other sensitive species have been located. With further investigation these plants may be found in the Roger Lake RNA.

Three-quarters of the RNA are within a local watershed. The other quarter of the watershed and the effluents from Roger Lake could be used to monitor the entire watershed. This is an excellent opportunity to study past and present land management practices at the watershed level.

PRINCIPAL DISTINGUISHING FEATURES

1. Subalpine fir / Engelmann spruce habitats. These habitats have been assigned RNA needs.

2. Roger Lake and associated wetlands. These habitats have been assigned RNA needs. Roger Lake was proposed to fill RNA needs for sedge-dominated wetlands.

3. Sensitive plant occurrences are unique to the Roger Lake RNA. Two of the sensitive plants occur only in the Roger Lake RNA and one of these rare plants is the dominant of the wetland habitat where it occurs. Six plants that are on the Washington State Department of Natural Resources Natural Heritage Program's monitor list also occur in the RNA (Washington Natural Heritage Program, 1994).

4. Endangered, threatened and sensitive animal occurrences.

5. The Roger Lake RNA comprises approximately 75 % of the entire watershed of the area which is essential for long term monitoring. The two watershed effluents exit Roger Lake in the RNA.

6. The Roger Lake RNA contains several diverse habitats. These include aquatic areas, riparian areas, bogs, upland forests, subalpine meadows, and exposed rock outcrops.

LOCATION

Roger Lake RNA is located in the Okanogan National Forest. The center of the RNA is latitude 48°39'04" north and longitude 119°58'08" west. The RNA includes parts of sections 32 and 33, T. 37N, R. 23E, and parts of sections 4 and 5, T. 36N, R. 23E (Figure 1).

Boundary

A precise boundary description may be found in Appendix I. The RNA is generally described as being located east of Forest Service Road 39 from the Roger Lake effluent to Freezeout Ridge and south of the Freezeout Ridge Trail with the east side following the first north-south ridge that lies east of Roger Lake.

Area and Elevation

The total area of the Roger Lake RNA is 431.6 acres (174.5 hectares). It ranges in elevation from 5,806 feet (1770 meters) at the southern boundary to 6,987 feet (2150 meters) at the northeast boundary.

Access

The Roger Lake RNA is approximately 15.5 miles (24.8 kilometers) northeast of Winthrop, Washington. The most direct route to the RNA from Winthrop is north along the east side of the Chewuch River for approximately 6.5 miles (10.4 kilometers) on County Road 9137. Turn right and do not cross the Chewuch River. Road 9137 changes to Forest Service Road 37 0.4 mile (0.6 km) north. The access continues along Road 37 for 12 miles (19.2 kilometers) to

the junction with Forest Service Road 39. Roger Lake RNA is 2 miles (3.2 kilometers) north on Road 39 from its intersection with Road 37. Forest Service Road 39 is adjacent to the west side of the Roger Lake RNA and is generally open from May to November. The opening and closing of this road is dependent on snow conditions. During the winter the Forest Service Roads 37 and 39 are open to snowmobiling. The Okanogan National Forest map (scale 1/2 inch: mile) shows the general access to the RNA.

Maps

The USGS 7.5 minute 1989 Tiffany Mtn. quadrangle map includes the Roger Lake area.

AREA BY COVER TYPES

The elevation gradient straddling the upper montane forests, the lower limits of subalpine meadows, and an intermittent fire history are responsible for the diverse aquatic and terrestrial plant associations of the Roger Lake RNA. Daubenmire plots were used to describe these vegetative associations (Figure 2).

The forests within the RNA boundaries consist of three major types: subalpine fir (*Abies lasiocarpa*), lodgepole pine (*Pinus contorta*) and Engelmann spruce (*Picea engelmannii*). At the highest elevations in the north, open meadows and open canopy forests occur. White bark pine (*Pinus albicaulis*) is conspicuous on the thin rocky soils along Freezeout Ridge. These upland forests lead down into a series of wetlands which are dominated by Engelmann spruce. Engelmann spruce and lodgepole pine occur in scattered clumps, and as single specimens, on the elevated drier sites within the semi-open to open bogs, the willow thickets, and the sedge-dominated wetlands. The subalpine fir forest and the sedge-dominated wetlands surrounding Roger Lake were referenced in the Forest Plan as RNA requirements. The potential natural vegetation falls into two types as described by Kuchler (1966) and the Society of American Foresters (Eyre, 1980)(Figure 3).

Table of Kuchler and Society of American Foresters (SAF) types and acreages.

Kuchler Forest Type	Kuchler code	SAF Forest Type	SAF code	Acreage (hectares)
WESTERN SPRUCE-FIR FOREST (PICEA-ABIES)	K15	Engelmann Spruce-Subalpine Fir	206	316.1 (127.9)
ALPINE MEADOWS AND BARRENS (AGROSTIS, CAREX, FESTUCA, POA)	K52	Whitebark Pine	208	87.2 (35.3)
----	----	----	----	32.7 (13.2) Unforested / wetlands
----	----	----	----	436.0 (176.4) Total

Plant associations are shown in Tables 1 - 15. The plot numbers shown in Figure 2 correspond with the table numbers used for association descriptions. The species composition of the drier upland forest in the RNA is listed in Tables 1- 4. Subalpine fir was found throughout the forested slopes of the RNA and its frequency appeared to be dependent on the area's fire history. Douglas fir occurs in the RNA infrequently and was not sampled in the vegetation plots. All forest trees with a diameter at breast height of less than two inches were tallied as shrubs. Lodgepole pine and Engelmann spruce were present in the larger size classes while subalpine fir dominated most of the smaller size classes. *Vaccinium scoparium* and *Ledum glandulosum* dominate most of the forested upland understory. *Thalictrum venulosum* and *Linnaea borealis* are common understory species in the northeastern RNA forest stands. Engelmann spruce dominates the forest surrounding the Roger Lake wetlands (Tables 5 & 6). *Carex scopulorum var. prionophylla* dominates the spruce forest understory. On the southwest facing slopes east of Roger Lake large lodgepole pines dominate while Engelmann spruce and subalpine fir are regenerating in the smaller size classes (Table 7). Around the parking area, which is outside the RNA, Englemann spruce and lodgepole pine codominate. *Vaccinium scoparium*, *Trifolium repens*, and grasses are the dominant understory species here (Table 8). The rocky outcrops in the northern part of the RNA have a sparse lodgepole pine overstory with a juniper and grass understory (Table 9).

The wetlands surrounding Roger Lake are varied and the plant associations are delineated in Figure 2. The species composition of the wetland associations is listed in Tables 10 - 15. The emergent aquatic vegetation adjacent to the parking area on the north side is a tree willow-sedge association (Table 10). Standing water (1 - 4 feet) is present throughout most of the growing season. The remaining wetland habitats vary in species composition as a result of fluctuating standing water depth. The wetland habitat to the north of the tree willow-sedge association has a greater overall water depth and contains pure stands of *Carex vesicaria* (Table 11). Continuing north the water shallows and *Salix drummondiana* increases in the wetland habitats (Table 12). *Salix drummondiana* and *Carex prionophylla* dominate the wetlands surrounding the southern margins of the lake (Table 13). *Salix drummondiana*, *Carex scopulorum*, and *Carex vesicaria* dominate the wetland sedge habitat on the west and northwest side of Roger Lake (Table 14). There is a small patch of drier habitat on the north end of the lake where *Salix drummondiana*, *Potentilla fruticosa* and *Carex scopulorum* dominate. *Rubus acaulis*, a sensitive species, has its southernmost distribution and only known population in the contiguous United States in this location (Table 15).

PHYSICAL AND CLIMATIC CONDITIONS

Physical conditions

The Roger Lake RNA encompasses 74 % of an entire watershed. The entire watershed was not included because of the road that runs adjacent to the RNA on its western boundary. This primary watershed reaches its highest elevation (6,987 ft., 2150 m) in the north along Freezeout Ridge and its lowest point (5,806 ft., 1770 m) at the Roger Lake effluents leading to Bernhardt Creek. The wetlands hydrology is significantly affected by beaver activity. Several of their dams exceed 1 m in height.

Climatic conditions

Summers are sunny, warm, and dry with some hot days. Frequent weather changes in winter are due to Pacific weather systems and occasional invasions of arctic air masses of Canadian origin. The daily temperature range is about 13 degrees in the winter and near 30 degrees in the summer. Annual precipitation ranges from about 10 inches (25 centimeters) in the drier areas to between 12 and 20 inches (30 and 50 centimeters) in the valleys and 25 inches (64 centimeters) or more along the Cascade slopes. Two-thirds of the annual precipitation falls between October and March (Donaldson, 1975).

Meteorological data are from 29 years of observations at Lemanasky Lake, Washington (elevation 3,500 feet, lat. 48°43' north, long. 119°38' west) and were recorded between 1926 and 1955. The average maximum/minimum temperatures were 50° F. / 30° F.(10° C. / -1° C.), with a mean temperature of 40° F.(4° C.). The highest recorded temperature was 89° F.(32° C.) while the lowest temperature recorded was -27° F.(-33° C.). Average annual precipitation was 19.87 inches (49.6 centimeters). Lemanasky Lake is approximately 16 miles (26 kilometers) ENE of Roger Lake.

A significant portion of the vegetation within the RNA is wetland related. Available meteorological data is likely an underestimate of the annual precipitation because summertime thundershowers, hail, and snow storms are common in the Roger Lake area. These precipitation events are not common at lower elevations where most meteorological stations occur.

DESCRIPTION OF VALUES

FLORA

A list of vascular and non-vascular plants found in the Roger Lake RNA follows. The reference for trees is Little (1979), other vascular plants is Hitchcock et al (1955-1964), and lichens is Egan (1987).

Vascular Plants

Trees

Abies lasiocarpa	Subalpine fir
Picea engelmannii	Engelmann spruce
Pinus albicaulis	White bark pine
Pinus contorta	Lodgepole pine
Pinus ponderosa	Ponderosa pine
Populus trichocarpa	Black cottonwood
Populus tremuloides	Quaking aspen
Pseudotsuga menziesii	Douglas fir

Shrubs

Artemesia tridentata	Big sagebrush
Betula glandulosa var. glandulosa	Bog birch
Juniperus communis var. montana	Rocky Mt. juniper
Pachistima myrsinites	Mountain box
Potentilla fruiticosa	Shrubby cinquefoil

Ribes cereum var. cereum	Squaw currant
Ribes lacustre	Swamp gooseberry
Ribes viscosissimum var. viscosissimum	Sticky currant
Salix boothii	Booth's willow
Salix drummondiana	Drummond willow
Salix farriae	Farr's willow
Salix glauca	
Salix phyllicifolia var. planifoila	Tea-leaved willow
Salix rigida var. mackenziana	
Salix rigida var. watsonii	
Salix scouleriana	Scouler's willow
Salix wolfii	Wolf's willow
Shepherdia canadensis	Buffalo-berry
Symphoricarpos albus	Snowberry
Vaccinium myrtillus	Dwarf huckleberry
Vaccinium scoparium	Grouseberry

Herbs

Achillea millefolium ssp. lanulosa var. alpicola	Yarrow
Achillea millefolium ssp. lanulosa var. lanulosa	Yarrow
Aconitum columbianum var. columbianum	Monkshood
Agoseris aurantiaca var. aurantiaca	Orange agoseris
Agoseris glauca var. dasycephala	Pale agoseris
Agoseris glauca var. glauca	Pale agoseris
Anchusa officinalis	Common bugloss
Antennaria alpina var. media	Alpine pussy-toes
Antennaria geyeri	Geyer pussy-toes
Antennaria lanata	Woolly pussy-toes
Antennaria microphylla	Rosy pussy-toes
Antennaria racemosa	Raceme pussy-toes
Antennaria umbrinella	Umber pussy-toes
Aquilegia flavescens	Yellow columbine
Aquilegia formosa	Red columbine
Arabis holboellii var. holboellii	Holboell's rockcress
Arabis lyallii	Lyall's rockcress
Arabis nuttallii	Nuttall's rockcress
Arctostaphyllos uva ursi	Kinnikinnick
Arenaria capillaris	Mountain sandwort
Arenaria macrophylla	Bigleaf sandwort
Arenaria obtusiloba	Arctic sandwort
Arnica cordifolia var. cordifolia	Heartleaf arnica
Arnica cordifolia var. pumila	Heartleaf arnica
Astragalus alpinus	Alpine milkvetch
Calamagrostis rubescens	Pinegrass
Calypso bulbosa	Fairy-slipper
Carex atrata	Blackened sedge
Carex aurea	Golden sedge

Carex concinnoides	Northwestern sedge
Carex hoodii	Hood sedge
Carex illota	Sheep sedge
Carex leptalea	Bristle-stalked sedge
Carex limosa	Mud sedge
Carex multicostata	Many-ribbed sedge
Carex paupercula	Poor sedge
Carex petastata	Liddon sedge
Carex raynoldsii	Raynolds' sedge
Carex rossii	Ross's sedge
Carex rostrata	Beaked sedge
Carex saxatilis	Russet sedge
Carex scopulorum var. prionophylla	Holm's Rocky Mt. sedge
Carex tenuiflora	
Carex vesicaria var. vesicaria	Sawbeak sedge
Castilleja elmeri	Elmer's paintbrush
Castilleja miniata var. miniata	Scarlet paintbrush
Castilleja rhexifolia	Rhexia-leaved paintbrush
Castilleja thompsonii	Thompson's paintbrush
Claytonia lanceolata var. lanceolata	Lanceleaf springbeauty
Collinsia parviflora	Small-flowered blue-eyed Mary
Delphinium nuttallianum var. nuttallianum	Upland larkspur
Dodecatheon dentatum	Dentate shooting star
Dodecatheon pulchellum var. pulchellum	Few-flowered shooting star
Draba crassifolia	Thick-leaved draba
Eleocharis pauciflora	Few-flowered spike-rush
Empetrum nigrum	Crowberry
Epilobium angustifolium	Fireweed
Epilobium palustre	Swamp willow-herb
Epilobium watsonii	Watson's willow-herb
Equisetum arvense	Common horsetail
Erigeron aureus	Alpine yellow daisy
Erigeron compositus var. glabratus	Cut-leaved daisy
Erigeron peregrinus ssp. callianthus var. eucallianthus	Subalpine daisy
Eriogonum umbellatum var. hausknechtii	Sulfur buckwheat
Eriogonum umbellatum var. subalpinum	Sulfur buckwheat
Festuca idahoensis	Idaho fescue
Festuca occidentalis	Western fescue
Fragaria virginiana var. platypetala	Broadpetal strawberry
Gayophytum diffusum	Spreading groundsmoke
Gentiana amarella	Northern gentian
Geum macrophyllum var. perincisum	Large-leaved avens
Geum triflorum var. ciliatum	Prairie smoke
Goodyera oblongifolia	Rattlesnake plantain
Habenaria dilatata var. dilatata	White bog-orchid
Heuchera cylindrica var. alpina	Roundleaf alumroot
Juncus drummondii var. drummondii	Drummond's rush
Juncus mertensianus	Merten's rush
Juncus parryii	Parry's rush

Ledum glandulosum var. glandulosum	Labrador-tea
Lewisia tweedyi	Tweedy's lewisia
Linnaea borealis	Twinflower
Lomatium triternatum ssp. triternatum var. triternatum	Nineleaf desert-parsley
Lonicera involucrata var. involucrata	Black twin-berry
Lupinus polyphyllus var. burkei	Bigleaf lupine
Lupinus polyphyllus var. polyphyllus	Bigleaf lupine
Lupinus sericeus var. fikeranus	Silky lupine
Lupinus wyethii	Wyeth's lupine
Luzula piperi	Piper's woodrush
Luzula spicata	Spiked woodrush
Lycopodium annotinum	Stiff clubmoss
Menyanthes trifoliata	Buckbean
Mimulus tilingii var. tilingii	Large mountain monkey-flower
Mitella pentandra	Alpine mitrewort
Mitella trifida	Three-tooth mitrewort
Nuphar polysepalum	Indian pond lily
Osmorhiza occidentalis	Western sweet-cicely
Osmorhiza purpurea	Purple sweet-cicely
Pedicularis bracteosa var. latifolia	Bracted lousewort
Penstemon confertus	Yellow penstemon
Penstemon davidsonii var. davidsonii	Davidson's penstemon
Penstemon procerus var. procerus	Small-flowered penstemon
Penstemon washingtonensis	Washington penstemon
Phacelia hastata var. leptosepala	Whiteleaf phacelia
Phleum alpinum	Timothy
Phyllodoce empetriformis	Red mountain-heather
Potentilla diversifolia var. diversifolia	Diverse-leaved cinquefoil
Potentilla drummondii	Drummond's cinquefoil
Potentilla fruiticosa	Shrubby cinquefoil
Potentilla palustris	Marsh cinquefoil
Pyrola minor	Snowline pyrola
Pyrola picta	White vein pyrola
Pyrola secunda var. obtusata	One-sided wintergreen
Pyrola uniflora	Woodnymph
Ranunculus alismaefolius var. hartwegii	Water-plantain buttercup
Ranunculus uncinatus var. uncinatus	Little buttercup
Rubus acaulis	Nagoonberry
Rubus ideaus var. gracilipes	Red raspberry
Rumex acetosella	Sheep sorrel
Saxifraga integrifolia var. apetala	Swamp saxifrage
Saxifraga arguta	Brook saxifrage
Sedum lanceolatum var. lanceolatum	Lanceleaved stonecrop
Senecio crassulus	Thick-leaved groundsel
Senecio integerrimus var. exaltatus	Western groundsel
Senecio pauciflorus	Rayless alpine butterweed
Senecio streptanthifolius	Rocky Mountain butterweed
Senecio triangularis var. angustifolius	Arrowleaf groundsel
Sibbaldia procumbens	Creeping sibbaldia

Sisymbrium altissimum	Tumblemustard
Stellaria calycantha var. sitchana	Northern starwort
Stellaria longipes var. altocaulis	Longstalk starwort
Stenanthium occidentale	Western stenanthium
Streptopus amplexifolius var. chalazatus	Clasping-leaved twisted-stalk
Taraxacum ceratophorum	Horned dandelion
Taraxacum officinale	Common dandelion
Thalictrum venulosum	Veiny meadowrue
Trisetum spicatum	Downy oat-grass
Trifolium repens	Dutch clover
Trollius laxus	Globeflower
Utricularia vulgaris	Common bladderwort
Valeriana dioica	Northern valerian
Valeriana sitchensis	Mountain heliotrope
Veratrum viride	Green false-hellebore
Veronica serpyllifolia var. humifusa	Thyme-leaved speedwell
Veronica wormskjoldii	Alpine speedwell
Viola orbiculata	Round-leaved violet
Viola palustris	Marsh violet
Woodsia oregana	Woodsia
Woodsia scopulina	Rocky Mountain woodsia
Zygadenus venosus var. gramineus	Death-camas

Non-Vascular Plants

Lichens were collected and identified by Bruce D. Ryan of Arizona State University on October 14, 1993.

Lichens

Alectoria sarmentosa	Hypogymnia austerodes
Aspicilia spp.	Hypogymnia imshaugii
Bellmerea alpina	Hypogymnia occidentalis
Bryoria fremontii	Hypogymnia physodes
Bryoria glabra	Lecanora cenisia
Bryoria trichodes	Lecanora circumborealis
Bryoria sp.	Lecanora polytropa
Calicium viride	Lecidea leucothallina
Caloplaca tiroliensis	Lecidella sp.
Cladonia cenotea	Lepraria incana
Cladonia chlorophaea	Lepraria neglecta
Cladonia ecmocyna	Letharia vulpina
Cladonia fimbriata	Melanelia granulosa
Cladonia pleurota	Ochrolechia androgyna
Cladonia sulphurina	Parmelia saxatilis
Cladonia sp. nov.?	Parmelia sulcata
Cladonia spp.	Parmeliopsis ambigua
Dermatocarpon moulinsii	Parmeliopsis hyperopta
Diplotomma penichrum	Peltigera canina

Peltigera kristinssonii
Peltigera leucophlebia
Peltigera malacea
Peltigera membranacea
Peltigera sp. nov.?
Peltigera sp.
Physcia phaea
Platismatia glauca
Protoparmelia badia
Pseudephebe pubescens
Psoroma hypnorum
Rhizocarpon geographicum
Rhizocarpon sp. nov.?
Rhizoplaca melanophthalma
Rhizoplaca sp. nov.
Rinodina bolanderi
Rinodina sp. nov.?
Rinodina sp. 3
Rinodina sp. 4
Solorina crocea
Stereocaulon tomentosum
Trapeliopsis granulosa
Umbilicaria cf. caroliniana
Umbilicaria deusta
Umbilicaria hyperborea
Umbilicaria polyrrhiza
Umbilicaria torrefacta
Umbilicaria sp. nov.?
Xylographa abietina
Xylographa vitilago

FAUNA

The Roger Lake RNA is home to many animals. The mammals listed have been observed in the vicinity of the RNA and their reference is Burt (1952). Dick Chavey supplied the list of birds he has seen in the area. The reference for avian species was Scott (1983).

Mammals

Plecotus townsendi	Western big-eared bat
Eptesicus fuscus	Big brown rat
Sorex vagrans	Vagrant shrew
Ochotona princeps	Pika
Lepus americanus	Snowshoe hare
Citellus columbianus	Columbia ground squirrel
Citellus lateralis	Golden-mantled ground squirrel
Eutamias townsendi	Townsend chipmunk
Peromyscus maniculatus	Deer mouse
Neotoma cinerea	Bushytail wood rat
Synaptomys borealis	Northern bog lemming
Clethrionomys gapperi	Boreal redbacked vole
Erethizon dorsatum	Porcupine
Ursus americanus	Black bear
Ursus horribilis	Grizzly bear
Canis lupus	Gray wolf
Canis latrans	Coyote
Martes americana	Marten
Mustela frenata	Longtail weasel
Mustela vison	Mink
Gulo luscus	Wolverine
Felix concolor	Mountain lion
Lynx canadensis	Lynx
Odocoileus hemionus	Mule deer
Alces alces	Moose

Birds

Anas platyrhynchos	Mallard
Charadrius vociferus	Killdeer
Tachycineta thalassina	Violet-green Swallow
Tachycineta bicolor	Tree Swallow
Accipiter gentilis	Northern Goshawk
Accipiter cooperii	Cooper's Hawk
Accipiter striatus	Sharp-shinned Hawk
Buteo jamaicensis	Red-tailed Hawk
Aquila chrysaetos	Golden Eagle
Aegolius funereus	Boreal Owl
Bubo virginianus	Great Horned Owl
Otus kennicottii	Western Screech-Owl
Aegolius acadicus	Northern Saw-whet Owl
Glaucidium gnoma	Northern Pygmy Owl
Dendragapus obscurus	Blue Grouse
Dendragapus canadensis	Spruce Grouse
Chordeiles minor	Common Nighthawk
Selasphorus rufus	Rufous Hummingbird
Stellula calliope	Calliope Hummingbird
Chaetura vauxi	Vaux's Swift
Colaptes auratus	Northern Flicker
Sphyrapicus thyroideus	Williamson's Sapsucker
Melanerpes lewis	Lewis' Woodpecker
Dryocopus pileatus	Pileated Woodpecker
Picoides villosus	Hairy Woodpecker
Picoides pubescens	Downy Woodpecker
Picoides tridactylus	Three-toed Woodpecker
Tyrannus tyrannus	Eastern Kingbird
Corvus brachyrhynchos	American Crow
Corvus corax	Common Raven
Nucifraga columbiana	Clark's Nutcracker
Perisoreus canadensis	Gray Jay
Pica pica	Black-billed Magpie
Cyanocitta stelleri	Stellar's Jay
Parus atricapillus	Black-capped Chickadee
Parus gambeli	Mountain Chickadee
Parus hudsonicus	Boreal Chickadee
Sitta canadensis	Red-breasted Nuthatch
Sitta pygmaea	Pygmy Nuthatch
Certhia americana	Brown Creeper
Ixoreus naevius	Varied Thrush
Myadestes townsendi	Townsend's Solitaire
Catharus fuscescens	Veery
Catharus guttatus	Hermit Thrush
Catharus ustulatus	Swainson's Thrush
Turdus migratorius	American Robin
Regulus calendula	Ruby-crowned Kinglet
Bombycilla garrulus	Bohemian Waxwing

Bombycilla cedrorum	Cedar Waxwing
Molothrus ater	Brown-headed Cowbird
Agelaius phoeniceus	Red-winged Blackbird
Piranga ludoviciana	Western Tanager
Carduelis pinus	Pine Siskin
Loxia curvirostra	Red Crossbill
Loxia leucoptera	White-winged Crossbill
Pinicola enucleator	Pine Grosbeak
Pipilo erythrophthalmus	Spotted Towhee
Coccothraustes vespertinus	Evening Grosbeak
Melospiza melodia	Song Sparrow
Melospiza lincolnii	Lincoln's Sparrow
Junco hyemalis	Oregon Junco
Zonotrichia leucophrys	White-crowned Sparrow

GEOLOGY

The Roger Lake RNA occupies a portion of the Okanogan batholithic complex and is composed of gneisses and associated intrusive rocks. The granitic rocks are coarsely crystalline and are hard and competent. Geologic structure is stable with no sheer zones that would lead to instability. The bedrock is weakly fractured. Richard Goldsmith discussed the geology of the area in his Ph. D. thesis: Petrology of the Tiffany-Conconully area, Okanogan County, Washington (Barksdale, 1975).

SOILS

Soils on the Okanogan National Forest are derived from granitic glacial till, volcanic ash or pumice over residual bedrock. Side slope soils are composed of volcanic ash of varying thickness. Coarser textured surface soils have little ash and are composed of glacial till. Residual soils are shallow, relatively undeveloped, and contain 50-80 percent gravel and cobbles. Subsurface soils are generally coarse textured sands and loamy sands with 30-80 percent rock.

Soils in valley bottoms are composed of glacial till, colluvial and material from upslope. These soils are high in organic matter and often have peat and muck in depressions where water is prevalent during most of the year. Water infiltration is low to moderate, being controlled by a shallow groundwater table.

LANDS

The lands within and surrounding the RNA are owned and administered by the Okanogan National Forest.

CULTURAL

There are no known or recorded archeological sites in the Roger Lake RNA.

IMPACTS AND POSSIBLE CONFLICTS

Mineral Resources

There are no known mineral resources within the RNA boundary. The area encompassed by the RNA will be withdrawn from mineral entry upon approval of the establishment record.

Grazing

The RNA is located within a grazing allotment that has not been grazed since 1987. If this allotment becomes active, the 431.6 acres (174.5 hectares) in the RNA will be excluded from grazing.

Timber

Approximately 380 acres (153.8 hectares) 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.

Watershed Values

The RNA encompasses approximately 75% of the local watershed. A road transects a western portion of the watershed. Otherwise the RNA is roadless and has not been logged. Fire has occurred periodically throughout the RNA. There are two effluents from Roger Lake within 100 feet (30 meters) of each other. The entire watershed could be monitored from the unnamed creek that courses from the RNA to Bernhardt Creek.

Recreation

The Tiffany Mountain area north of the RNA is a popular location for hiking, hunting, fishing, and other recreational activities. Establishment of the RNA should not significantly impact those activities. The RNA receives most of its recreational use in its southern portion and at the lake. Dispersed recreation such as hunting and hiking will continue unless it reduces the research or educational values of the RNA.

Wildlife and Plant Values

Roger Lake is on the southern edge of a peninsula of boreal habitat. The maintenance of this habitat is vital to boreal species; many of which have been observed at the RNA. Northern lynx, northern bog lemmings, boreal owls, boreal chickadees, and snowshoe hares are all found in the area. The high-elevation wetlands provide a unique environment for plants and animals. The only known population of the berry, *Rubus acaulis*, occurs in the RNA and has not been identified elsewhere in the contiguous United States. *Salix glauca* and *Carex tenuiflora* were also identified in the RNA. *Rana pretiosa*, the spotted frog, lives here. Other rare species should be expected upon further investigation.

Special Management Area Values

Not applicable

Transportation Plan

No roads or trails are planned for this area. Establishment of the RNA will have no impact on the forest transportation system.

MANAGEMENT PRESCRIPTION

Vegetation Management

No vegetation management is planned for the RNA. Vegetation management would only occur when a vegetative type would be lost without management. Only tried and reliable vegetative management techniques will be used. Management practices must provide a closer approximation of the naturally occurring vegetation and the natural processes governing the vegetation than would be possible without management.

It may be necessary to periodically graze portions of the RNA to maintain meadow habitat from lodgepole pine and Engelmann spruce seedling invasion. However, grazing would not be used as a management tool without concurrence of the Pacific Northwest Research Station Director. The vegetation plots will be monitored periodically to assess shifts in vegetation composition.

ADMINISTRATION RECORDS AND PROTECTION

Administration and protection of Roger Lake RNA will be the responsibility of the Okanogan National Forest. The District Ranger, Methow Valley Ranger District, has direct responsibility.

The Director of the Pacific Northwest Research Station will be responsible for any studies or research conducted in the area, and requests to conduct research in the RNA should be referred to that office. The RNA Scientist in the Research Station is designated as the lead contact person for all such requests. The Director will evaluate research proposals and coordinate all studies and research in the area with the District Ranger. All plant and animal specimens collected in the course of research conducted within 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 Roger Lake RNA will be maintained in the the following offices:

Regional Forester, Portland, Oregon
Forest Supervisor, Okanogan National Forest, Okanogan, Washington
District Ranger, Methow Valley Ranger District, Twisp, Washington
Director, Pacific Northwest Research Station, Portland, Oregon
Forest Sciences Laboratory, Oregon State University, Corvallis, Oregon

Archiving

The Portland office of the Pacific Northwest Research Station will be responsible for maintaining the Roger Lake RNA research data file and list of herbarium and species samples collected. The Forest Sciences Lab in Corvallis, Oregon is establishing a database 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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APPENDIX I

Boundary Description

Definition of Intent

The legal description of the Roger Lake Research Natural Area is as shown on the maps attached hereto. The approximate courses of the map boundaries are identified in the following legal description. Where the boundary is described as following a topographical feature, the actual location of the feature will control the approximate course identifying that part of said boundary. Unless specified in the description, calls to a stream shall be to the thread and calls to a ridge shall be to the crest.

Section, Township and Range lines and Section corners established by the United States Public Land Survey, shall determine the actual location of these portions of the boundary so described. Section subdivision lines and corners will be established under the rules of the United States Public Land Survey.

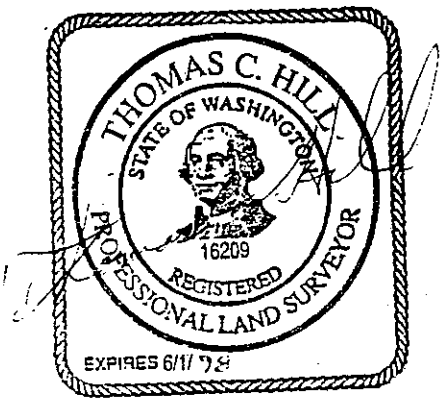
The data base for the Roger Lake Research Natural Area is a quadrangle map published by the United States Geological Survey as identified on the attached index map. The boundaries marked on the maps and the information collected was digitized utilizing Autocad R12 with 2-meter resolution ortho photo as back drop; also including ARC layer contours with 12.91 meter (40 Feet) contour intervals. The data is published as the attached metes and bounds description. Courses in the descriptions are shown as grid bearings and grid distances.

The attached boundary description and maps were prepared by me or under my direct supervision, and depict a true representation of the definition of intent as stated herein for the proposed Roger Lake Research Natural Area.

Thomas C. Hill

Date: 3-17-97

Thomas C. Hill
Professional Land Surveyor
WA. #16209



ROGER LAKE RESEARCH NATURAL AREA BOUNDARY DESCRIPTION

All bearings and distances shown in the following description are based on the Washington State Plane coordinate grid system, North Zone, and are included for descriptive purposes only. International, State, Indian Reservation, National Park, Mineral Claim, Sectional land boundaries, natural or semi-permanent features, and record bearing, distance and monuments as described in the Description portion of this document will prevail.

QUAD SHEET NAME	ANGLE POINT	BEARING	DISTANCE METERS (FEET)	DESCRIPTION
TIFFANY LAKE	1			A POINT IN FREEZEOUT PASS ON THE DIVIDE BETWEEN THE ROGER LAKE BASIN AND BROWN MEADOWS CREEK 30 METERS EASTERLY FROM AND PERPENDICULAR TO THE CENTERLINE OF FOREST SERVICE ROAD #39.
		S78-33-31E	172.50 (565.94)	
	2			
		S64-34-55E	122.14 (400.72)	
	3			
		S87-26-18E	104.71 (343.53)	
	4			ASCEND FREEZEOUT
		S70-44-08E	153.62 (504.00)	RIDGE EASTERLY FROM
	5			FREEZEOUT PASS.
		S61-22-56E	240.61 (789.39)	
	6			
		S64-48-45E	92.50 (303.47)	
	7			
		S61-27-36E	57.45 (188.48)	
				A POINT ON FREEZEOUT RIDGE BETWEEN BROWN
	8			MEADOWS CREEK, ROGER LAKE BASIN, AND BERNHARDT CREEK.
		S34-14-08W	69.98 (229.59)	
	9			
		S26-01-56W	182.95 (600.22)	DESCEND SPUR RIDGE
	10			SOUTHWESTERLY
		S22-51-48W	201.95 (662.56)	BETWEEN ROGER LAKE BASIN AND BERNHARDT CREEK.

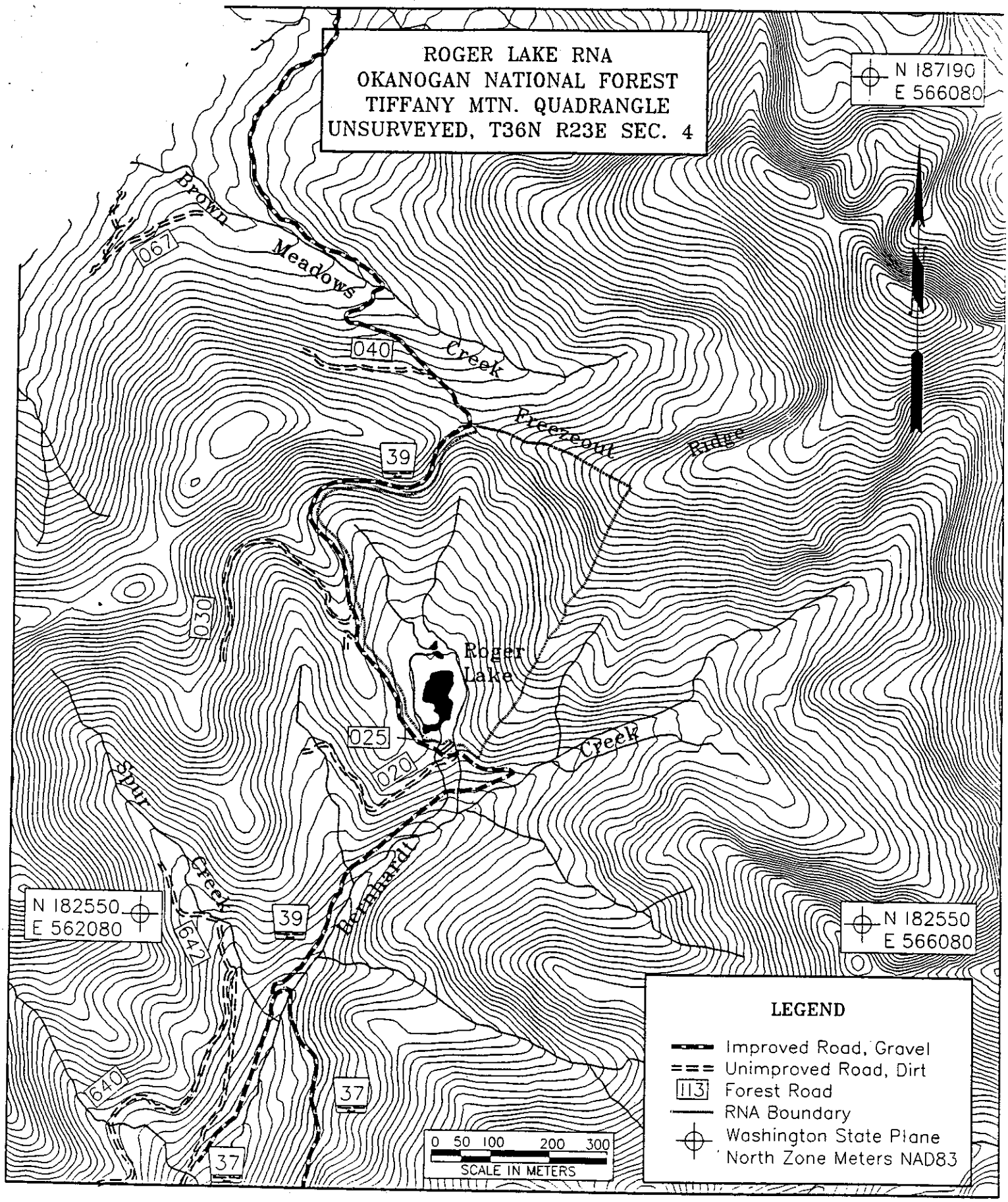
QUAD SHEET NAME	ANGLE POINT	BEARING	DISTANCE METERS (FEET)	DESCRIPTION
TIFFANY LAKE	11			
		S24-11-27W	87.28 (286.35)	
	12			
		S24-32-32W	50.31 (165.06)	
	13			
		S43-09-17W	153.30 (502.95)	
	14			
		S03-21-05W	56.43 (185.14)	
	15			
		S29-45-24W	87.82 (288.12)	
	16			
		S45-57-33W	70.34 (230.77)	
	17			
		S26-23-18W	142.18 (466.46)	DESCEND SPUR RIDGE SOUTHWESTERLY BETWEEN ROGER LAKE BASIN AND BERNHARDT CREEK.
	18			
		S32-58-28W	110.18 (361.48)	
	19			
		S15-50-47W	108.26 (355.18)	
	20			
		S34-42-35W	135.65 (445.04)	
	21			
		S48-40-15W	58.81 (192.94)	
	22			
		S34-12-01W	151.54 (497.17)	
	23			
		S15-27-50W	33.27 (109.15)	
	24			
		S22-35-43W	38.55 (126.47)	
	25			A POINT ON SPUR RIDGE BETWEEN ROGER LAKE BASIN AND BERNHARDT CREEK 30 METERS NORTHERLY FROM AND PERPENDICULAR TO THE CENTERLINE OF FOREST SERVICE ROAD #39.
		N50-46-54W	119.40 (391.73)	
	26			NORTHWESTERLY ALONG A LINE 30 METERS NORTHERLY FROM AND PARALLEL TO FOREST SERVICE ROAD #39.
		S79-16-39W	41.58 (136.42)	

QUAD SHEET NAME	ANGLE POINT	BEARING	DISTANCE METERS (FEET)	DESCRIPTION
TIFFANY LAKE				A POINT LOCATED AT THE INTERSECTION OF A LINE 30 METERS NORTHERLY FROM AND PARALLEL TO THE CENTERLINE OF FOREST SERVICE ROAD #39, AND A LINE PERPENDICULAR TO THE CENTERLINE AT THE NORTHEASTERN TERMINI OF FOREST SERVICE ROAD #3900025.
	27			
		N38-32-02W	24.91 (81.72)	ALONG A LINE PERPENDICULAR TO CENTERLINE AT THE NORTHEASTERLY TERMINI OF FOREST SERVICE ROAD #3900025.
	28			A POINT ON THE CENTERLINE AT THE NORTHEASTERN TERMINI OF FOREST SERVICE ROAD #3900025.
		N38-32-02W	20.00 (65.62)	ALONG A LINE PERPENDICULAR TO CENTERLINE AT THE NORTHEASTERLY TERMINI OF FOREST SERVICE ROAD #3900025.
	29			A POINT 20 METERS NORTHWESTERLY FROM AND PERPENDICULAR TO THE CENTERLINE AT THE NORTHEASTERN TERMINI OF FOREST SERVICE RD. #3900025

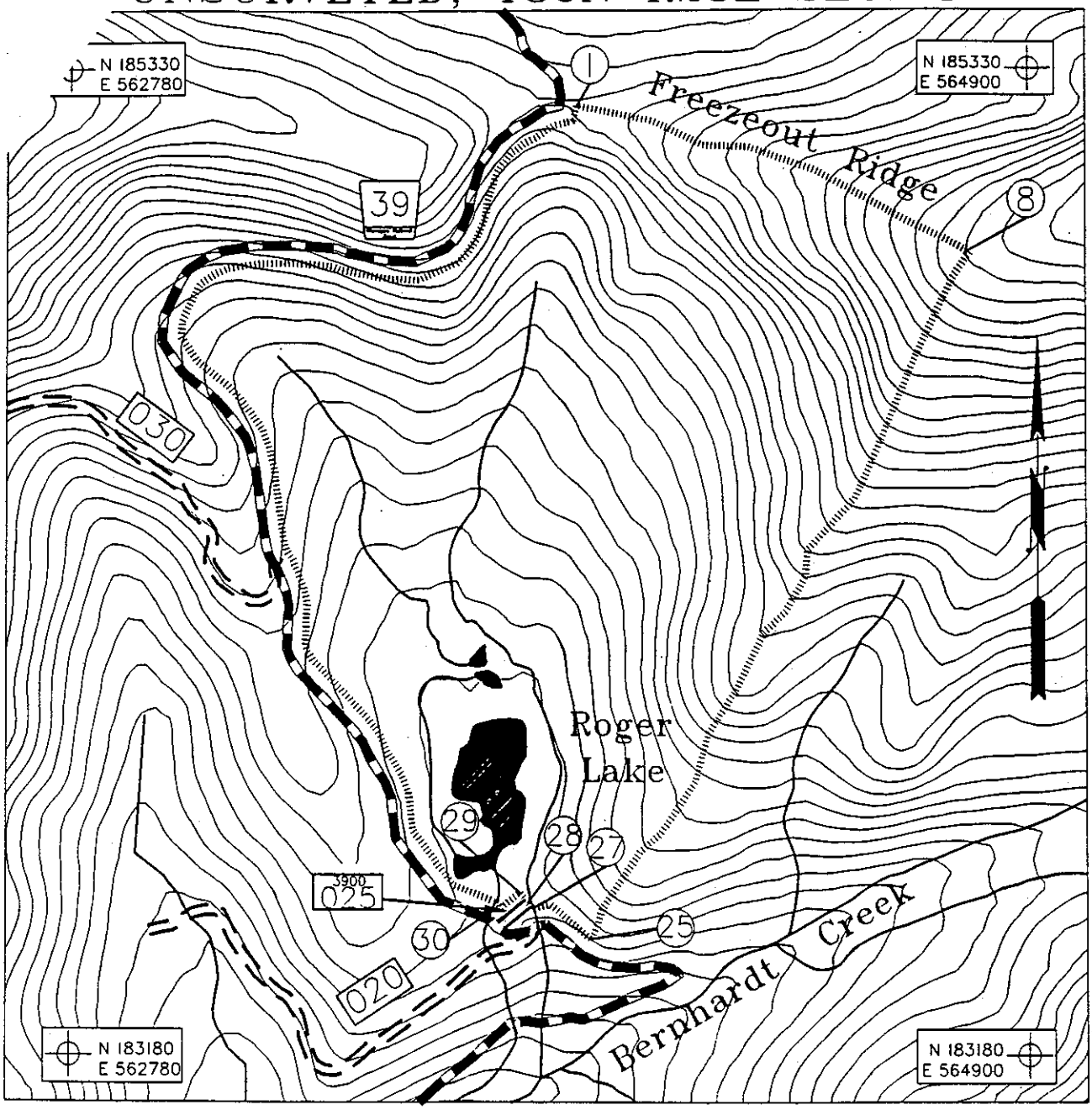
QUAD SHEET NAME	ANGLE POINT	BEARING	DISTANCE METERS (FEET)	DESCRIPTION
TIFFANY LAKE		S51-28-27W	48.66 (159.64)	PARALLELING FOREST SERVICE ROAD #3900025, 20 METERS NORTHWESTERLY OF CENTERLINE.
	30			A POINT LOCATED AT THE INTERSECTION OF A LINE 30 METERS NORTHERLY FROM AND PARALLEL TO THE CENTERLINE OF FOREST SERVICE ROAD #39, AND A LINE 20 METERS NORTHWESTERLY FROM AND PARALLEL TO FOREST SERVICE ROAD #3900025.
		N38-33-12W	6.07 (19.91)	
	31			
		N68-34-17W	114.91 (377.00)	
	32			
		N37-14-12W	147.69 (484.54)	
	33			
		N06-38-52W	84.90 (278.54)	
	34			PARALLELING FOREST SERVICE ROAD #39, 30 METERS EASTERLY OF CENTERLINE.
		N22-19-18W	42.01 (137.83)	
	35			
		N32-37-51W	55.88 (183.33)	
	36			
		N25-24-25W	44.46 (145.86)	
	37			
		N36-59-57W	41.18 (135.10)	
	38			
		N43-07-21W	68.29 (224.05)	
	39			
		N43-58-21W	108.91 (357.31)	
	40			
		N32-31-17W	24.94 (81.82)	
	41			
		N20-24-46W	10.32 (33.86)	
	42			
		N01-57-21E	63.06 (206.89)	
	43			
		N03-58-30E	28.26 (92.72)	

QUAD SHEET NAME	ANGLE POINT	BEARING	DISTANCE METERS (FEET)	DESCRIPTION
TIFFANY LAKE	44			
		N12-01-44W	37.45 (122.87)	
	45			
		N21-56-34W	62.24 (204.20)	
	46			
		N32-52-28W	28.27 (92.75)	
	47			
		N18-07-20W	15.70 (51.51)	
	48			
		N07-56-51W	164.48 (539.63)	
	49			
		N14-11-51W	47.86 (157.02)	
	50			
		N19-44-13W	39.43 (129.36)	
	51			
		N36-09-18W	80.89 (265.38)	
	52			
		N43-19-11W	38.47 (126.21)	
	53			
		N50-54-14W	89.20 (292.65)	
	54			
		N33-05-08W	61.16 (200.65)	
	55			
		N03-04-46E	31.52 (103.41)	
	56			PARALLELING FOREST SERVICE ROAD #39, 30 METERS EASTERLY OF CENTERLINE.
		N24-50-25E	79.61 (261.18)	
	57			
		N35-26-06E	15.53 (50.95)	
	58			
		N55-31-34E	36.42 (119.49)	
	59			
		N66-46-10E	29.98 (98.36)	
	60			
		N80-06-10E	65.90 (216.20)	
	61			
		N89-11-41E	77.56 (254.46)	
	62			
		S86-32-27E	51.39 (168.60)	
	63			
		S84-32-37E	35.68 (117.06)	
	64			
		S68-26-40E	22.31 (73.19)	
	65			
		S79-44-51E	95.10 (312.00)	
	66			
		S87-05-14E	76.66 (251.51)	
	67			
		N66-30-09E	92.62 (303.87)	

QUAD SHEET NAME	ANGLE POINT	BEARING	DISTANCE METERS (FEET)	DESCRIPTION
TIFFANY LAKE	68			
		N46-31-37E	35.57 (116.70)	
	69			
		N34-01-21E	30.64 (100.52)	
	70			
		N22-43-59E	59.34 (194.68)	
	71			
		N05-53-31E	27.03 (88.68)	
	72			
		N17-36-20E	69.76 (228.87)	
	73			PARALLELING FOREST SERVICE ROAD #39, 30 METERS EASTERLY OF CENTERLINE.
		N37-32-26E	51.11 (167.68)	
	74			
		N52-08-54E	40.34 (132.35)	
	75			
		N65-19-30E	25.52 (83.73)	
	76			
		N55-01-10E	46.67 (153.11)	
	77			
		N76-07-22E	48.40 (158.79)	
	78			
		N13-38-21E	33.84 (111.02)	
	1			POINT OF BEGINNING


ROGER LAKE RNA
OKANOGAN NATIONAL FOREST
TIFFANY MTN. QUADRANGLE
UNSURVEYED, T36N R23E SEC. 4
N 187190
E 566080
Brown
Meadows
067
040
Creek
Freezeout
Ridge
39
030
Roger
Lake
025
020
Creek
Spur
Creek
Bernhardt
N 182550
E 562080
642
39
N 182550
E 566080
640
37
37
0 50 100 200 300
SCALE IN METERS
LEGEND
Improved Road, Gravel
Unimproved Road, Dirt
113 Forest Road
RNA Boundary
Washington State Plane
North Zone Meters NAD83

ROGER LAKE RNA
OKANOGAN NATIONAL FOREST
TIFFANY MTN. QUADRANGLE
UNSURVEYED, T36N R23E SEC. 4



LEGEND

- Improved Road, Gravel
- Unimproved Road, Dirt
- 113 Forest Road
- (2) RNA Boundary Control Points
- RNA Boundary
- Washington State Plane North Zone Meters NAD83

APPENDIX II

Forest Plot Tables*

*Forest plot data were collected during the summer of 1993. The data reside with Dr. F. A. Basabe of Western Washington University in Bellingham, Washington.

Table 1. Subalpine fir - lodgepole pine upland forest habitat type of Roger Lake RNA.

	Frequency distribution of stem diameters > 2 inches										
Trees	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	>20	Stems/acre
Abies lasiocarpa	12	4	1	1	2	1					324
Pinus contorta		1		3	2		1			1	130
Picea engelmannii	1						2	1			65
										Total	**519**

Shrubs	Prominance value	Mean % cover	Mean % frequency
Abies lasiocarpa grnd.	220.2	27.3	65.0
Ledum glandulosum	192.7	47.5	30.0
Pinus contorta	33.5	15.0	5.0
Vaccinium scoparium	176.7	21.9	65.0
Vaccinium myrtillus	55.3	8.8	40.0
Herbs			
Linnaea borealis	74.6	8.1	85.0
Osmorhiza chilensis	58.1	15.0	15.0
Arnica cordifolia	39.1	8.8	20.0
Carex scopulorum	25.0	5.0	25.0
Detritus	697.5	69.8	100.0
Moss/Lichens	367.6	38.8	90.0
Fungi	11.2	2.5	20.0

Table 2. Subalpine fir - Engelmann spruce upland forest habitat type of Roger Lake RNA.

	Frequency distribution of stem diameters > 2 inches										
Trees	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	>20	Stems/acre
Abies lasiocarpa	8	4	2		5	4			1		389
Picea engelmannii			1		3	1	1				113
Pinus contorta						1					16
										Total	**518**

Shrubs	Prominance value	Mean % cover	Mean % frequency
Vaccinium scoparium	355.2	36.4	95.0
Ledum glandulosum	142.5	31.9	20.0
Abies lasiocarpa	92.6	11.1	70.0
Ribes lacustre	5.6	2.5	5.0
Lonicera involucrata	5.6	2.5	5.0
Herbs			
Arnica cordifolia	62.5	12.5	25.0
Valeriana sitchensis	39.1	8.8	20.0
Pyrola secunda	25.8	6.7	15.0
Thalictrum venulosum	25.8	6.7	15.0
Lupinus polyphyllus	7.9	2.5	10.0
Carex scopulorum	5.6	2.5	5.0
Mitella pentandra	5.6	2.5	5.0
Detritus	550.0	55.0	100.0
Moss/Lichens	351.3	35.1	100.0
Fungi	9.7	2.5	15.0
Others*			
Vaccinium myrtillus			
Linnaea borealis			
Lonicera involucrata			
Viola palustris			
Erigeron peregrinus			

* Species in macro-plot but not in sampling quadrats

Table 3. Lodgepole pine upland forest habitat type of Roger Lake RNA.

	Frequency distribution of stem diameters > 2 inches										
Trees	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	>20	Stems/acre
Pinus contorta		1	13	8	7			1			486
Picea engelmannii	2										32
Abies lasiocarpa	2										32
										Total	**550**

Shrubs	Prominance value	Mean % cover	Mean % frequency
Vaccinium scoparium	415.5	42.6	95.0
Vaccinium myrtillus	65.5	11.1	35.0
Lonicera involucrata	33.5	15.0	5.0
Herbs			
Lupinus wyethii	83.0	13.1	40.0
Linnaea borealis	53.1	11.9	20.0
Fragaria virginiana	50.3	11.3	20.0
Carex scopulorum	26.1	3.9	45.0
Arnica cordifolia	9.7	2.5	15.0
Lupinus polyphyllus	5.6	2.5	5.0
Epilobium angustifolium	5.6	2.5	5.0
Detritus	590.0	59.0	100.0
Moss/ Lichens	127.0	15.2	70.0
Rock	33.5	15.0	5.0
Fungi	14.8	2.5	35.0
Others *			
Osmorhiza purpurea			
Goodyera oblongifolia			

* Species in macro-plot but not in sampling quadrats

Table 4. Subalpine fir - spruce upland forest habitat type of Roger Lake RNA.

	Frequency distribution of stem diameters > 2 inches										
Trees	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	>20	Stems/acre
Abies lasiocarpa	7	3	1	1		1					210
Picea engelmannii							1		1		65
										Total	**275**

Shrubs	Prominance value	Mean % cover	Mean % frequency
Lonicera involucrata	60.0	12.0	25.0
Vaccinium scoparium	5.6	2.5	5.0
Herbs			
Thalictrum venulosum	150.0	20.2	55.0
Linnaea borealis	121.0	22.1	30.0
Valeriana sitchensis	64.3	14.4	20.0
Senecio triangularis	33.5	15.0	5.0
Mitella sp.	33.5	15.0	5.0
Aquilegia formosa	27.7	8.8	10.0
Dodecatheon dentatum	27.7	8.8	10.0
Trollius laxus	27.7	8.8	10.0
Arnica cordifolia	25.4	4.3	35.0
Carex scopulorum	11.2	2.5	20.0
Erigeron peregrinus	9.7	2.5	15.0
Fragaria virginiana	7.9	2.5	10.0
Viola sp.	7.9	2.5	10.0
Pyrola secunda	5.6	2.5	5.0
Epilobium angustifolium	5.6	2.5	5.0
Detritus	643.8	64.4	100.0
Moss/ Lichens	172.7	22.3	60.0
Rock	83.9	37.5	5.0
Fungi	7.9	2.5	10.0

Others *

Osmorhiza purpurea
Chimaphila umbellata
Pedicularis bracteosa
Lupinus polyphyllus
Agoseris aurantiaca
Juniperus communis
Senecio crassulus

* Species in macro-plot but not in sampling quadrats

Table 5. Engelmann spruce transition upland/riparian forest habitat type of Roger Lake RNA.

	Frequency distribution of stem diameters > 2 inches										
Trees	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	>20	Stems/acre
Picea engelmannii	3	2				1	1	1		4	194
Abies amabilis					1						16
										Total	**210**

Shrubs	Prominance value	Mean % cover	Mean % frequency
Lonicera involucrata	139.8	62.5	5.0
Ledum glandulosum	83.9	37.5	5.0
Vaccinium scoparium	33.5	15.0	5.0
Ribes lacustre	33.5	15.0	5.0
Herbs			
Carex scopulorum	242.0	28.9	70.0
Pyrola asarifolia	123.2	22.5	30.0
Angelica arguta	118.6	37.5	10.0
Valeriana sitchensis	100.4	18.3	30.0
Pyrola uniflora	83.9	37.5	5.0
Trollius laxus	83.9	37.5	5.0
Thalictrum venulosum	69.1	9.3	55.0
Fragaria virginiana	63.4	9.4	45.0
Mitella pentandra	59.7	7.7	60.0
Erigeron peregrinus	47.9	8.8	30.0
Senecio triangularis	39.1	8.8	20.0
Dodecatheon dentatum	37.5	7.5	25.0
Pyrola secunda	37.5	7.5	25.0
Saxifraga arguta	27.7	8.8	10.0
Lupinus polyphyllus	27.7	8.8	10.0
Arnica cordifolia	9.7	2.5	15.0
Linnaea borealis	9.7	2.5	15.0
Unknown grass	9.7	2.5	15.0
Epilobium glaberrimum	9.7	2.5	15.0
Ranunculus uncinatus	7.9	2.5	10.0
Epilobium angustifolium	7.9	2.5	10.0
Osmorhiza chilensis	5.6	2.5	5.0
Streptopus amplexifolius	5.6	2.5	5.0
Viola palustris	5.6	2.5	5.0
Detritus	677.5	67.8	100.0
Moss/Lichens	115.0	13.8	70.0
Fungi	12.5	2.5	25.0
Bare ground	5.6	2.5	5.0

Others*

Angelica arguta
Grass #1
Osmorhiza chilensis
Stenanthium occidentale

* Species in macro-plot but not in sampling quadrats

Table 6. Engelmann spruce upland wet forest habitat type of Roger Lake RNA.

	Frequency distribution of stem diameters > 2 inches										
Trees	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	>20	Stems/acre
Picea engelmannii	4	2		1	3		1				259
										Total	**259**

Herbs	Prominance value	Mean % cover	Mean % frequency
Carex scopulorum	270.1	28.5	90.0
Thalictrum venulosum	98.8	14.7	45.0
Erigeron peregrinus	57.1	10.4	30.0
Equisetum arvense	54.9	14.2	15.0
Fragaria virginiana	53.0	7.5	50.0
Valeriana sitchensis	27.7	8.8	10.0
Mitella pentandra	27.7	8.8	10.0
Arnica cordifolia	7.9	2.5	10.0
Epilobium angustifolium	7.9	2.5	10.0
Trollius laxus	5.6	2.5	5.0
Taraxacum oficianale	5.6	2.5	5.0
Senecio triangularis	5.6	2.5	5.0
Pyrola asarifolia	5.6	2.5	5.0
Viola palustris	5.6	2.5	5.0
Detritus	687.5	68.8	100.0
Moss/Lichens	217.9	28.1	60.0
Fungi	11.2	2.5	20.0

Others*

Dodecatheon dentatum
Vaccinium myrtillus
Vaccinium scoparium
Lupinus polyphyllus
Saxifraga arguta
Potentilla diversifolia
Linnaea borealis
Stenanthium occidentale
Pyrola secunda
Lonicera involucrata
Salix drummondiana
Gentiana amarella
Salix phylicifolia

* Species in macro-plot but not in sampling quadrats

Table 7. Lodgepole pine - Engelmann spruce upland forest habitat type of Roger Lake RNA.

	Frequency distribution of stem diameters > 2 inches										
Trees	2-4	4-6	6-8	8-10	10-12	12-14	14-16	16-18	18-20	>20	Stems/acre
Pinus contorta			5	12	2						306
Picea engelmannii	2	2	1		2				1		130
Abies lasiocarpa	1	1									32
										Total	**468**

Shrubs	Prominance value	Mean % cover	Mean % frequency
Shepherdia canadensis	177.5	45.8	15.0
Vaccinium scoparium	89.4	13.3	45.0
Abies lasiocarpa	83.9	37.5	5.0
Vaccinium myrtillus	25.8	6.7	15.0
Chimaphila umbellata	5.6	2.5	5.0
Juniperus communis	5.6	2.5	5.0
Herbs			
Linnaea borealis	105.4	12.2	75.0
Erigeron peregrinus	83.9	37.5	5.0
Fragaria virginiana	53.4	8.4	40.0
Arnica cordifolia	39.1	8.8	20.0
Mitella pentandra	33.5	15.0	5.0
Carex scopulorum	26.1	3.9	45.0
Pyrola secunda	11.2	2.5	20.0
Osmorhiza chilensis	7.9	2.5	10.0
Antennaria racemosa	5.6	2.5	5.0
Viola palustris	5.6	2.5	5.0
Detritus	653.8	65.4	100.0
Moss/ Lichens	256.2	27.8	85.0
Rock	139.8	62.5	5.0
Fungi	11.2	2.5	20.0
Others *			
Aquilegia formosa			
Lupinus wyethii			

* Species in macro-plot but not in sampling quadrats

Table 8. Vegetation of the existing Roger Lake access parking lot. This plot is located outside of the RNA.

Shrubs	Prominance value	Mean % cover	Mean % frequency
Picea engelmannii	427.5	85.5	25.0
Pinus contorta	337.8	61.7	30.0
Vaccinium scoparium	91.3	16.7	30.0
Vaccinium myrtillus	5.6	2.5	5.0
Herbs			
Trifolium repens	83.9	37.5	5.0
Dactylis glomerata	83.9	37.5	5.0
Carex scopulorum	63.2	20.0	10.0
Lupinus wyethii	33.5	15.0	5.0
Taraxacum oficianale	33.5	15.0	5.0
Fragaria virginiana	27.7	8.8	10.0
Antennaria microphylla	7.9	2.5	10.0
Epilobium angustifolium	5.6	2.5	5.0
Bare ground	536.4	64.1	70.0
Detritus	348.8	34.9	100.0
Moss	83.9	37.5	5.0
Rock	25.8	6.7	15.0
Others *			
Achillea millefolium			
Erigeron peregrinus			
Antennaria sp.			
Plantago major			
Lupinus polyphyllus			
Agoseris aurantiaca			
Agoseris glauca var. glauca			
Gayophytum diffusum			
Senecio crassulus			
Matricaria matricoides			
Agoseris glauca dasycephala			
Spergularia sp.			
Sedum lanceolatum			
Pseudotsuga menziesii			
Abies lasiocarpa			
Juniperus communis			
Lonicera involucrata			
Shepherdia canadensis			

* Species in macro-plot but not in sampling quadrats

Table 9. Rock outcrop habitat type at Roger Lake RNA.

Shrubs	Prominance value	Mean % cover	Mean % frequency
Pinus contorta	329.8	73.8	20.0
Juniperus communis	190.0	38.0	25.0
Picea engelmannii	83.9	37.5	5.0
Herbs			
Festuca idahoensis	83.9	37.5	5.0
Carex scopulorum	71.0	18.3	15.0
Lupinus wyethii	59.3	10.8	30.0
Potentilla diversifolia	33.5	15.0	5.0
Sedum lanceolatum	11.2	2.5	20.0
Epilobium angustifolium	7.9	2.5	10.0
Vaccinium scoparium	5.6	2.5	5.0
Vaccinium myrtillus	5.6	2.5	5.0
Fragaria virginiana	5.6	2.5	5.0
Arnica cordifolia	5.6	2.5	5.0
Penstemon washingtonensis	5.6	2.5	5.0
Achillea millefolium	5.6	2.5	5.0
Penstemon davidsonii	5.6	2.5	5.0
Antennaria microphylla	5.6	2.5	5.0
Arenaria obtusiloba	5.6	2.5	5.0
Ribes viscosissimum	5.6	2.5	5.0
Detritus	433.2	58.4	55.0
Rock	339.1	40.5	70.0
Moss/ Lichens	162.8	20.2	65.0
Fungi	5.6	2.5	5.0
Others*			
Antennaria racemosa			

* Species in macro-plot but not in sampling quadrats

Table 10. Willow-sedge wetland habitat type at Roger Lake RNA.

Shrubs	Prominance value	Mean % cover	Mean % frequency
Salix lasiandra	150.9	67.5	5.0
Salix drummondiana	58.1	15.0	15.0
Herbs			
Carex vesicaria	493.8	49.4	100.0
Poa palustris	278.6	32.2	75.0
Fragaria virginiana	150.9	67.5	5.0
Epilobium angustifolium	83.0	26.3	10.0
Geum macrophyllum	53.0	7.5	50.0
Erigeron peregrinus	25.2	5.6	20.0
Epilobium glaberrimum	25.1	4.6	30.0
Viola palustris	12.5	2.5	25.0
Carex scopulorum	5.6	2.5	5.0
Detritus	751.0	89.9	70.0
Others*			
Elodea canadensis			
Lonicera involucrata			
Stellaria longipes			
Galium sp.			
Ribes lacustre			
Veronica cusickii			
Veronica wormskjoldii			
Habenaria dilatata			
Lonicera parviflora			
Picea engelmannii			
Dodecatheon dentatum			
Salix glauca			

* Species in macro-plots but not in sampling quadrats

Table 11. Sedge wetland habitat type at Roger Lake RNA.

Herbs	
Carex vesicaria	Data was not collected for this site. Observations found a pure stand of C. vesicaria. Further investigation is needed to determine prominance, cover and frequency values.

Table 12. Willow-sedge wetland habitat type at Roger Lake RNA.

Shrubs	Prominance value	Mean % cover	Mean % frequency
Salix drummondiana	448.0	47.2	90.0
Herbs			
Carex vesicaria	330.3	35.4	87.5
Carex scopulorum	109.8	23.3	22.5
Carex disperma	12.2	2.5	25.0
Viola palustris	2.8	1.3	2.5
Detritus	505.3	53.3	90.0
Moss	587.2	62.7	87.5
Others*			
Picea engelmannii			

* Species in macro-plot but not in sampling quadrats

Table 13. Sedge wetland habitat type at Roger Lake RNA.

Shrubs	Prominance value	Mean % cover	Mean % frequency
Salix drummondiana	5.6	2.5	5.0
Herbs			
Carex prionophylla	206.2	26.2	65.0
Carex vesicaria	162.8	19.5	70.0
Carex limosa	134.8	18.2	55.0
Salix glauca	33.5	15.0	5.0
Carex paupercula	33.5	15.0	5.0
Detritus	345.2	37.8	85.0
Others*			
Abies lasiocarpa			

* Species in macro-plot but not in sampling quadrats

Table 14. Willow shrub sedge wetland habitat type at Roger Lake RNA.

Shrubs	Prominance value	Mean % cover	Mean % frequency
Salix drummondiana	345.9	37.1	83.3
Salix phylicifolia	87.1	22.5	15.0
Salix glauca	83.0	26.3	10.0
Herbs			
Carex prionophylla	213.8	28.2	70.0
Carex vesicaria	168.6	20.9	31.7
Antennaria umbrinella	158.1	50.0	10.0
Erigeron peregrinus	135.8	18.4	51.7
Potentilla palustris	118.6	18.6	35.0
Poa palustris	67.8	14.4	18.3
Carex limosa	33.5	15.0	5.0
Potentilla diversifolia	33.5	15.0	5.0
Eleocharis pauciflora	33.5	15.0	5.0
Saxifraga occidentalis	33.5	15.0	5.0
Veronica wormskjoldii	31.7	8.3	8.3
Carex illota	31.2	8.8	11.7
Epilobium angustifolium	27.7	8.8	10.0
Valeriana dioica	27.7	8.8	10.0
Viola palustris	27.2	6.7	20.0
Fragaria virginiana	26.2	6.7	18.3
Senecio pauciflorus	14.6	2.9	15.0
Stellaria longipes	11.2	2.5	23.3
Habenaria dilatata	11.0	2.4	13.3
Galium sp.	7.9	2.5	10.0
Lonicera involucrata	5.6	2.5	5.0
Moss	531.9	61.9	73.3
Detritus	327.5	34.6	91.7
Water	339.9	57.9	41.7
Others*			
Veronica serpyllifolia			
Luzula parviflora			
Castilleja miniata			
Antenaria microphylla			

* Species in macro-plot but not in sampling quadrats

Table 15. Willow shrub sedge wetland habitat type at Roger Lake RNA.

Shrubs	Prominance value	Mean % cover	Mean % frequency
Salix drummondiana	203.5	26.8	57.5
Potentilla fruticosa	114.2	16.0	50.0
Herbs			
Carex scopulorum	182.8	22.7	65.0
Rubus acaulis	181.1	21.8	72.5
Carex limosa	111.8	25.0	20.0
Carex vesicaria	104.4	13.3	50.0
Carex disperma	39.4	5.9	35.0
Erigeron peregrinus	26.0	4.3	40.0
Potentilla diversifolia	22.4	5.6	12.5
Valeriana dioica	7.9	2.5	10.0
Senecio pauciflorus	7.9	2.5	10.0
Viola palustris	6.7	2.5	7.5
Poa palustris	5.6	2.5	5.0
Habenaria dilatata	5.6	2.5	5.0
Carex paupercula	5.6	2.5	5.0
Moss	540.6	60.7	80.0
Litter	264.4	28.3	87.5
Others*			
Pinus contorta			
Carex aurea			
Picea engelmannii			

* Species in macro-plot but not in sampling quadrats

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

R N A	National Forest	Ranger District	County	Acres
Oregon				
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
Washington				
Fish Lake Bog	Wenatchee	Lake Wenatchee	Chelan	206
Roger Lake	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 area 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

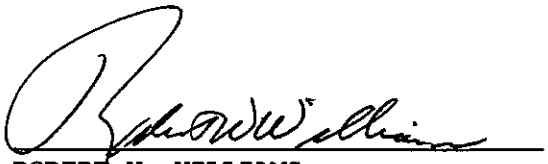
This decision is subject to appeal pursuance to 36 CFR Part 217. A copy of the Notice of Appeal must be in writing and must be submitted to:

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

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

CONTACT PERSON

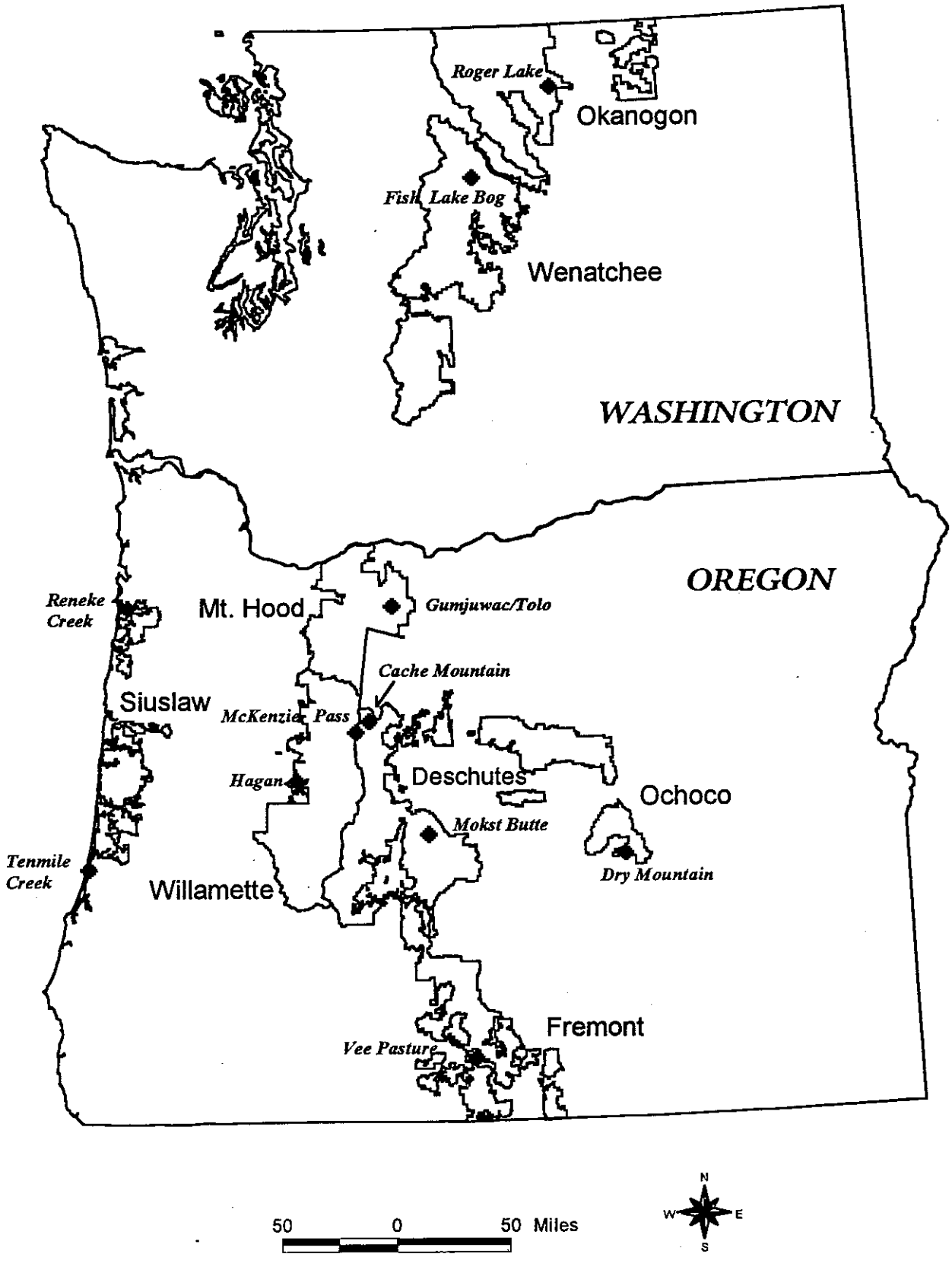
For further information regarding this decision contact Sarah Greene, RNA Coordinator, Pacific Northwest Research Station, 3200 S.W. Jefferson Way, Corvallis, Oregon 97331, Phone 541-750-7360.



ROBERT W. WILLIAMS
Regional Forester

6/9/97
Date

Research Natural Area Locations



ESTABLISHMENT OF ELEVEN RESEARCH NATURAL AREAS

ENVIRONMENTAL ASSESSMENT

Pacific Northwest Region
USDA Forest Service
Oregon and Washington

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

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

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

Abstract:

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

ESTABLISHMENT OF ELEVEN RESEARCH NATURAL AREAS

USDA FOREST SERVICE
PACIFIC NORTHWEST REGION
OREGON AND WASHINGTON

ENVIRONMENTAL ASSESSMENT

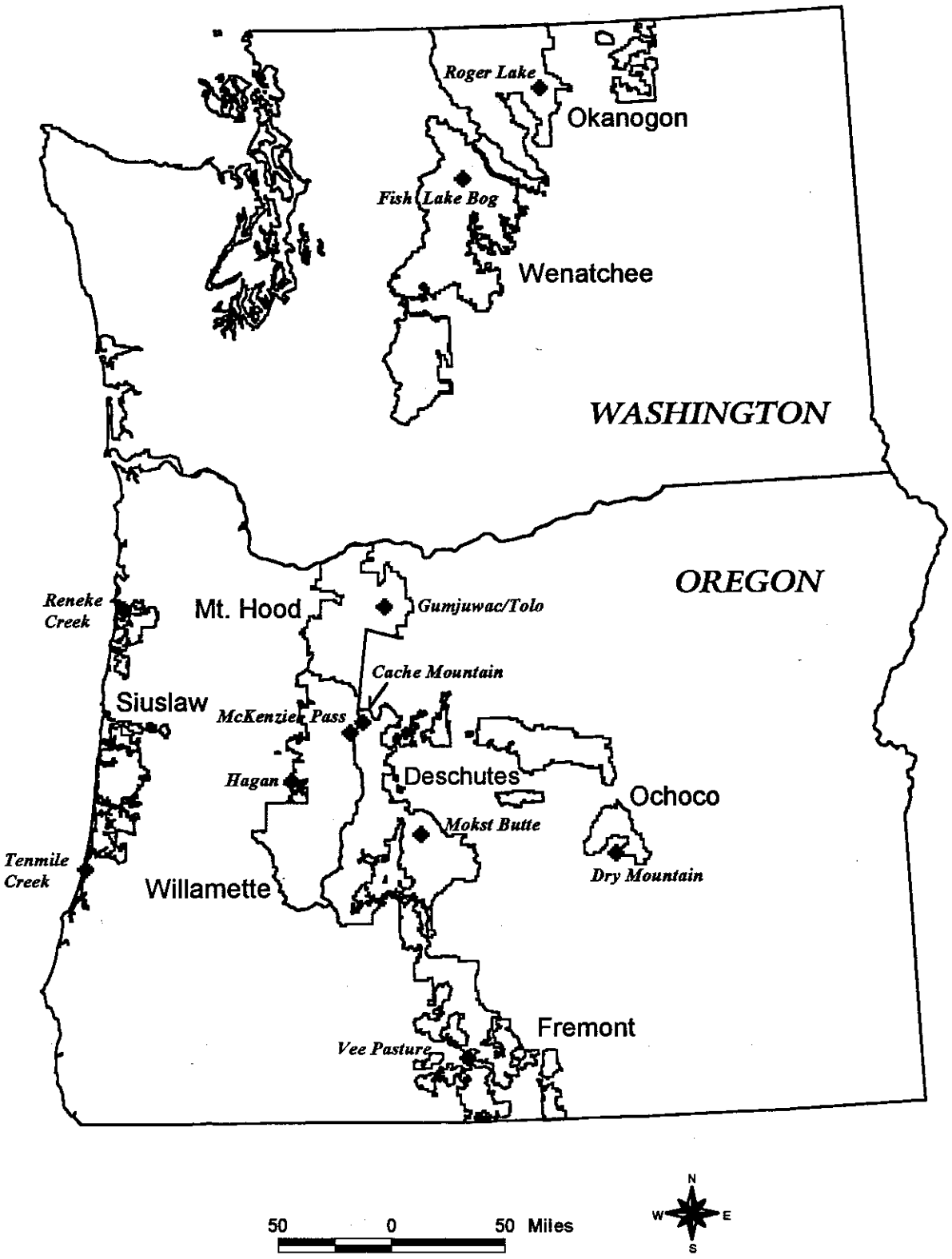
Proposed Action

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

Table 1: Research Natural Area Locations

R N A	National Forest	Ranger District	County	Acres
Oregon				
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
Washington				
Fish Lake Bog	Wenatchee	Lake Wenatchee	Chelan	206
Roger Lake	Okanogan	Tonasket	Okanogan	436

Figure 1: Vicinity Map



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

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

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

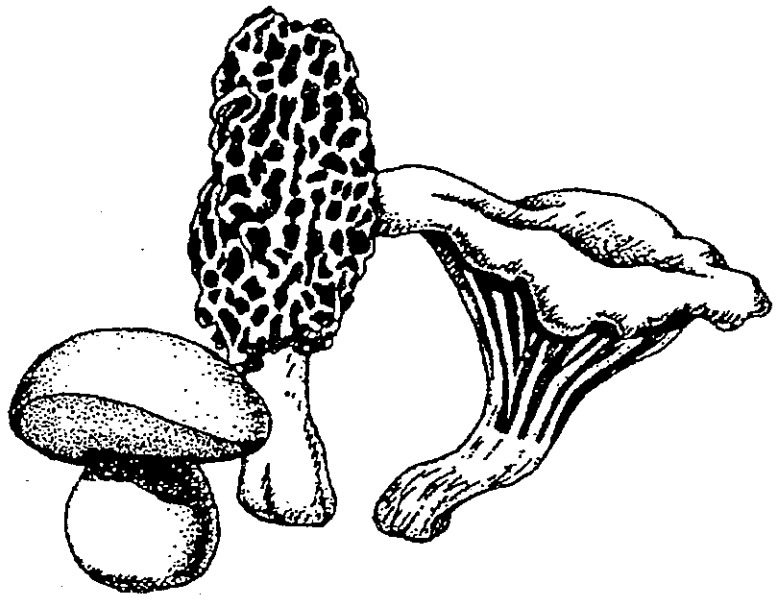
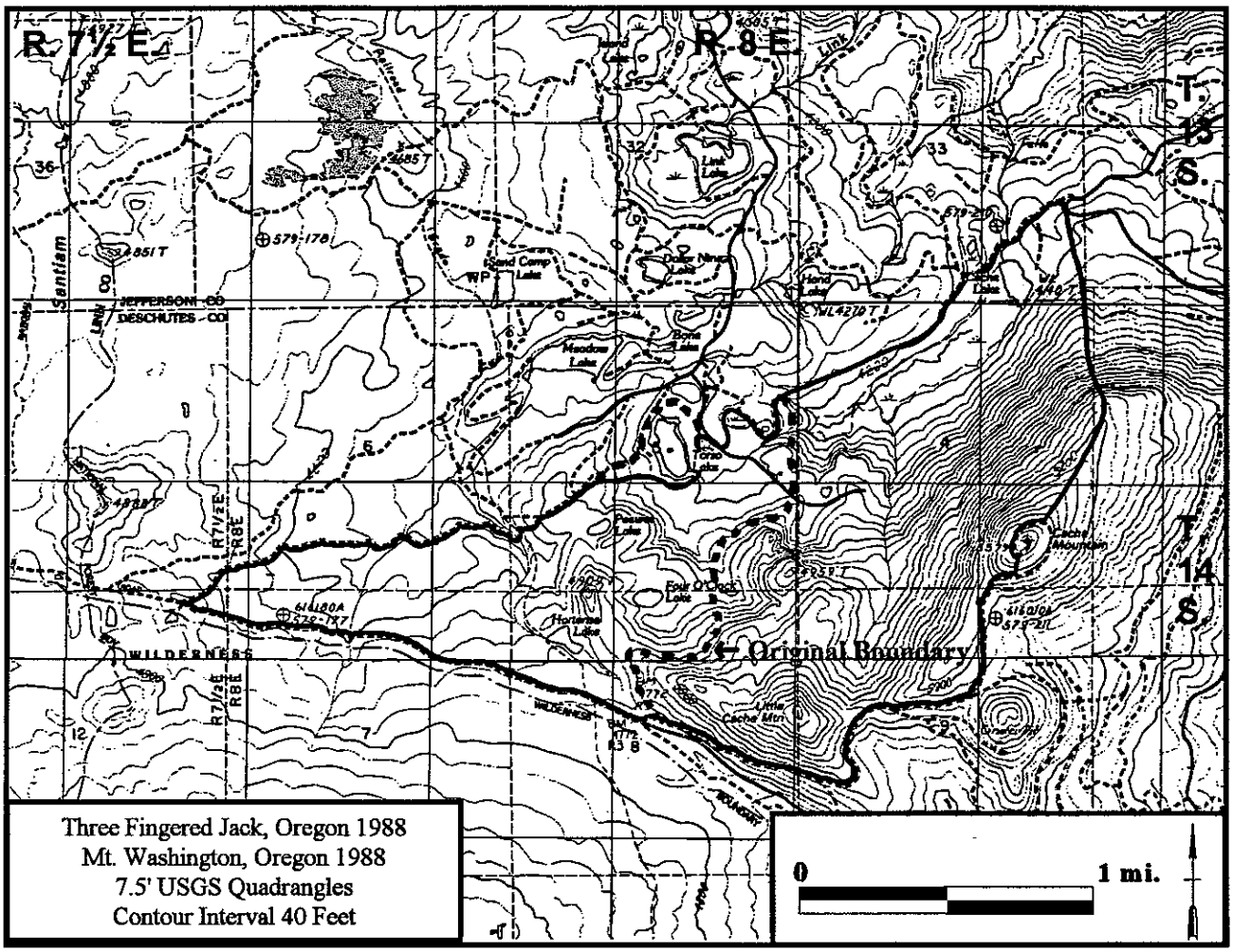


Figure 2: Cache Mountain RNA



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

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

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

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

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

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

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

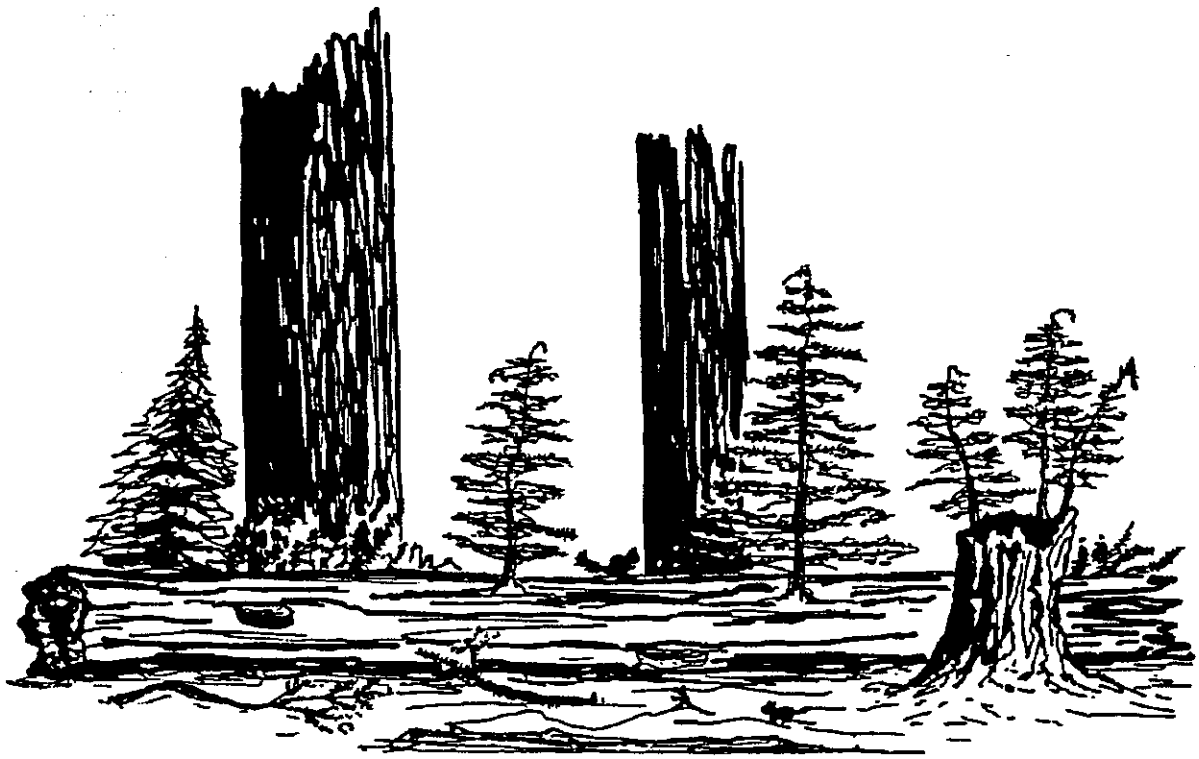
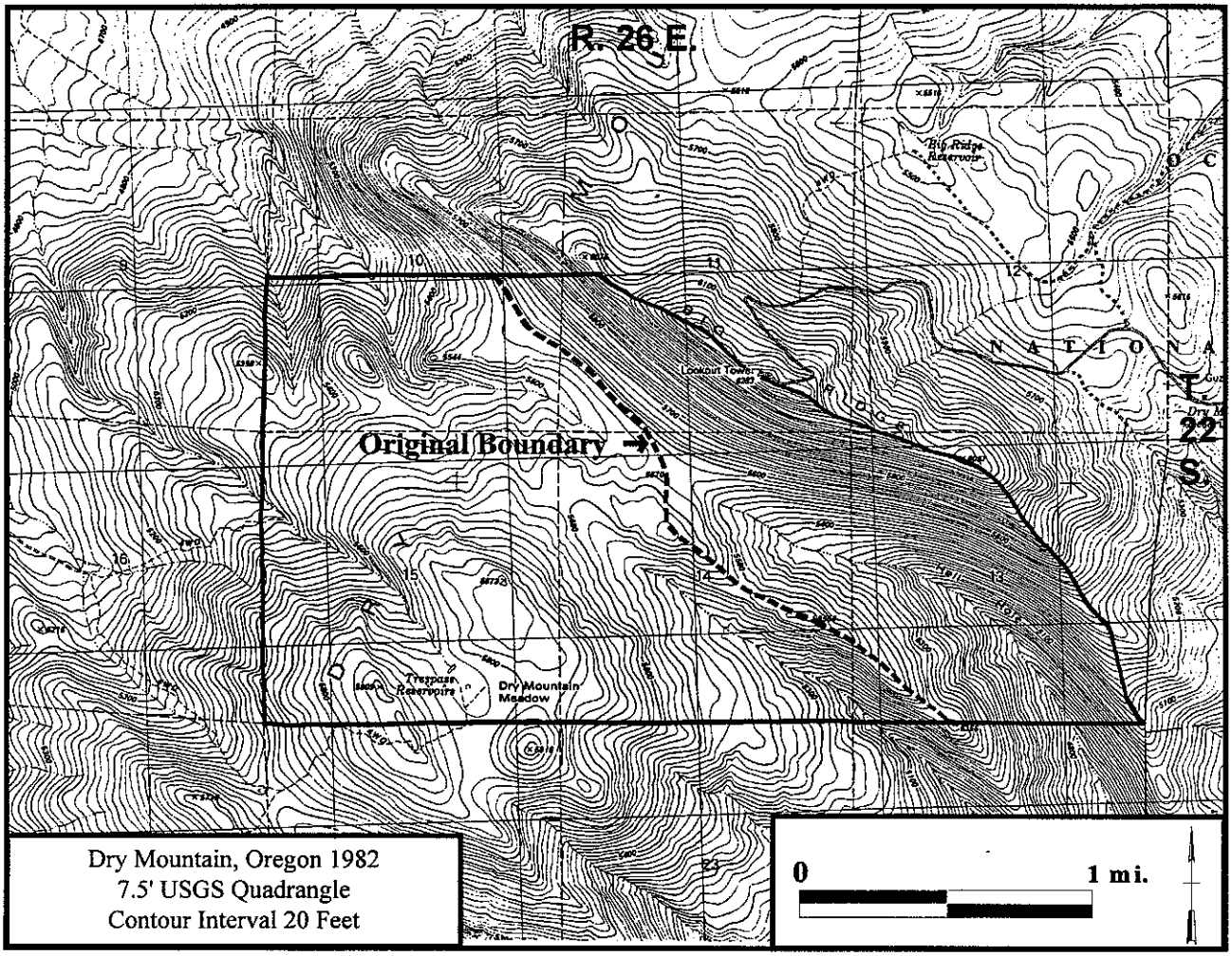


Figure 3: Dry Mountain RNA



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

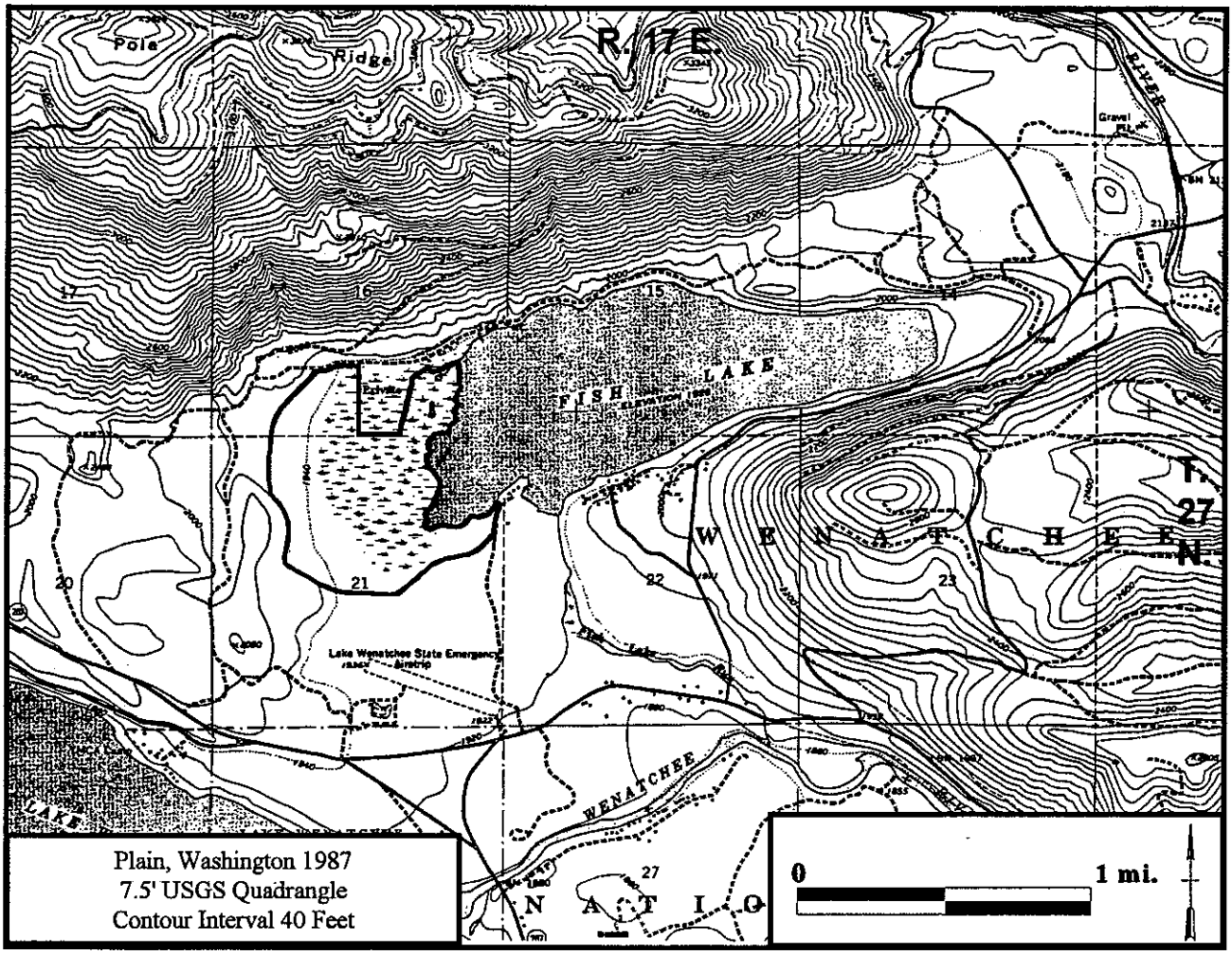
Mineral Resources: There are no reported hardrock mining claims in the RNA. The geology of the area does not lend itself to valuable mineral claims. Salable minerals, such as gravel, are potentially available on the RNA but recovery of these resources would be difficult due to the limited access to the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

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

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

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

Figure 4: Fish Lake Bog RNA



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

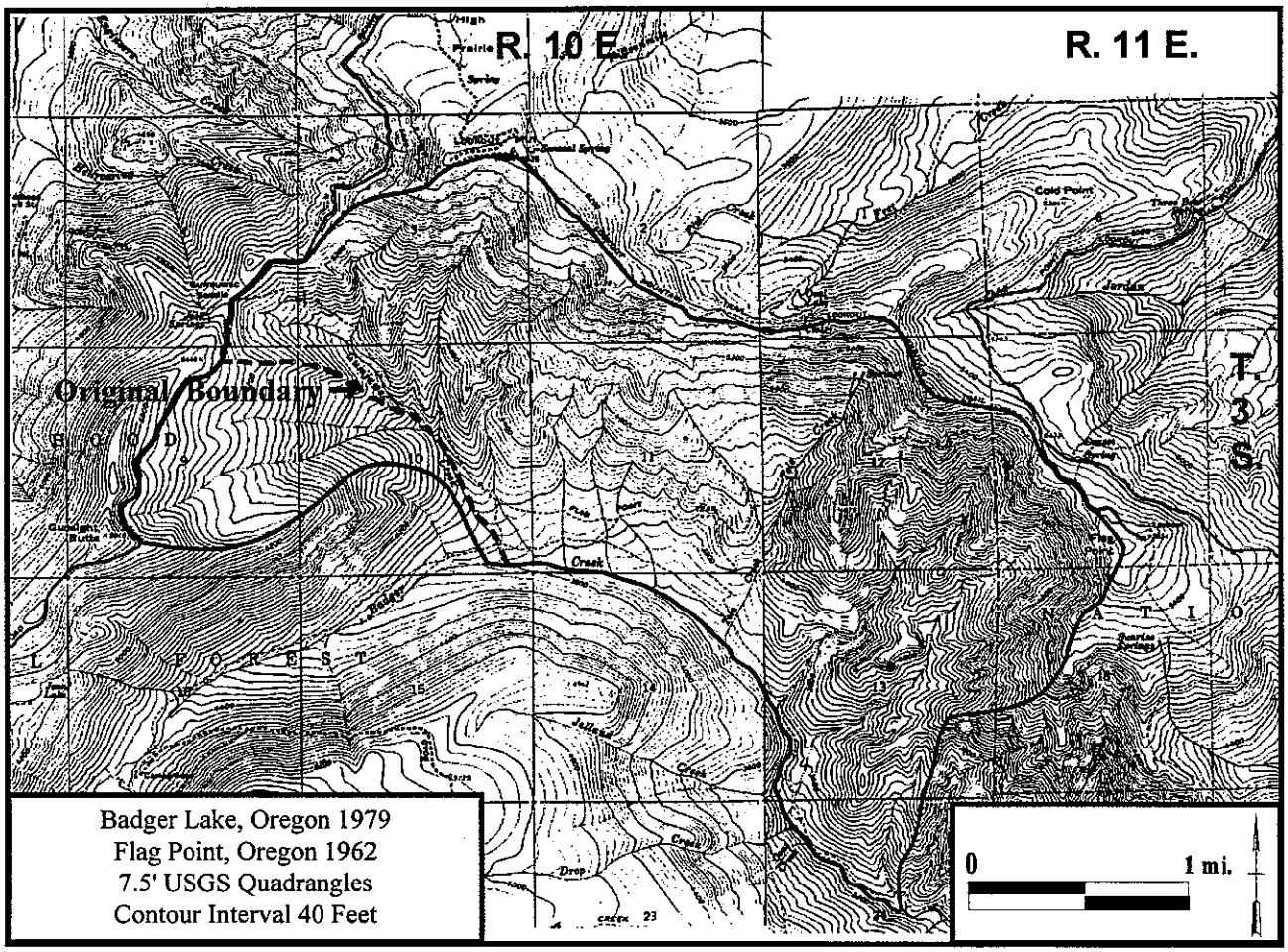
Grazing: There is no grazing allotment or potential for grazing associated with this RNA.

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

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

Private Land: It is desireable 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.

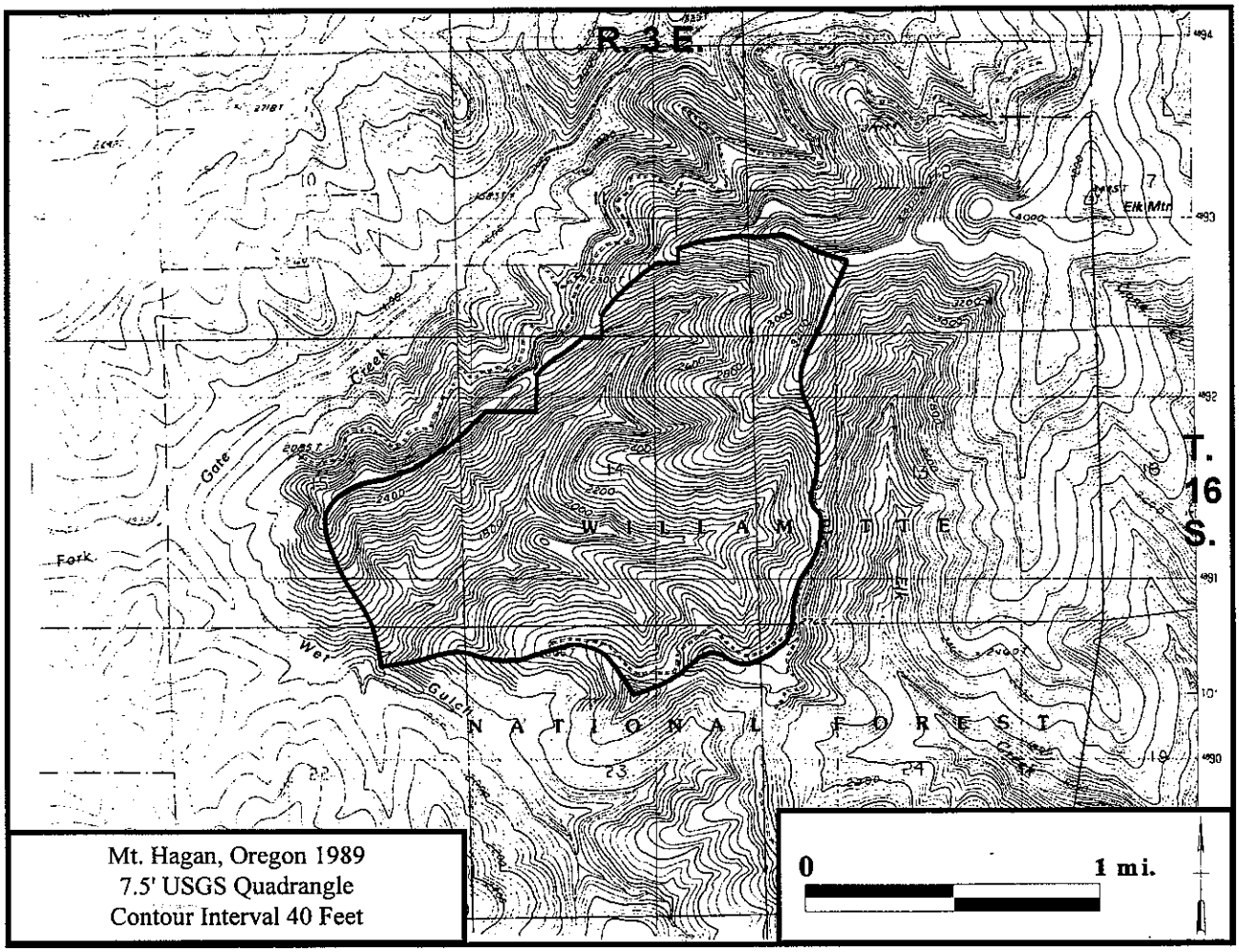
Mineral Resources: This area is considered to have low to very low potential for economic deposits of all minerals except construction rock. The RNA has already been withdrawn from future locatable mineral entry in conjunction with designation of the wilderness.

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



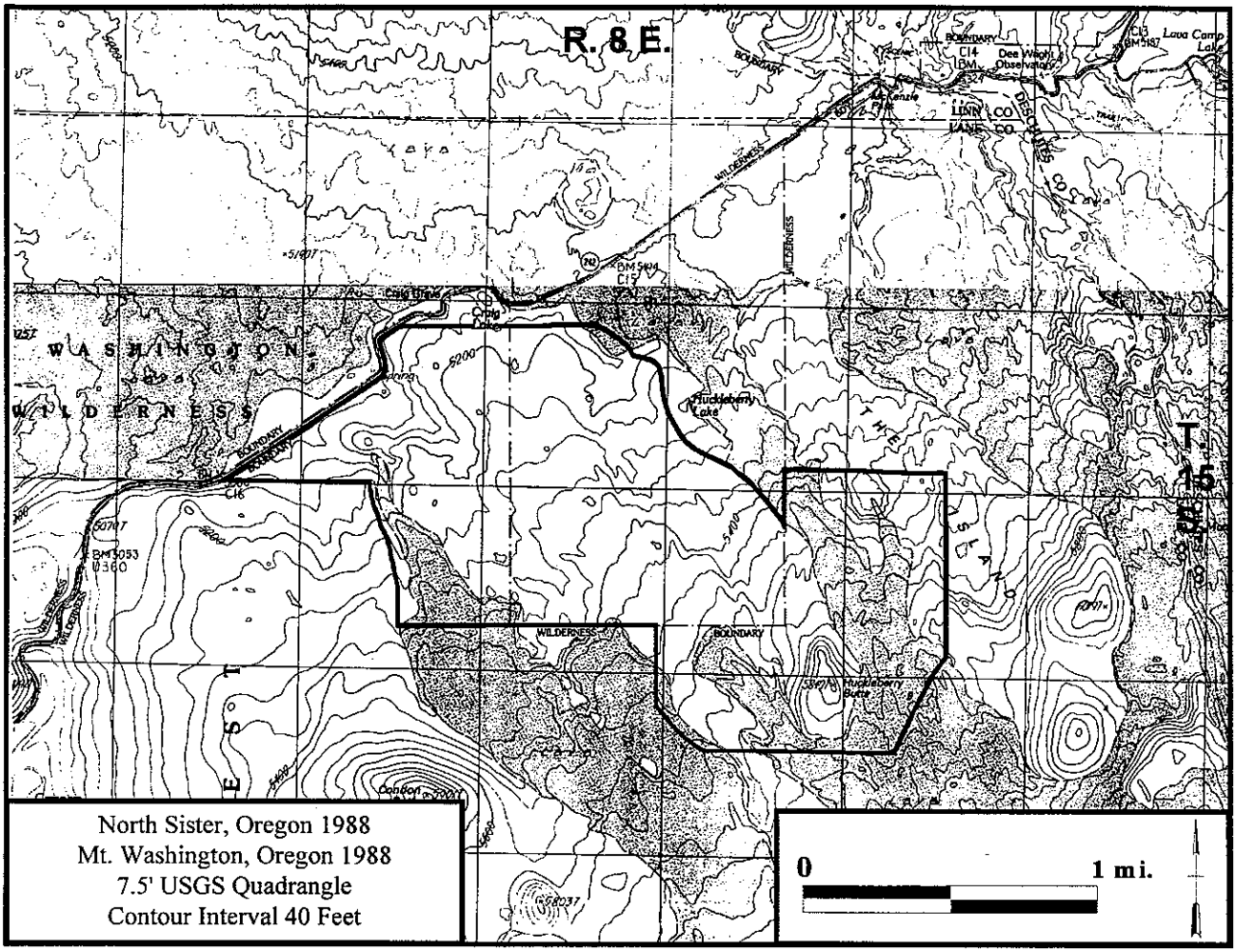
Mineral Resources: There are no known mineral resources in or adjacent to the RNA.

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



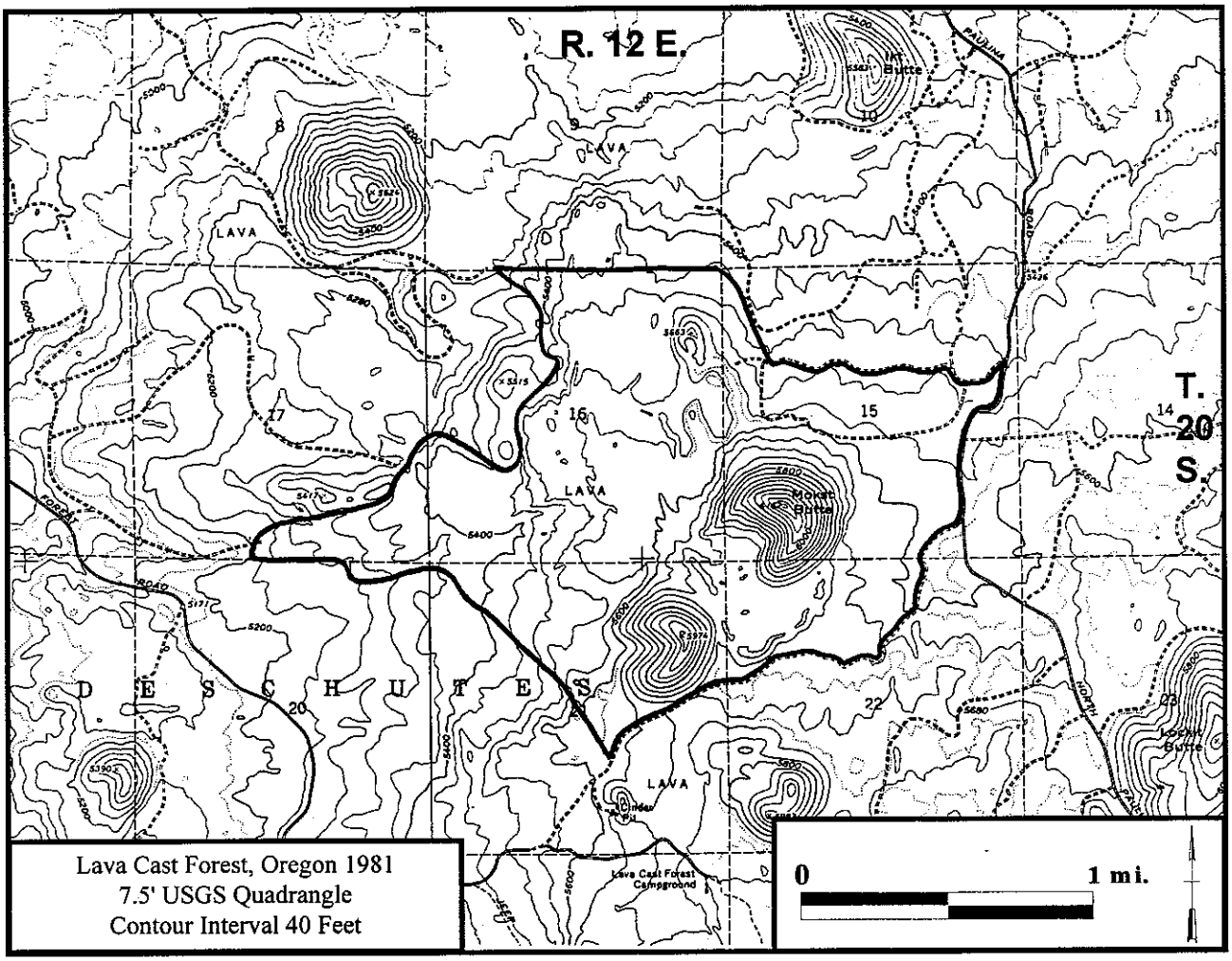
Mineral Resources: There are no known mineral resources in or adjacent to the RNA.

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



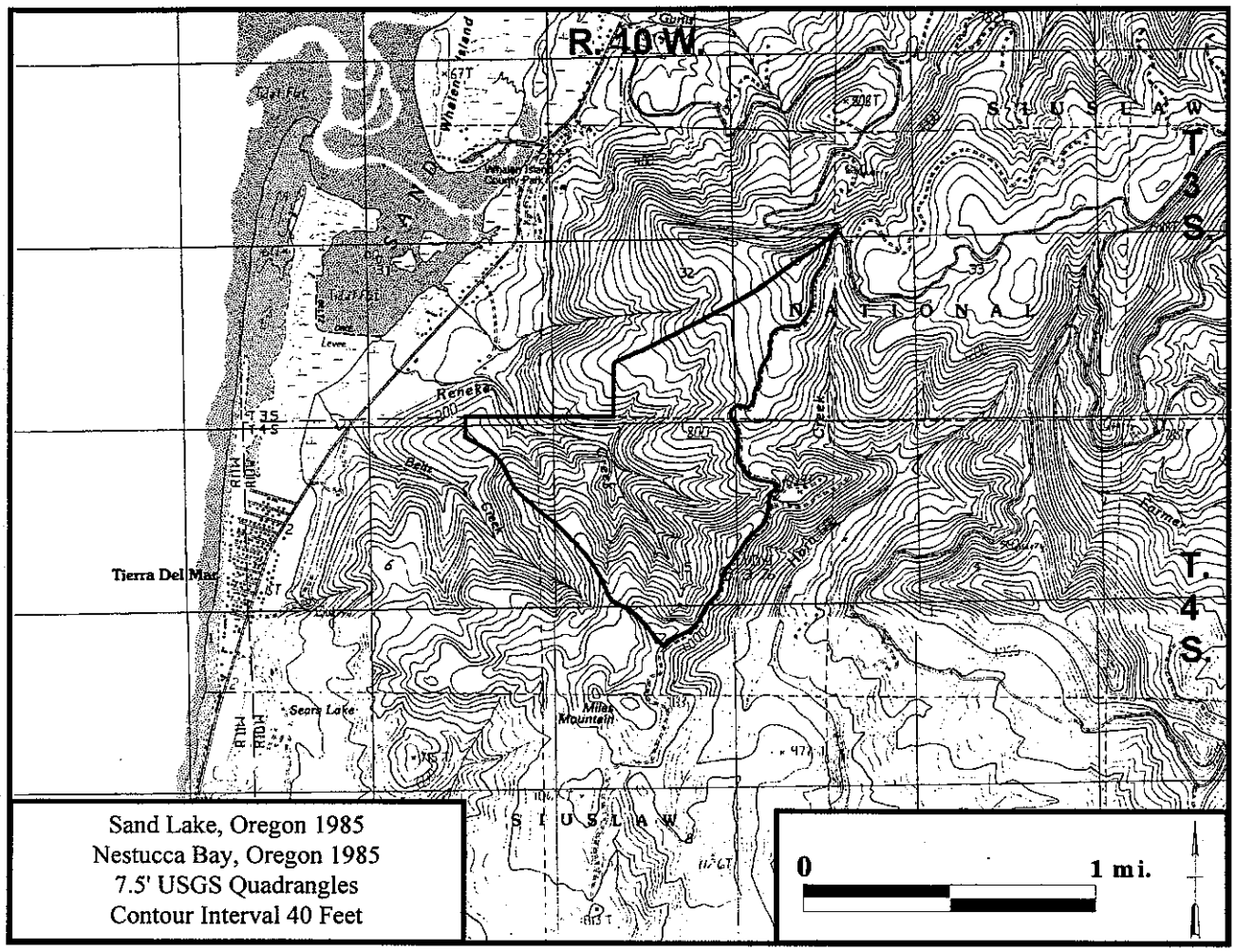
Mineral Resources: The State of Oregon has a mineral reservation covering 480 acres in section 16 of the RNA. The area is also withdrawn from mineral entry under the Newberry Crater National Volcanic Monument enabling legislation.

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



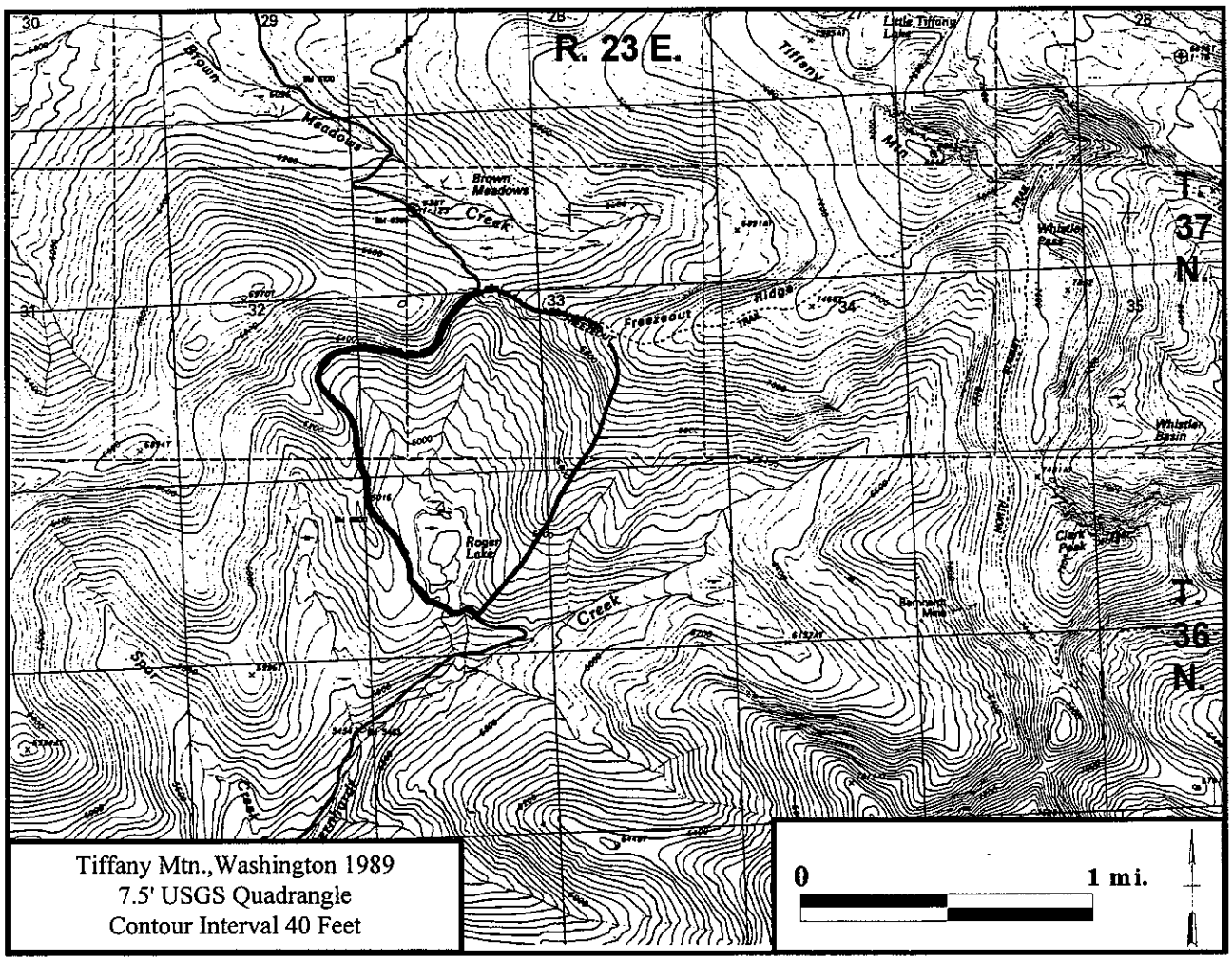
Mineral Resources: There are no known mineral resources in the RNA.

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



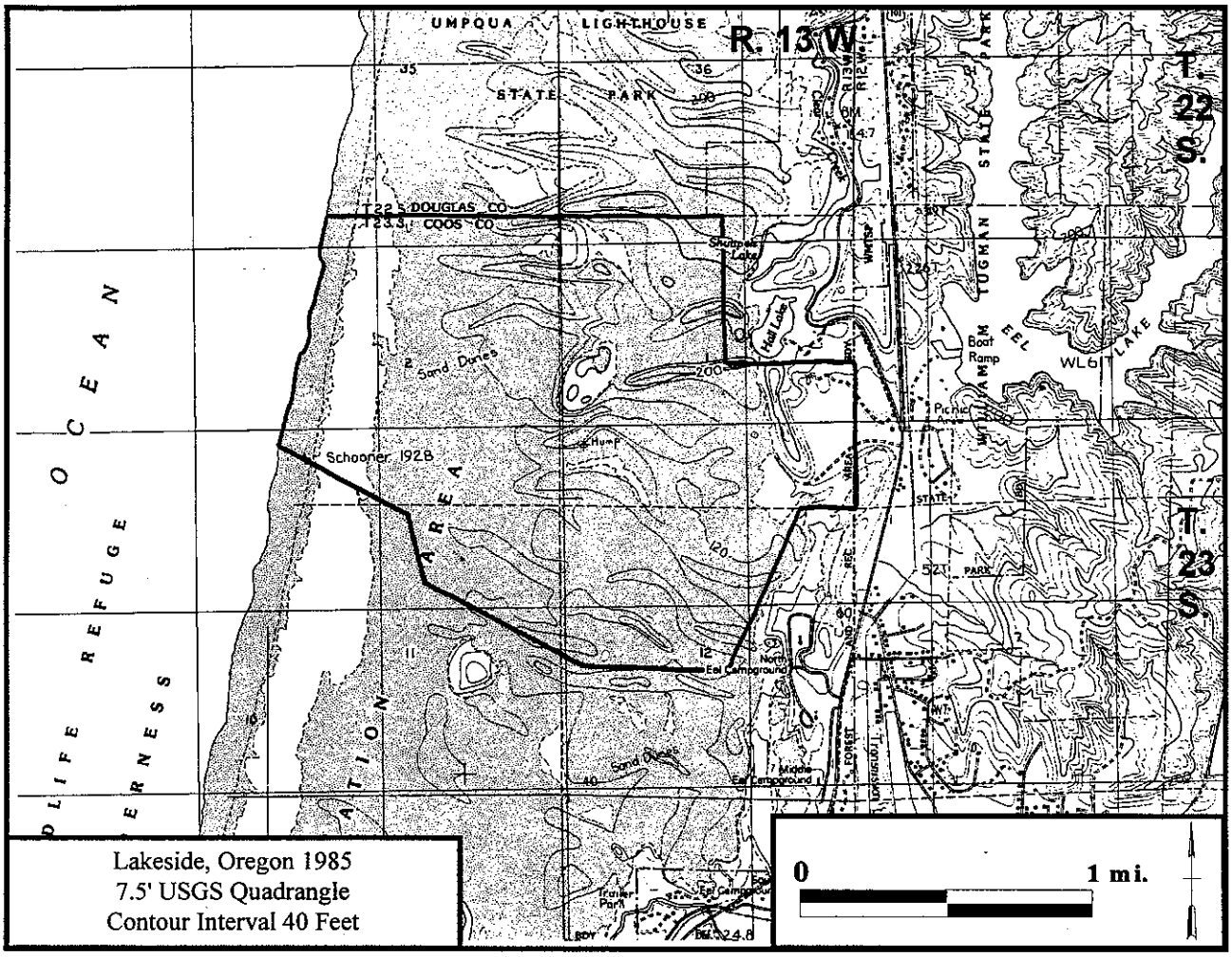
Mineral Resources: There are no known mineral resources in the RNA.

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



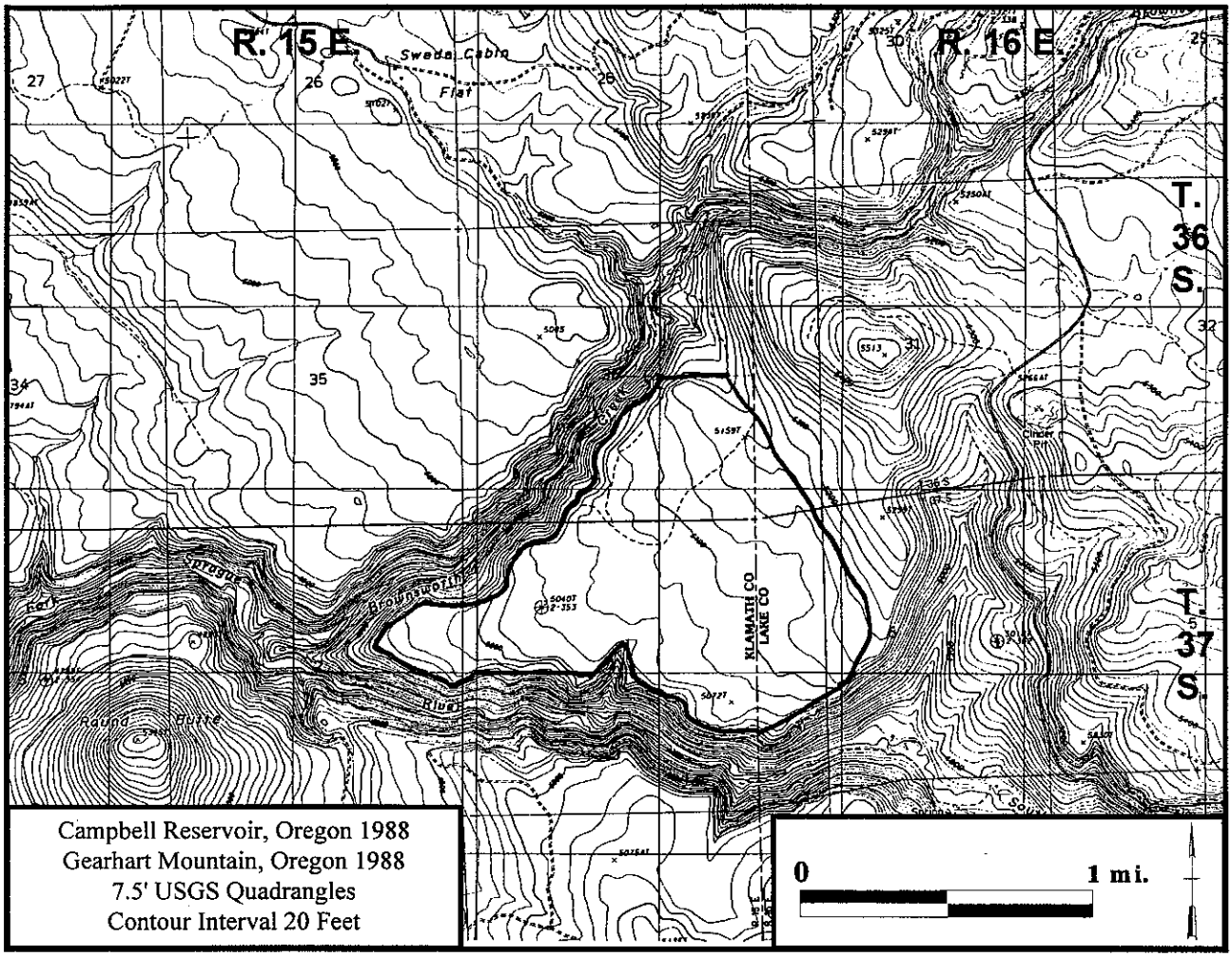
Mineral Resources: This area has been withdrawn from mineral entry as part of the Oregon Dunes National Recreation Area.

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.