

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

4060

ESTABLISHMENT REPORT

STEAMBOAT MOUNTAIN RESEARCH NATURAL AREA

GIFFORD PINCHOT NATIONAL FOREST



Designation Order

By virtue of the authority vested in me by the Secretary of Agriculture under regulation 36 CFR 251.23, I hereby designate as the Steamboat Mountain Research Natural Area the lands described in the preceding report by Jerry F. Franklin and Eugene Smith, dated June 19, 1973: Said lands shall hereafter be administered as a research natural area subject to the said regulations and instructions thereunder.

August 16, 1973
Date

John R. McGuire
Chief

ESTABLISHMENT REPORT

STEAMBOAT MOUNTAIN RESEARCH NATURAL AREA

GIFFORD PINCHOT NATIONAL FOREST

Principal Distinguishing Features

The Steamboat Mountain Research Natural Area occupies the north and south slopes of Steamboat Mountain, a 5,400 foot peak in the Washington Cascade Range. It contains approximately 1,400 acres of subalpine forest and associated talus, rock outcrops, and meadows. Two strongly contrasting forest types dominate: (1) subalpine fir with associated species (mainly Pacific silver fir) on the south slope and (2) Pacific silver fir-mountain hemlock on the north slope and flat topography. Strongly developed gradients in forest composition and productivity characterize the southern slopes. In addition to the forest communities there are three major wet meadows or marshes, a small lake, and substantial areas of rock outcrops and talus within the Research Natural Area adding significantly to the diversity of habitat, flora, and fauna.

Justification

The Steamboat Mountain Research Natural Area fills two specific needs identified by the Pacific Northwest Natural Area Committee in 1966: (1) Subalpine fir (S.A.F. Type 205) in the High Cascades and (2) Pacific silver fir (S.A.F. Type 226) in the High Cascades. It provides the first Research Natural Area within the Federal system in the Northwest with any representation of subalpine fir forest stands. It also provides the only representation of Pacific silver fir forests as they occur in the High Cascades.

The tract was originally located by the Washington Intercampus Committee on Scientific and Educational Preserves in 1969 during a search program carried out in cooperation with the Pacific Northwest Natural Area Committee. Their chief interest in the area has been as a representative area of a subalpine forest mosaic in which several different true fir community types are represented. Further, evaluation by representatives of the Pacific Northwest Natural Area Committee and Gifford Pinchot National Forest has confirmed its suitability for a Research Natural Area and the lack of alternative candidate areas of equal or superior quality.

There is no question as to the need for an area representative of these forest conditions. Subalpine fir is a common forest species in the High Cascades of southern Oregon and Washington occurring both in pure stands and in mixture with other species. The subalpine fir stands found within the Steamboat Mountain Research Natural Area are very representative including essentially pure forests on the mid- and upper-slopes of southern exposure and the increasing admixture of other species, particularly silver fir, on the lower slopes and flats at the mountain base.

Pacific silver fir is perhaps, the single most important upper-slope tree species in the High Cascades. Existing Research Natural Areas containing this species are located in the older, Western Cascades. In fact, one of these (Sisters Rock Research Natural Area) is located at the same elevation and latitude as Steamboat Mountain making possible comparative studies of silver fir in two contrasting but adjacent segments of the Cascade Range.

Besides providing excellent representation of the desired tree species in a typical High Cascades environment, Steamboat Mountain Research Natural Area has several other features which add substantially scientific values. First of all there is considerable diversity of elevation, landform and aspect of forested habitats. Consequently, several forest communities varying in composition, structure, productivity and understory composition are present rather than a single type. The most outstanding contrast is found along the summit ridge where pure subalpine fir forests occupy the south aspect less than 50 feet away from solid mountain hemlock-Pacific silver fir stands on the north aspect.

Second, the small lake and interspersed meadows and talus fields provide contrasting nonforested habitats and significantly enrich the flora and fauna included with the natural area. All of these features are normally integral parts of subalpine forest landscapes in the High Cascades. The small, undisturbed lake is a particularly attractive feature; the existing Research Natural Area system is extremely deficient in representation of aquatic ecosystems.

The natural area will be used for research on all aspects of the ecology of High Cascade subalpine forests including the related environment and fauna. In particular, autecological studies of subalpine fir and Pacific silver fir are expected. In fact, the tract is already being used for studies of: (1) cone production, seeding habits, and seed quality of subalpine fir, Pacific silver fir, and mountain hemlock;^{1/} (2) subalpine community types (ecological classification of forest stands) in the High Cascades and their relation to environmental features;^{2/} and (3) successional relationships in subalpine forests.^{3/}

During 1972 a series of permanent plots and transects was established within the natural area to provide baseline data on vegetation composition and allow for measurement of changes in composition, structure and stand boundaries. Included are: (1) a 500-meter transect leading from the base of the south slope to a mid-slope position; (2) a series of plots in other selected forest stands; and (3) a 200-meter transect across a forest-bog ecotone. These were established cooperatively by the U. S. Forest Service and Coniferous Forest Biome, US/IBP, and will be expanded to a more complete system in 1973.

Additional^{at} research is expected on these and similar subjects as well as on: (1) actual and potential productivity; (2) influence of man's activities on environmental quality (serving as an undisturbed control area); (3) behavior and influence of various forest pathogens, especially balsam woolly aphid; (4) relationships of fauna to varied vegetation types; and (5) aquatic biology of an undisturbed subalpine lake. Since the entire drainage basin of the lake as well as those of several perennial streams on the south side of the mountain are enclosed within the Research Natural Area the possibility of small-watershed-scale studies, e.g., of water chemistry and sediment load, are real possibilities.

^{1/} Partially reported in Franklin, Jerry F. 1968. Cone production by upper-slope conifers. U.S. Forest Serv. Res. Pap. PNW-60, 21 p., illus.

^{2/} Partially reported in Franklin, Jerry F. 1966. Vegetation and soils in the subalpine forests of the southern Washington Cascade Range. Diss. Abstr. 27(6): 1746B-1747B.

^{3/} Partially reported in Franklin, Jerry F., and Mitchell, Russel G. 1967. Successional status of subalpine fir in the Cascade Range. U.S. Forest Serv. Res. Pap. PNW-46, 16 p., illus.

Location

The Steamboat Mountain Research Natural Area occupies approximately 1,400 acres on the north and south slopes of Steamboat Mountain on the crest of the southern Washington Cascade Range (see attached map). The mountain is located near the headwaters of the Trout Lake Creek drainage, a tributary of the White Salmon River, about 12 miles southwest of Mount Adams and 15 miles northwest of the town of Trout Lake. There is good access to the vicinity via several excellent forest roads, e.g., Forest Roads N88 and N819 from Trout Lake or Forest Roads N73 and N123 from Wind River.

The tract is located primarily in Sections 30 and 31, T. 8 N., R. 9 E. and Section 35 and 36, T. 8 N., R. 8 E. Small portions of Section 25, T. 8 N., R. 8 E., Section 1, T. 7 N., R. 8 E., and Section 6, T. 7 N., R. 9 E. are also included.

All of the Research Natural Area is federally owned and administered by the Mount Adams Ranger District, Gifford Pinchot National Forest.

Boundaries

The boundaries of the Research Natural Area are located mainly on roads and topographic features. Beginning at the site of the Steamboat Mountain lookout south along a spur ridge to where Steamboat Mountain trail crosses the spur ridge; east for a short distance along the trail to the Steamboat Mountain quarry road; south and west along this road for about 2 1/8 mile to its junction with Forest Road 123; west along Forest Road 123 for about 1 mile to its junction with Forest Road N819; northwest along Forest Road N819 for about 1/2 mile to its junction with Forest Road N845; north for about 1/8 mile along Forest Road N845 to its junction with Forest Road N846; from this junction along a line north 73° east for about 1/2 mile to a point on Forest Road N846 (where this road is at the point of a southerly swing into section 36); east along Forest Road N846 for about 3/4 mile to its terminus (end of gravelled road on the eastern edge of the clearcut in the SE 1/4 of Section 25); dropping north along the edge of the clearcut to the 4,400 foot contour and thence easterly along this contour for about 5/8 mile to the top of a rock escarpment; and north along the escarpment for about 1 mile to the point of origin on the summit of Steamboat Mountain.

Where boundaries follow roads the actual Research Natural Area boundary is 200 feet from the center line of the road to allow safe maintenance of a roadside strip.

<u>Habitat Unit</u>	<u>SAF Type No. and Name</u>	<u>Dominant Species</u>	<u>Acreage</u>
1	SAF 205 Mountain Hemlock-Subalpine Fir	Subalpine fir	402
2	SAF 226 Pacific Silver Fir-Hemlock	Silver fir, Mountain hemlock	337
3	SAF 226 Pacific Silver Fir-Hemlock	Silver fir, Mountain hemlock, Engelmann spruce	206
4	SAF 226 Pacific Silver Fir-Hemlock	Silver fir	135
5	SAF 226 Pacific Silver Fir-Hemlock	Mixed Conifer ^{1/}	189
6	Clearcut	--	44
7	Meadows and marshes	--	47
8	Cliffs and scree slopes	--	40
Total			1400

^{1/} Includes noble and silver firs, Douglas-fir, and western hemlock with minor amounts of mountain hemlock, subalpine fir, and Engelmann spruce.

Descriptive data for each of the major types is as follows:

<u>Unit</u>	<u>Descriptive name</u>	<u>Basal Area</u> sq.ft./acre	<u>Dominant</u> <u>D.B.H.</u> in.	<u>Height</u> ft.
1	Subalpine fir	110-200	15	90-110
2	Pacific silver fir-mountain hemlock	250-300	21	100-120
3	Pacific silver fir-mountain hemlock-Engelmann spruce	200-250	18	80-110
5	Mixed conifer	250-300	25	110-125

In general, the stands are intact with full to nearly full stocking. Typical stand density is 200 to 300 live stems per acre 6" d.b.h. and larger. The pure subalpine fir stands (1) are the most open and have suffered the most recent mortality.

Stand age is typically around 150 years. Unit (2), the silver fir-mountain hemlock forests on the north aspect in the northeastern corner of the natural area, are somewhat older, probably around 200 to 250 years.

Physical and Climatic Conditions

The Research Natural Area occupies the north and south slopes of Steamboat Mountain which is elongated in an east-west direction. Elevations range from less than 4,000 ft. a.s.l. at the western and southern and 4,400 ft. at the northern edges of the natural area to 5,425 ft. at Steamboat Mountain lookout. Slopes are generally steep (30 to 60 percent) except at the northern, western and southern edges of the Research Natural Area (at the foot of the mountain) where extensive gently sloping to undulating topography is common. Cliffs and very steep slopes are encountered in some locations just off the north side of the summit ridge.

The Research Natural Area is located entirely on volcanic rock types. A portion of the tract is underlain predominantly by Miocene basaltic rocks. Eocene-Oligocene volcanic types, such as andesitic breccias are more common at lower elevations and in the western half of the tract. The entire area is blanketed by Pleistocene-Recent aeolian ash and pumice deposits.

Soils are Podzols and Brown Podzolics developed in deep surficial deposits of volcanic ash and pumice of unknown vent sources. Profiles are not well developed and distinct A₂ horizons are generally absent.

The climate of the Research Natural Area is wet and cold during the winter and relatively warm and dry during the summer. Winter snowpacks average 80 to 120 inches in depth during the maximum accumulation period in March and early April.

Vegetation

Tree species, in approximate order of abundance, are Pacific silver fir (Abies amabilis), subalpine fir (A. lasiocarpa), mountain hemlock (Tsuga mertensiana), Douglas-fir (Pseudotsuga menziesii), noble fir (A. procera), western white pine (Pinus monticola), Engelmann spruce (Picea engelmannii), and western hemlock (T. heterophylla). The first three constitute 90 percent or more of the stands. The size, productivity, and distribution of these species is discussed elsewhere in this report. Pacific silver fir appears to be the major climax species throughout the tract based on reproductive success.

Ecologically, the communities encountered are typical of the upper A. amabilis and lower T. mertensiana Zones within the Mt. Adams Ecological Province. The habitats described earlier can be roughly correlated with ecologically-based plant community types as follows:

<u>Habitat Unit</u>	<u>Plant Community</u>	<u>Distribution</u>
1	<u>Abies lasiocarpa/Vaccinium membranaceum/Xerophyllum tenax</u>	Upper 5/6 of south slope of Steamboat Mountain
2&4	<u>Abies amabilis-Tsuga mertensiana/Rhododendron albiflorum - Vaccinium</u>	North slopes of Steamboat Mountain
3	<u>Abies amabilis - Picea engelmannii-Tsuga mertensiana/Vaccinium membranaceum</u>	Flats at base of slope on south and east edges of R.N.A.
5	<u>Pseudotsuga menziesii - Abies procera/Abies amabilis/Vaccinium membranaceum</u>	Lower 1/6 to 1/3 of south slopes

^{4/} Franklin, Jerry Forest. 1966. Vegetation and soils in the subalpine forests of the southern Washington Cascade Range. 132 pp., illus. (Unpublished Ph.D. thesis on file at Wash. State Univ., Pullman.)

Units 1 and 3 are successional to Franklin's (1966) Abies amabilis-Tsuga mertensiana/Vaccinium membranaceum habitat or climax type. Units 2 and 4 are closely related to it but have a constant presence of small amounts of Rhododendron. Unit 5 is successional to the Abies amabilis-Tsuga heterophylla/Achlys triphylla habitat or climax type.

Distribution of tree numbers and basal area by tree species is shown for each of these plant communities in Table 1.

Major understory species in Unit 1 are Vaccinium membranaceum and Xerophyllum tenax. Rubus lasiococcus, Pyrola secunda, Anemone deltoidea and Viola sempervirens are additional frequent herbs. Units 2 and 4 have substantial amounts of Rhododendron albiflorum and Vaccinium ovalifolium in addition to the ubiquitous V. membranaceum. Rubus lasiococcus, Xerophyllum tenax, Smilacina stellata, Clintonia uniflora, Rubus pedatus, and Pyrola secunda are major herbs. Unit 3 has only Vaccinium membranaceum as a common shrub and Rubus lasiococcus, Clintonia uniflora, Xerophyllum tenax, Pyrola secunda, and Viola sempervirens as common herbs. In wetter areas (around seeps or streams) this community of the frosty flats may have a dense and rich herbaceous component, however.

The Pseudotsuga-A. procera/T. heterophylla/Vaccinium community displays the greatest variability and species richness occupying, as it usually does, moist but relatively warm lower slopes. Vaccinium membranaceum is the most common shrub but Sorbus, Pachistima myrsinites, V. ovalifolium, and Menziesia ferruginea are also present. The herbaceous layer can be relatively well developed and usually includes Rubus lasiococcus, Xerophyllum tenax, Clintonia uniflora, Goodyera oblongifolia, Viola sempervirens, Trillium ovatum, Smilacina stellata, Pyrola secunda and Hieracium albiflorum.

The understory flora of the forests is, in fact, rather simple and dominated by a few species. The rock outcrops and meadows enrich the area tremendously giving the natural area an excellent cross-section of subalpine vascular plants. A checklist is not yet available but should be by the fall of 1973. Transects from forest to wet meadow do suggest some of the richness, however: Spiraea douglasii, S. densiflora, Lonicera caerulea, Alnus sinuata, Salix phylicifolia, and Viburnum edule as marginal shrubs and Equisetum sp., Aster occidentalis, Calamagrostis canadensis, Cicuta douglasii, Carex ormantha, C. aquatilis, C. luzulina, Salix pedicellaris, Dodecatheon jeffreyi, Agrostis Thurberiana, camassia quamash, Eleocharis sp., Epilobium glandulosum, Pedicularis groenlandica, Drosera anglica, Senecio subnudus, Vaccinium occidentale, Kalmia polifolia, Juncus saximontanus, Tofieldia glutinosa, Carex disperma, and Saxifraga oregana as wet meadow or marsh plants.

Animals

A tentative list of amphibians and reptiles is provided in Table 2. Dominant species of the herpetofauna are: Dicamptodon copei, Ambystoma gracile, Ascaphus truei, Bufo boreas, Hyla regilla, Rana cascadae, and Thamnophis sirtalis. Large breeding populations of R. cascadae occur in the two wet meadows and in the small lake; and A. gracile breeds in considerable numbers in the small lake. Both neotenic and transformed individuals of A. gracile were noted. An exceptional opportunity exists here to study isolated populations of several amphibian species.

The local avifauna is typical for this portion of the Cascade Mountains. Especially common on the site were: ravens, cedar waxwings, varied thrushes, golden-crowned kinglets, chestnut-backed chickadees, winter wrens, pine siskins, red-breasted nuthatches, and red crossbills (late August census).

Mammals which are likely to occur on the Steamboat Mountain Research Natural Area are listed in Table 3. The area provides especially good habitat for the following species, all of which are known to utilize the area: black bear, marten, elk, black-tailed deer, hoary marmot and pika. The non-forested habitats on the natural area serve to enrich the mammalian fauna. The wet meadows and meadow-lake system provide excellent habitat for both the Richardson and heather voles; and the talus fields for the pika, hoary marmot, and bushy-tailed woodrat.

Impact on Other Resource Values

Timber

Timber resource values are low on this tract. The entire area is low site, over 80 percent classed as Site V. Although only 10 to 20 percent of the tract is tentatively proposed as a landscape management area, Steamboat Mountain is a conspicuous natural feature in a heavily used recreational area, which places limitations on cutting methods.

Consequently, although some harvestable timber volume will be eliminated by the Research Natural Area its effect on timber production is considered to be minimal. It is calculated that establishment of the natural area will reduce the allowable cut of the Gifford Pinchot National Forest by 220 M board feet per year. This is based on the calculated annual net growth of 200 board feet per year on 1,100 acres of commercial forest land in the Mt. Adams Ranger District (1969 inventory data). The reduction of allowable cut is less than 0.1 of 1 percent of the average annual cut on the Gifford Pinchot and will be incorporated in the next revision of the management plan.

The natural area does not block transportation system development or occupy critical lands or cable yarding points for adjacent tracts.

Water

Establishment of the research natural area is expected to have a neutral effect on watershed values. Disturbance of the area will be minimized.

Recreation

Past recreational use of the area has been confined to sightseers and hunters along the trail to Steamboat Mountain lookout. Continued use of the trail is not expected to interfere with use of the area for scientific and educational purposes. Almost all use will be confined to the immediate vicinity of the trail.

Minerals

No mineral explorations are known within the research natural area, nor are mineralized bodies known to exist there. The area will be withdrawn from mineral entry after research natural area establishment.

Protection and Management

The objective of management in the research natural area will be to maintain natural conditions within the tract for scientific and educational study.

1. Roadside strip. Salvage of dead, down, and dangerous trees will be allowed along adjacent roads for 200 feet on either side of the road center line. Only these types of materials will be logged from the roadside strip in order to assist in maintenance of an undisturbed environment within the natural area. Logging within the roadside strip will be entirely by cable methods with the road used as the landing.

2. Maps. The area boundary will be shown on the multiple-use map for the Mount Adams Ranger District.

3. Signs. In accordance with R-6 standards, permanent boundary markers (metal signs) will be posted on the boundary of the research natural area. The project will be the responsibility of the Mount Adams District Ranger, and funds for the signing will be requested immediately after formal establishment of the area.

4. Public Use. No effort will be made to prohibit recreational use unless this use conflicts with the utilization of the area for research purposes or its maintenance in a natural condition. The existing trail to the top of Steamboat Mountain will be maintained for public and scientific use.

Public Response to the Research Natural Area

Prior to establishment of the Research Natural Area general public comment on the proposal was solicited through a news release. Responses are summarized in an appendix.

5. Climatological telemetry station. The Soil Conservation Service is planning to locate a repeater station for transmission of climatological data on top of Steamboat Mountain at the eastern edge of the natural area (on the old lookout site). There would also be a data collection site at that location (wind speed and direction, temperature, solar radiation, and relative humidity). These data would be relayed to the base station in Spokane for collection and evaluation. As of May 1973 the Soil Conservation Service group is planning to go ahead with the installation as soon as funds are available. Galen Bridge, State Conservationist, has indicated they would consider adding precipitation to the data collected at Steamboat Mountain.

This installation is considered to be entirely compatible with the purpose of the natural area and, in fact, will enhance it by providing continuous climatological records. The data collected at nearby Surprise Lakes (another segment of the projected system) will further augment the natural area since conditions there are similar to those in the lower part of the natural area.

Table 1.--Seedling and tree numbers and basal area per acre from plots in each of the four main community types.

ITEM AND SPECIES

PLANT COMMUNITY AND PLOT

	Abies/Vaccinium/ Xerophyllum Plot Plot Plot 300 400 500				Abies- Tsuga/ Rhodo- dendron LAKE				Abies-Picea- Tsuga/Vaccinium 4101 0				Pseudotsuga-Abies procera/Tsuga heterophylla/Vaccinium 100 200 NOBLE			
	SEEDLINGS/Acre (<2.5" d.b.h.)	TREES/ACRE (>2.5" d.b.h.)	BASAL AREA (ft. ² /acre)													
<u>Abies amabilis</u>	2225	890	930	1335	6275	4085	1095	2510	4085							
<u>Abies lasiocarpa</u>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<u>Tsuga mertensiana</u>	-	-	-	-	-	160	-	-	40	-	-	-	-	-	-	-
<u>Tsuga heterophylla</u>	-	-	-	-	-	-	120	-	-	-	-	-	-	-	-	-
<u>Abies amabilis</u>	166	4	49	166	166	73	32	101	77							
<u>Abies lasiocarpa</u>	65	109	65	-	-	81	-	32	12							
<u>Abies procera</u>	-	32	-	-	-	-	-	-	57							
<u>Picea engelmannii</u>	4	-	-	4	-	73	4	-	4							
<u>Pinus monticola</u>	8	-	4	-	-	16	-	-	-							
<u>Pseudotsuga menziesii</u>	-	8	-	-	8	-	65	40	40							
<u>Tsuga heterophylla</u>	-	-	-	-	8	-	12	-	20							
<u>Tsuga mertensiana</u>	-	-	-	49	177	24	16	-	20							
<u>Abies amabilis</u>	38	T	7	230	149	38	5	17	40							
<u>Abies lasiocarpa</u>	88	119	109	-	-	65	-	45	2							
<u>Abies procera</u>	-	79	-	-	-	-	-	-	115							
<u>Picea engelmannii</u>	3	-	-	10	-	96	10	-	1							
<u>Pinus monticola</u>	11	-	23	-	-	47	-	-	-							
<u>Pseudotsuga menziesii</u>	-	17	-	-	21	-	214	128	80							
<u>Tsuga heterophylla</u>	-	-	-	-	2	-	27	-	16							
<u>Tsuga mertensiana</u>	-	-	-	82	63	13	6	-	5							

number

Table 2.--Tentative list of amphibians and reptiles for Steamboat Mountain Research Natural Area

Class Order	Scientific Name	Common Name
Amphibia Caudata	<u>Dicamptodon ensatus</u> * <u>Dicamptodon copei</u> * <u>Ambystoma gracile</u> * <u>Ambystoma macrodactylum</u> * <u>Taricha granulosa</u> <u>Ensatina eschscholtzi</u>	Pacific giant salamander Cope's salamander northwestern salamander long-toed salamander rough-skinned newt ensatina
Amphibia Anura	* <u>Ascaphus truei</u> * <u>Bufo boreas</u> * <u>Hyla regilla</u> * <u>Rana cascadae</u>	tailed frog western toad Pacific treefrog Cascades frog
Reptilia Squamata (lizards)	<u>Gerrhontus coeruleus</u>	northern alligator lizard
Reptilia Squamata (snakes)	<u>Charina bottae</u> * <u>Thamnophis sirtalis</u> * <u>Thamnophis ordinoides</u>	rubber boa common garter snake northwestern garter snake

* Known to occur on the area.

Table 3.--Tentative list of mammals for Steamboat Mountain Research
Natural Area.

<u>Order</u>	<u>Scientific Name</u>	<u>Common Name</u>
Insectivora	<u>Neurotrichus gibbsi</u>	shrew-mole
	<u>Scapanus orarius</u>	coast mole
	<u>Sorex trowbridgei</u>	Trowbridge shrew
	<u>Sorex vagrans</u>	wandering shrew
	<u>Sorex obscurus</u>	dusky shrew
	<u>Sorex palustris</u>	northern water shrew
	<u>Sorex bendirii</u>	marsh shrew
Chiroptera	<u>Myotis lucifugus</u>	little brown myotis
	<u>Myotis yumanensis</u>	Yuma myotis
	<u>Myotis evotis</u>	long-eared myotis
	<u>Myotis volans</u>	long-legged myotis
	<u>Myotis californicus</u>	California myotis
	<u>Lasiorycteris noctivagrans</u>	silver-haired bat
	<u>Plecotus townsendi</u>	Townsend big-eared bat
	<u>Eptesicus fuscus</u>	big brown bat
Lagomorpha	<u>Lasiurus cinereus</u>	hoary bat
Lagomorpha	<u>Ochotona princeps</u>	pika
	<u>Lepus americanus</u>	snowshoe hare
Rodentia		
	<u>Aplodontia rufa</u>	mountain beaver
	<u>Eutamias townsendi</u>	Townsend chipmunk
	<u>Marmota caligata</u>	hoary marmot
	<u>Spermophilus saturatus</u>	Cascade mantled ground squirrel
	<u>Tamiasciurus douglasi</u>	chickaree
	<u>Glaucornys sabrinus</u>	northern flying squirrel
	<u>Thomomys talpoides</u>	northern pocket gopher
	<u>Castor canadensis</u>	beaver
	<u>Peromyscus maniculatus</u>	deer mouse
	<u>Neotoma cinerea</u>	bushy-tailed woodrat
	<u>Clethrionomys gapperi</u>	Gapper red-backed vole
	<u>Phenacomys intermedius</u>	heather vole
	<u>Microtus longicaudus</u>	long-tailed vole
	<u>Microtus richardsoni</u>	Richardson's vole
	<u>Microtus oregoni</u>	Oregon on creeping vole
	<u>Zapus princeps</u>	Pacific jumping mouse
	<u>Erithizon dorsatum</u>	porcupine
Carnivora		
	<u>Ursus americanus</u>	black bear
	<u>Martes americana</u>	marten
	<u>Mustela erminea</u>	short-tailed weasel or ermine
	<u>Mustela frenata</u>	long-tailed weasel
	<u>Mustela vison</u>	mink
	<u>Spilogale putorius</u>	spotted skunk
	<u>Canis latrans</u>	coyote
Artiodactyla	<u>Felis concolor</u>	mountain lion or cougar
	<u>Lynx rufus</u>	bobcat
Artiodactyla	<u>Cervus canadensis</u>	elk or wapiti
	<u>Odocoileus h. columbianus</u>	black-tailed deer

Recommendation

It is recommended that the Steamboat Mountain Research Natural Area be established on the lands described in this report.

6-19-73
Date

Submitted: Sam H. Corple
Timber Management Staff

6/20/73
Date

Recommended: Donna Williams
Forest Supervisor
Gifford Pinchot National Forest

6/26/73
Date

Recommended: Robert E. Buchanan
Director
PNW Experiment Station

6/25/73
Date

Recommended: Tony Skufca
acting Regional Forester
Region 6

8/10/73
Date

Approved: Heroy Bond
Director
Division of Recreation

8/14/73
Date

Approved: M. B. Duckman
Deputy Chief
Research

8-16-73
Date

Approved: John R. McGuire
Chief

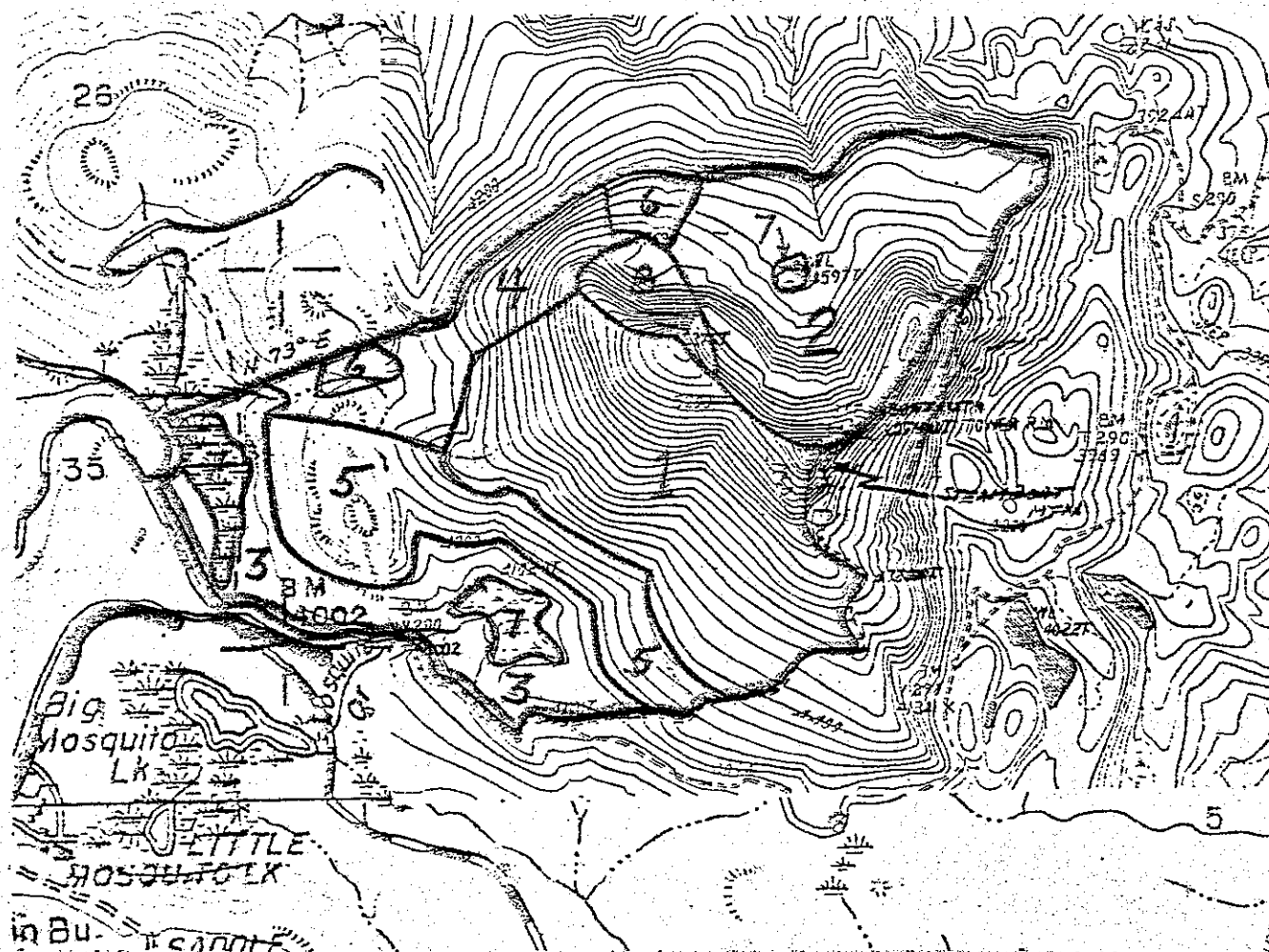
STEAMBOAT MOUNTAIN RESEARCH NATURAL AREA
MOUNT ADAMS R.D., GIFFORD PINCHOT N.F.

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MAJOR HABITAT AND COMMUNITY TYPES AT
STEAMBOAT MOUNTAIN RESEARCH NATURAL AREA

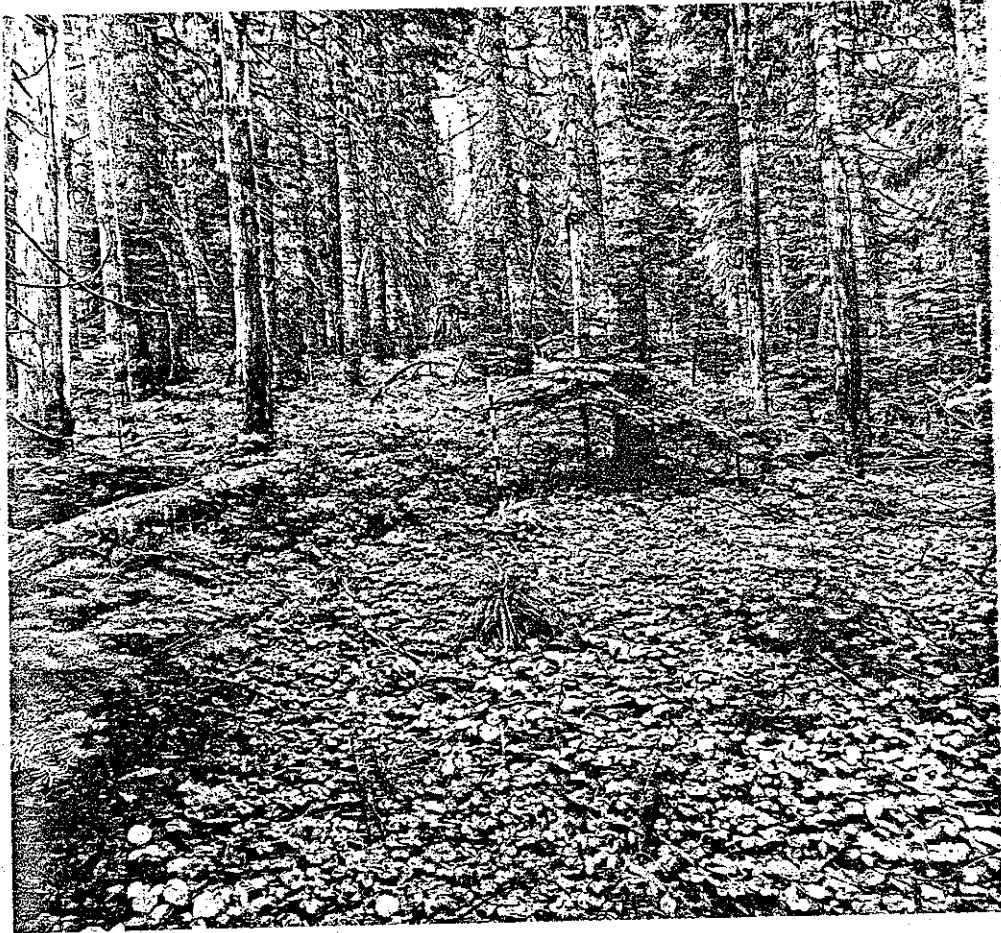


Mapping Unit

Type

- | | |
|---|--|
| 1 | Subalpine Fir Forest |
| 2 | Pacific Silver Fir-Mountain Hemlock Forest |
| 3 | Pacific Silver Fir-Mountain Hemlock-Engelmann
Spruce Forest |
| 4 | Pacific Silver Fir Forest |
| 5 | Mixed Conifer Forest (Douglas-fir, Noble Fir, Hemlock) |
| 6 | Clearcuts |
| 7 | Meadows and Marshes |
| 8 | Cliffs and Scree Slopes |

STEAMBOAT MOUNTAIN RESEARCH NATURAL AREA



Interior of subalpine fir forest characteristic of the south slopes of the proposed natural area.

STEAMBOAT MOUNTAIN RESEARCH NATURAL AREA



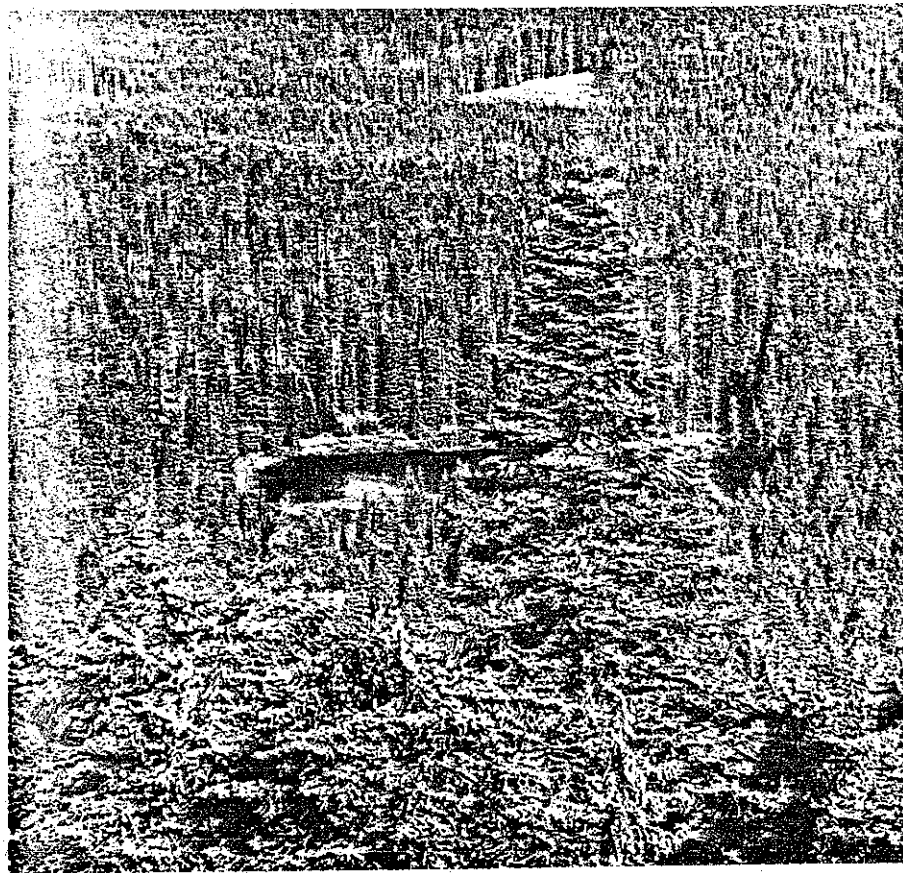
Wet meadows of this type are found in the southwestern part
of the proposed Research Natural Area.

STEAMBOAT MOUNTAIN RESEARCH NATURAL AREA



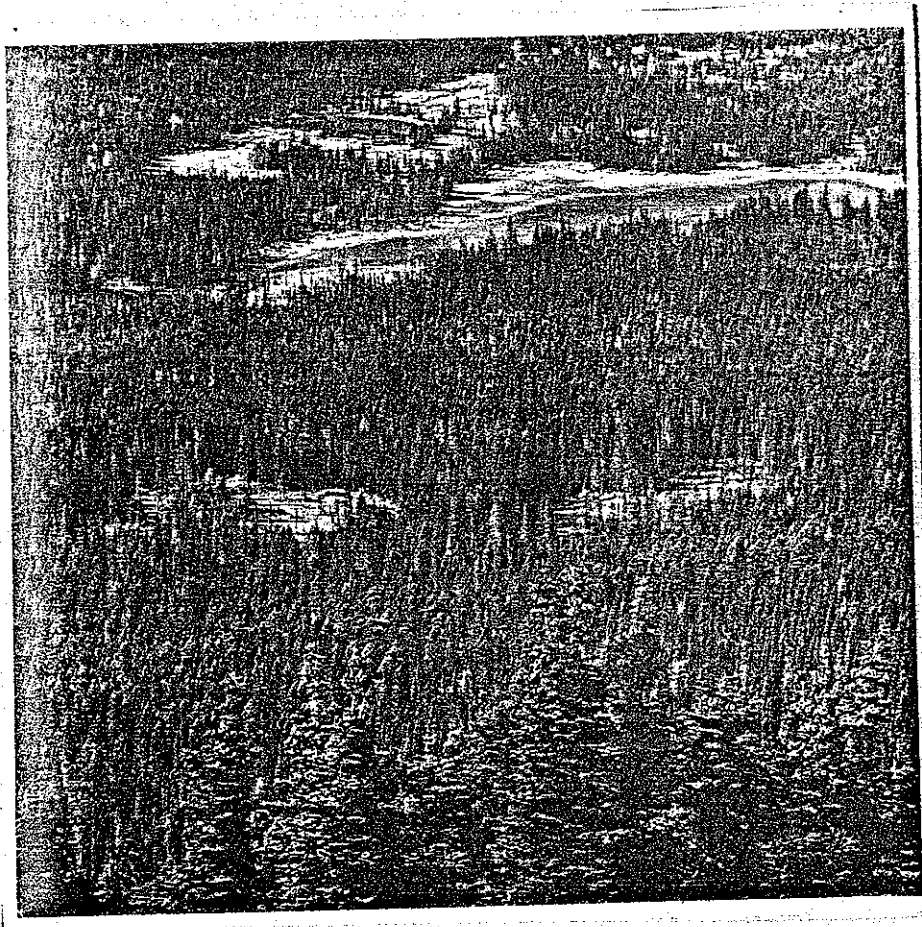
Interior of mountain hemlock-Pacific silver fir forest characteristic of north slopes and cold, wet flat areas around the base of the mountain.

STEAMBOAT MOUNTAIN RESEARCH NATURAL AREA



Small subalpine pond on the lower north slopes of the proposed Research Natural Area; this pond is too shallow to support fish.

STEAMBOAT MOUNTAIN RESEARCH NATURAL AREA



View south from old lookout station; two small wet meadows located just within the southern boundary of the proposed research natural area are visible. Mosquito Lakes (outside of boundaries of natural area) are visible just beyond.

STEAMBOAT MOUNTAIN RESEARCH NATURLA AREA



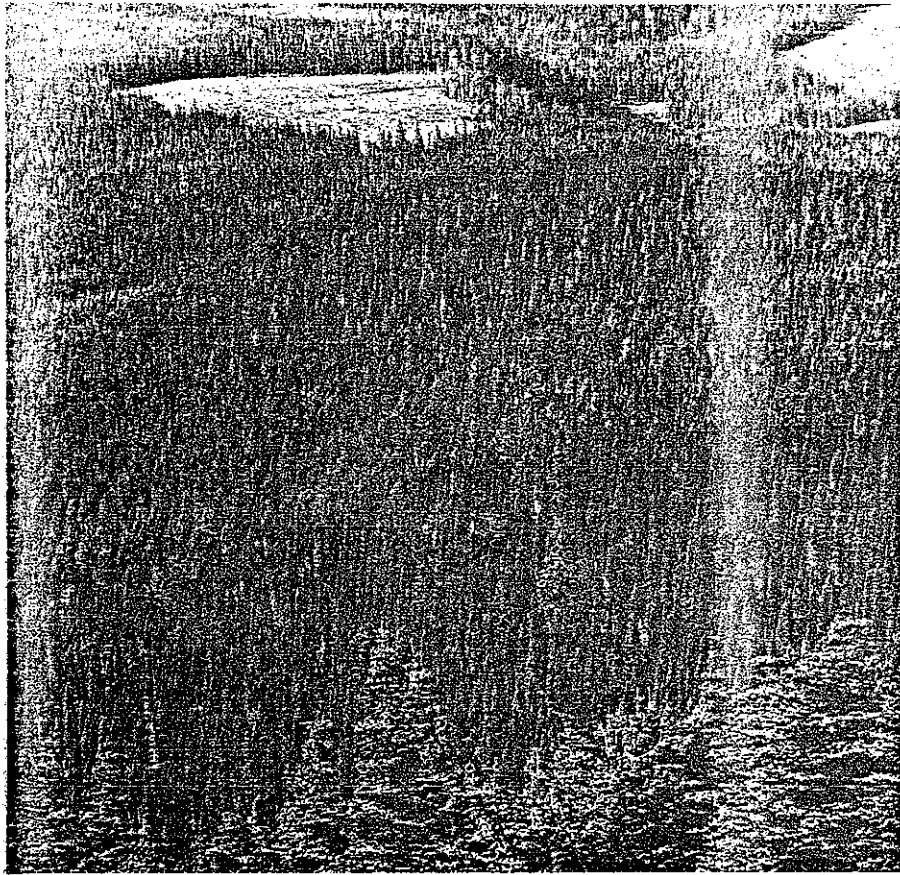
Mountain hemlock-Pacific silver fir forest typical of the north slopes of the proposed research natural area.

STEAMBOAT MOUNTAIN RESEARCH NATURAL AREA



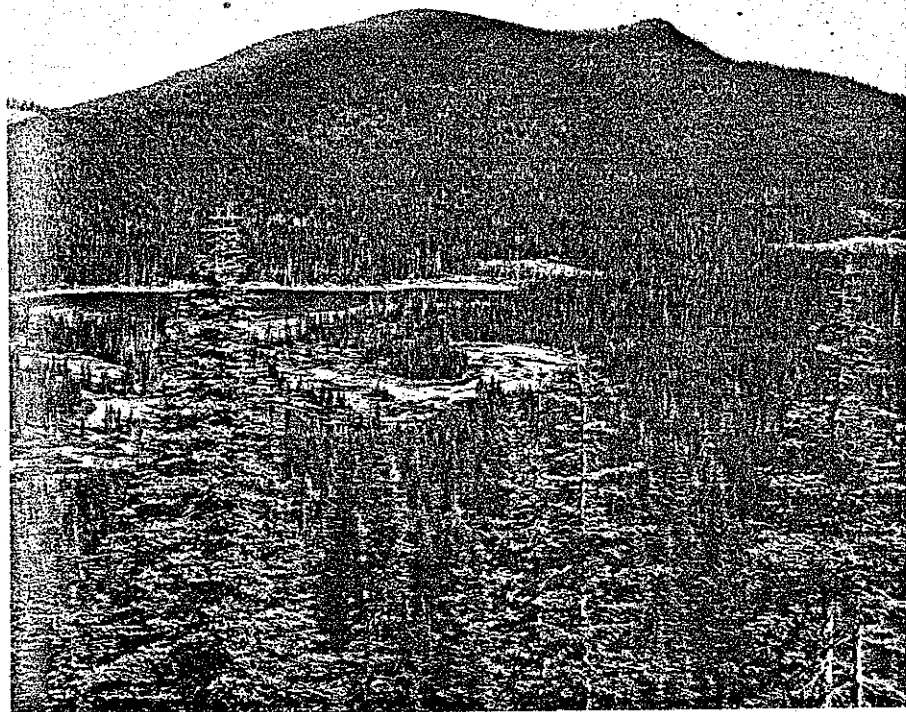
Subalpine fir forest typical of the south slopes of the Steamboat Mountain summit ridge.

STEAMBOAT MOUNTAIN RESEARCH NATURAL AREA



Southwestern corner of proposed Steamboat Mountain Research Natural Area; noble fir is commonly mixed with subalpine and Pacific silver firs on the slopes in this area.

STEAMBOAT MOUNTAIN RESEARCH NATURAL AREA



General view of Steamboat Mountain (south slope) showing its environs; the lake (Mosquito Lake) and clearcuts in the foreground are not within the proposed Research Natural Area.

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DECISION NOTICE / DESIGNATION ORDER
and
FINDING OF NO SIGNIFICANT IMPACT

**ESTABLISHMENT OF SEVEN
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

RNA	National Forest	Ranger District	County	Acres
Oregon				
Cummins/Gwynn Creeks	Siuslaw	Waldport	Lane & Lincoln	6530
Hoover Gulch	Siskiyou	Illinois Valley	Josephine	1264
Lemmingsworth Gulch	Siskiyou	Chetco	Curry	1224
Wildcat Mt.*	Willamette	McKenzie and Sweet Home	Linn	525
Washington				
Chewuch River	Okanogan	Methow Valley	Okanogan	8500
Steamboat Mt.*	Gifford Pinchot	Mt. Adams	Skamania	40
Idaho				
Little Granite**	Nez Perce	Hells Canyon NRA	Idaho	6259

*Additions to previously established RNAs

**Administered by the Wallowa-Whitman National Forest, Region 6

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 one case, Wildcat Mt., areas were recommended for addition to the proposed RNA to better accomplish the original purpose of the RNA. 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 seven 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

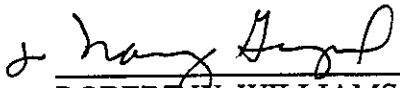
This decision is subject to appeal pursuant to 36 CFR Part 217. A copy of the Notice of Appeal must be in writing and must be submitted to:

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
Pacific Northwest Region

May 17, 1999

Date

(For) Nancy Graybeal
Deputy Regional Forester

ESTABLISHMENT OF SEVEN 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 SEVEN RESEARCH NATURAL AREAS

USDA FOREST SERVICE PACIFIC NORTHWEST REGION OREGON AND WASHINGTON

ENVIRONMENTAL ASSESSMENT

Proposed Action

The proposed action is to establish seven Research Natural Areas (RNAs) as proposed in the Land and Resource Management Plans (Forest Plan) of each respective National Forest. 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
Oregon				
Cummins/Gwynn Creeks	Siuslaw	Waldport	Lane & Lincoln	6530
Hoover Gulch	Siskiyou	Illinois Valley	Josephine	1264
Lemmingsworth Gulch	Siskiyou	Chetco	Curry	1224
Wildcat Mt.*	Willamette	McKenzie and Sweet Home	Linn	525
Washington				
Chewuch River	Okanogan	Methow Valley	Okanogan	8500
Steamboat Mt.*	Gifford Pinchot	Mt. Adams	Skamania	40
Idaho				
Little Granite**	Nez Perce	Hells Canyon NRA	Idaho	6259

*Additions to previously established RNAs

**Administered by the Wallowa-Whitman National Forest, Region 6

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		
Chewuch River	East Slope WA Cascades	Engelmann spruce/horsetail	Mid-elevation riparian with mixed conifer, hardwoods, and marshland-bog	
Cummins/Gwynn Creeks	Oregon Coast Range	Douglas-fir/Western hemlock	Sitka spruce	Coastal aquatic systems
Hoover Gulch	Klamath Mountains	Doug-fir/canyon liveoak	Douglas-fir-tanoak-canyon live oak	
Lemmingsworth Gulch	Klamath Mountains	Port-Orford-cedar/western azalea	Douglas-fir-tanoak/salal	Douglas-fir-tanoak-canyon live oak
		Tanoak/California buckthorn on serpentine	Jeffrey pine-western white pine/manzanita-beargrass	Knobcone pine
Little Granite	Seven Devils	Subalpine fir/grouse huckleberry	Douglas-fir/ponderosa pine/snowberry	Spruce-subalpine fir/false huckleberry
		Snake River greenbush rims	Ponderosa pine/bluebunch wheat-grass	Low, mid and high elevation streams
Steamboat Mt.	East Slope WA Cascades	Pacific silver fir-mountain hemlock-Engelmann spruce		
Wildcat Mt.	West slope Oregon Cascades	Pacific silver fir/foamflower	Pacific silver fir/ vinemaple/foamflower	

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 these RNAs. The proposed RNAs were also subjected to public review and comment during the land management planning process that resulted in the Forest Plans.

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 the RNA addition with a boundary change (Wildcat Mt.) there is a possible loss of research potential in the area that was not included in this RNA addition 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) (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 - 8. A summary of the consequences associated with a particular RNA are listed below the map for that RNA. The summary for Wildcat Mt. also discusses any additional environmental consequences not covered by the Forest Plan Final EIS for the proposed boundary changes.

Table 3: Land Management Plan References

RNA	National Forest	Standards and Guidelines in Land and Resource Management Plan	Environmental Consequences in Final EIS
Chewuch River	Okanogan NF	Chapter 4 - pages 92-93	Chapter IV - pages 69-70
Cummins/Gwynn Creeks	Siuslaw NF	Chapter IV - pages 104-107	Chapter IV - pages 77-80
Hoover Gulch	Siskiyou NF	Chapter IV - pages 81-84	Chapter IV - pages 9,20,77
Lemmingsworth Gulch	Siskiyou NF	Chapter IV - pages 81-84	Chapter IV - pages 9,20,77
Little Granite	Wallowa-Whitman NF	Chapter 4 - page 12, 83	Chapter IV - pages 7,61,72, 78,83,85
Steamboat Mt.	Gifford Pinchot	Chapter IV - page 138	Chapter IV - pages 6,43,53, 87,96,98,100,106,120,135
Wildcat Mt.	Willamette NF	Chapter IV - pages 134-137	Chapter IV - pages 166-169

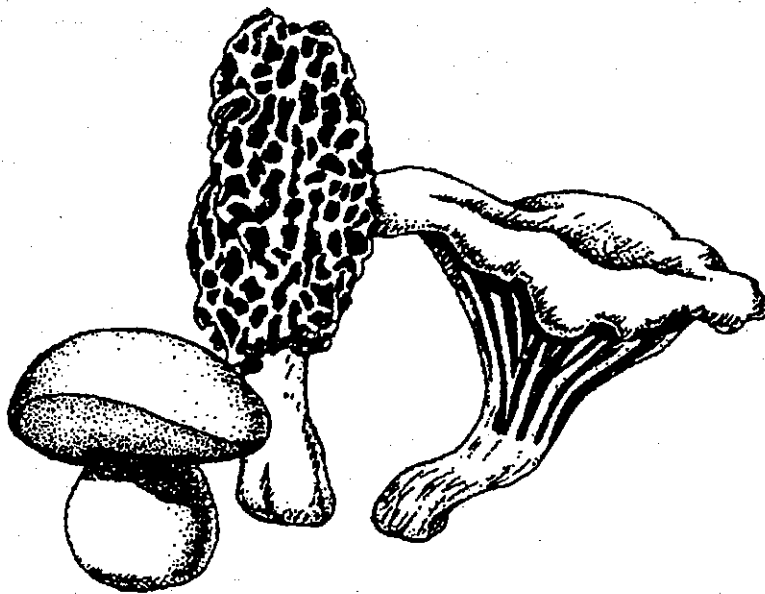
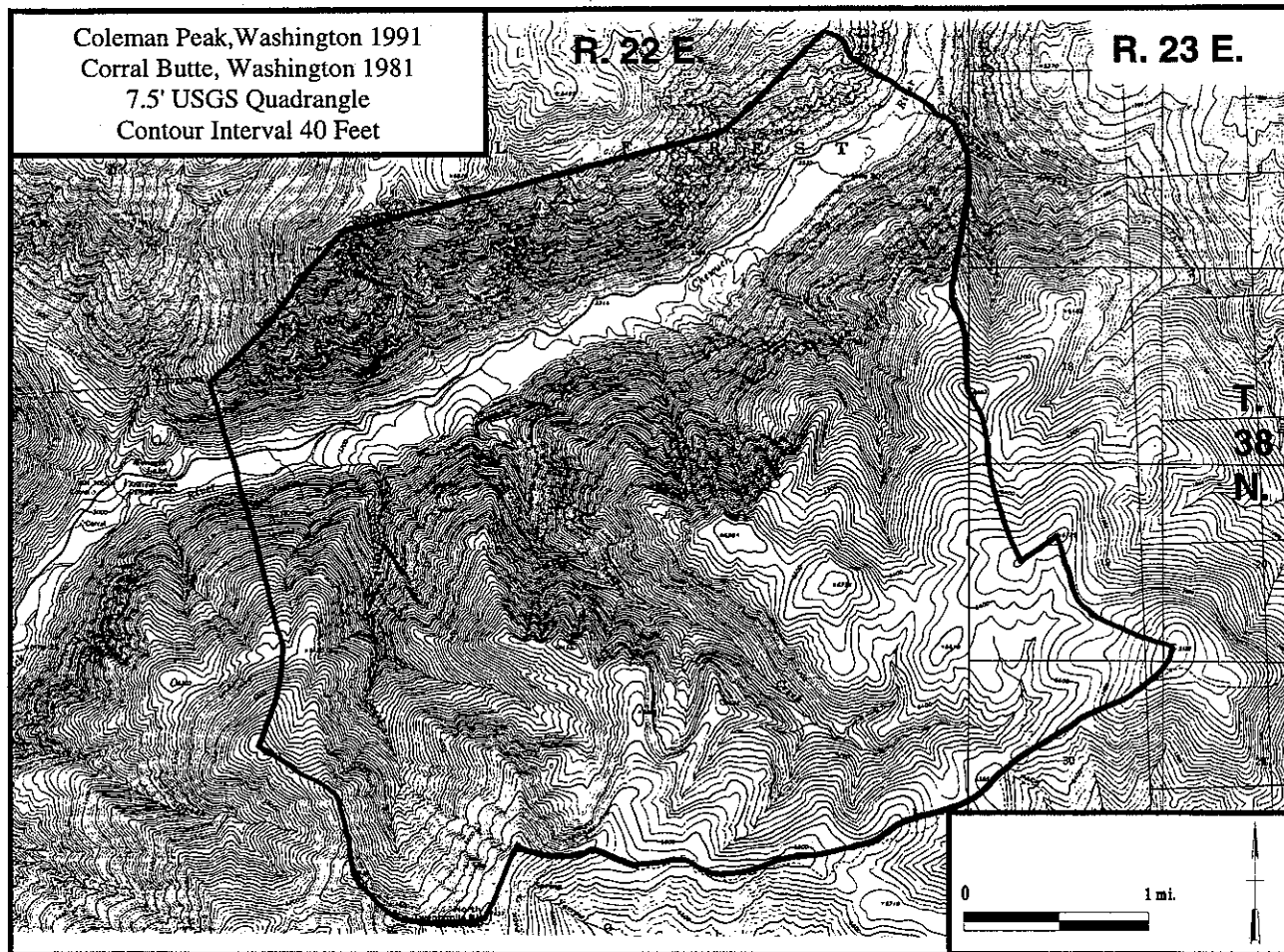


Figure 2: Chewuch River RNA



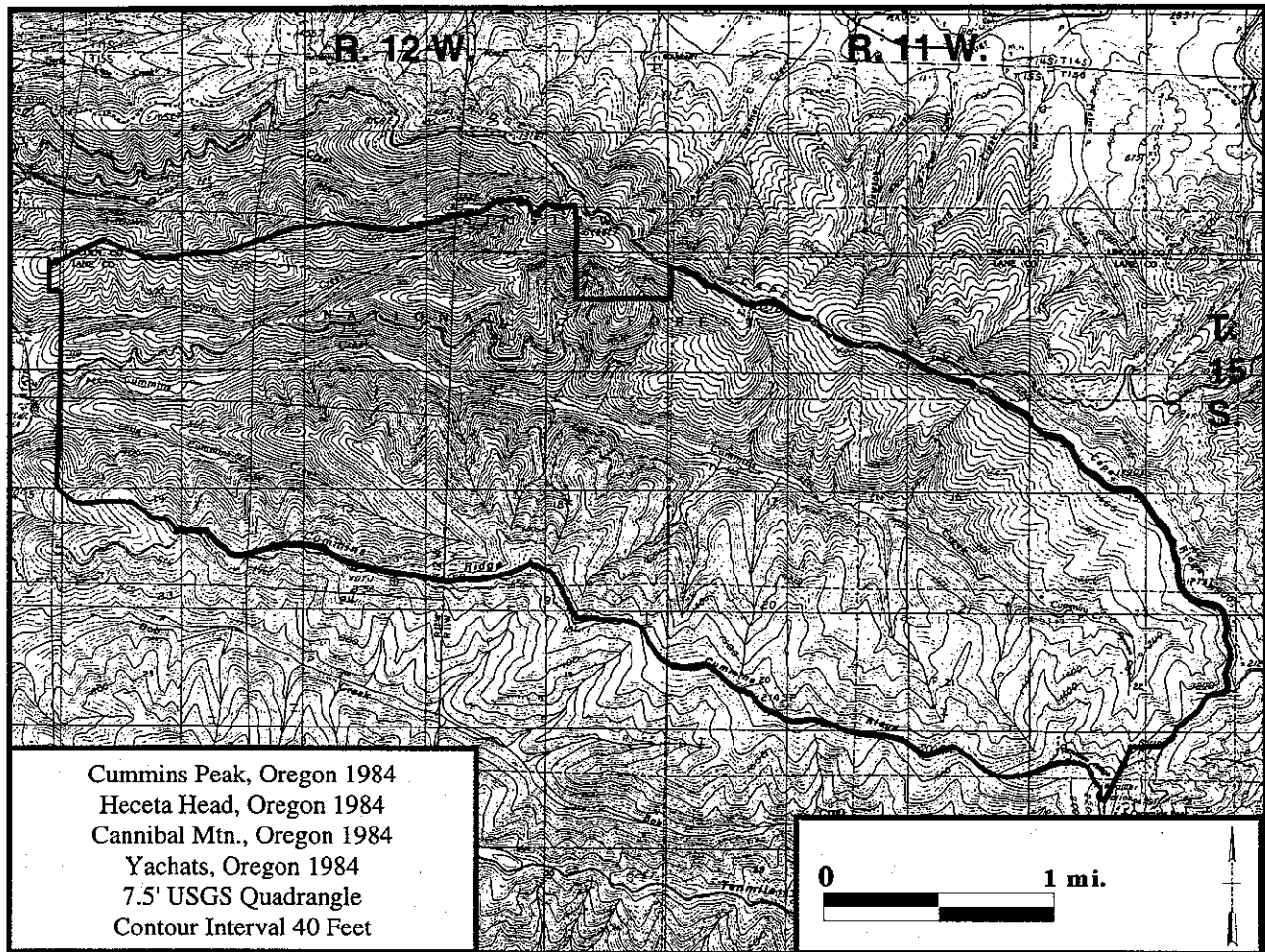
Mineral Resources: There are no known mineral resources in this RNA.

Grazing: There is currently no grazing in this RNA although there have been cattle and sheep in the area along the road in the past and there are allotments adjacent to the area.

Timber: Approximately 2400 acres are covered by 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 is adjacent to the Pasayten Wilderness. The area within and surrounding the RNA is a popular location for hiking, hunting, fishing and other recreational activities. Establishment of the RNA should not significantly impact those activities. There are a number of dispersed recreation sites along the Chewuch River Road within the RNA. This existing use will still be allowed but not encouraged.

Figure 3: Cummins/Gwynn Creeks RNA



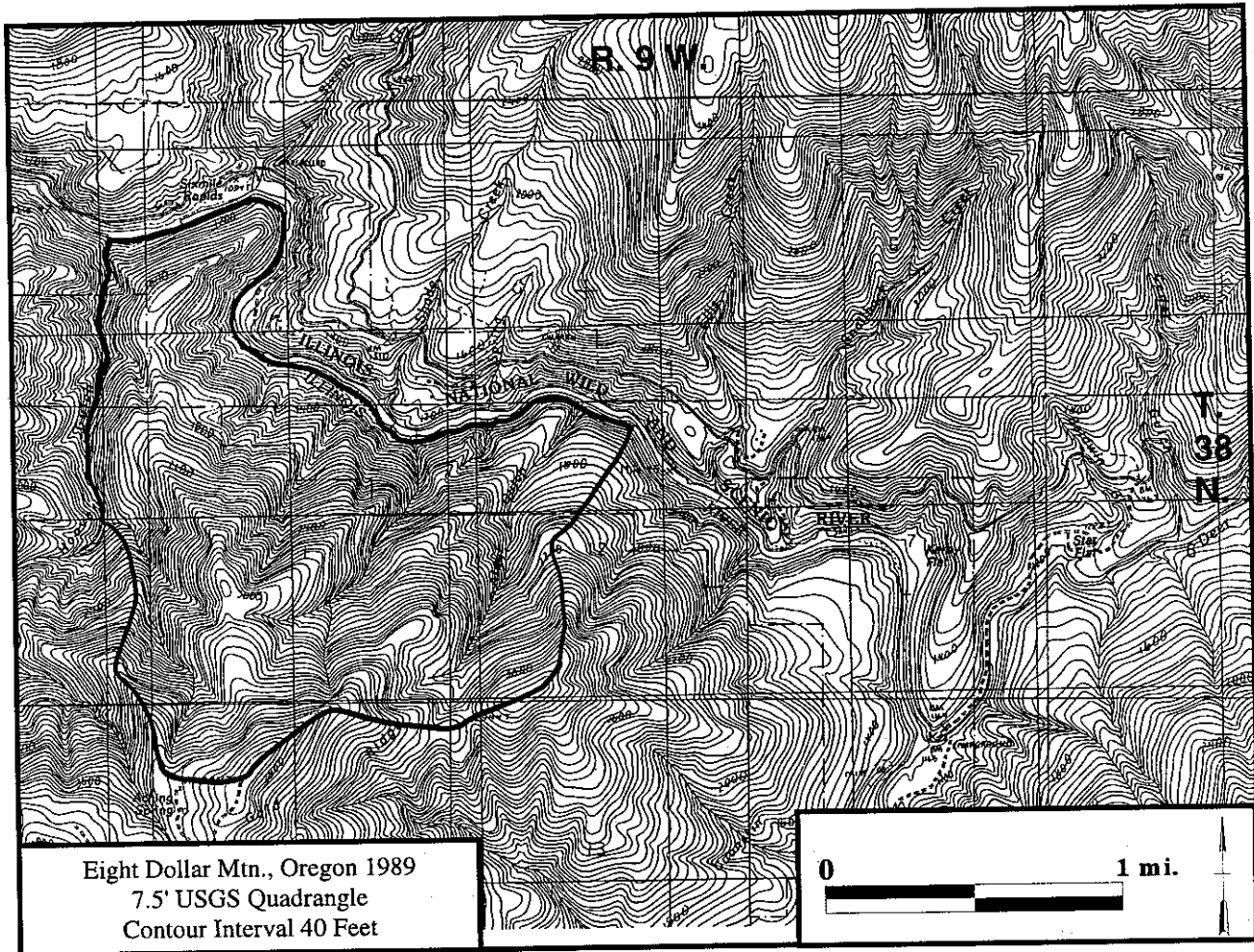
Mineral Resources: There are no known mineral resources in this RNA.

Grazing: There is no grazing in this RNA.

Timber: The entire area of the RNA is forested lands that exceed the productivity requirements for timber management. However, all most all the RNA is in the Cummins Creek Wilderness. This designation precludes timber harvest and these lands were not included in the timber base for the Forest Plan. Therefore, establishment will have no effect on probable sale quantity.

Recreation: The RNA receives some dispersed recreation such as fishing, hunting and hiking. There several trails and there are plans to build additional trails and create isolated campsites off the trails in the Wilderness. It is expected that this recreational use will increase in the future but this use is not expected to create conflicts with RNA values.

Figure 4: Hoover Gulch RNA



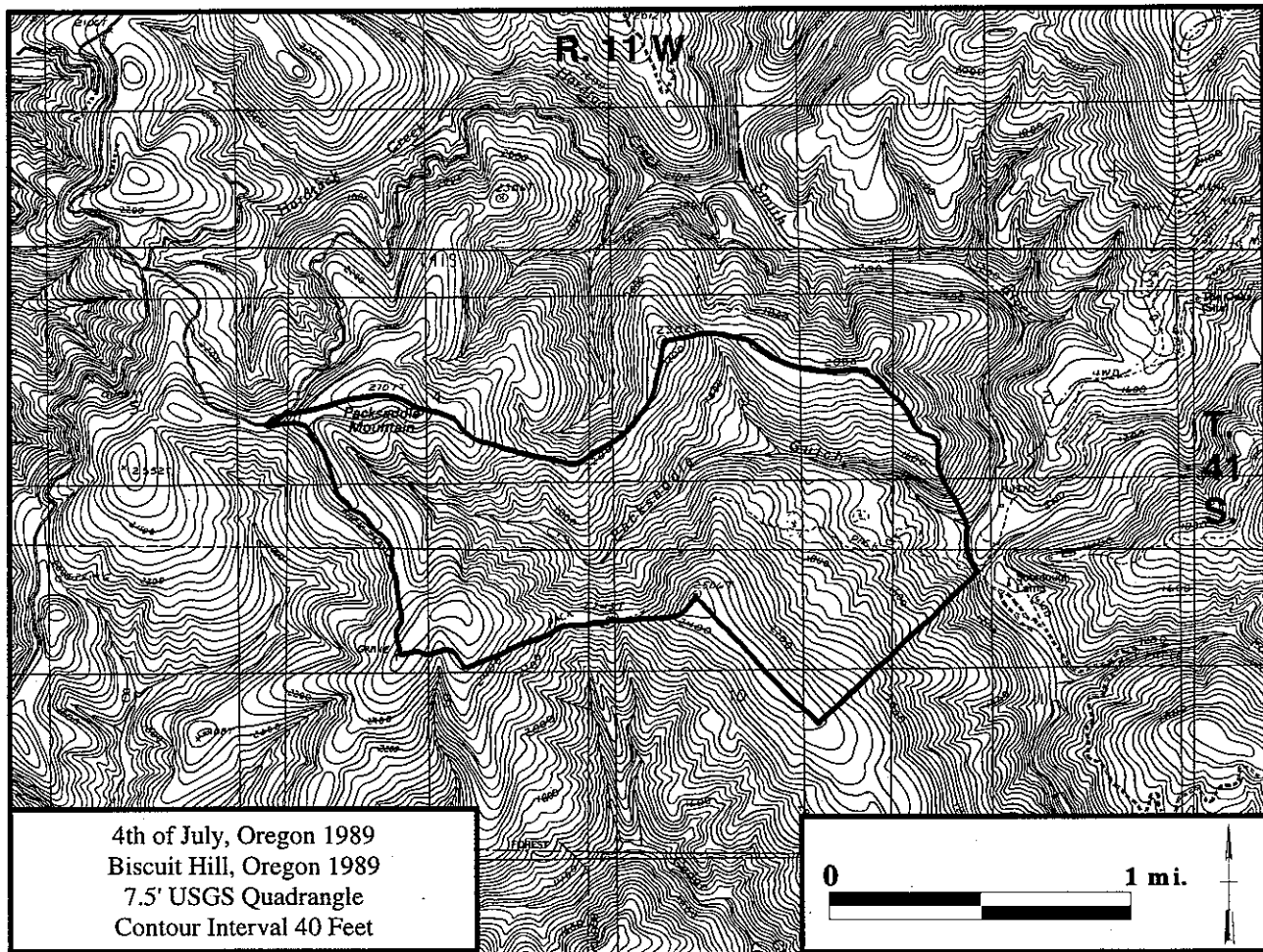
Mineral Resources: There are no valid mining claims in this RNA.

Grazing: There is no grazing in this RNA.

Timber: That portion of the RNA within 1/4 mile of the Illinois River, approximately 3/4 of the RNA, is in the Wild and Scenic River corridor and is not included in the allowable cut base. Only 70 acres of the remainder has forest land suitable 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: Most current use is immediately adjacent to the Illinois River. The RNA itself receives a little use during the summer and this use is likely to continue without affecting the research or educational values of the RNA.

Figure 5: Lemmingsworth Gulch RNA



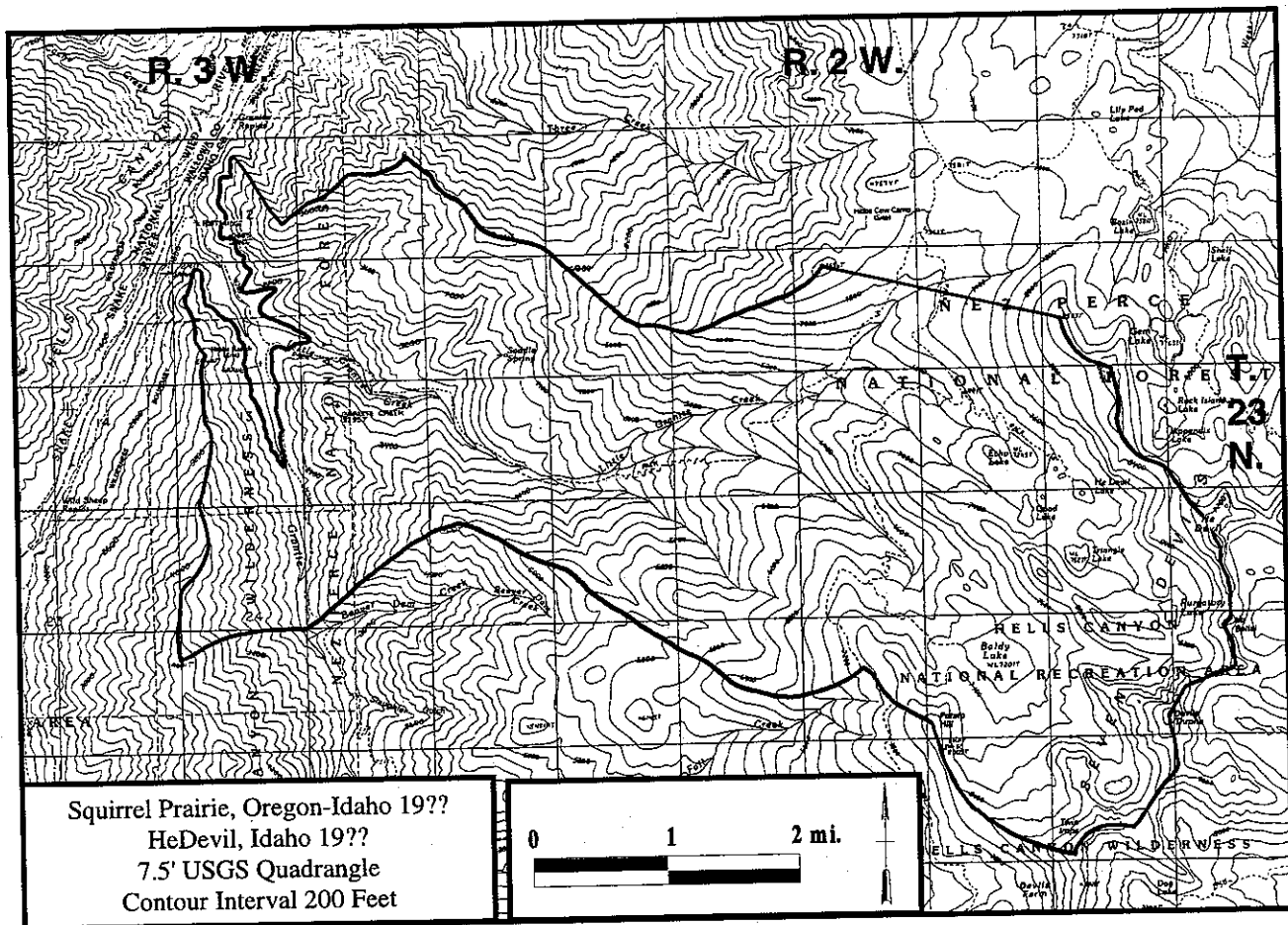
Mineral Resources: There are nine valid mining claims on record in this area. They are not expected to become active, but if they were to begin operations the operating plans would require mitigation measures to protect RNA values. If these mitigation measures prove inadequate then withdrawal from mineral entry may be recommended.

Grazing: There is no grazing in this RNA.

Timber: Timber resource values are low as most of the RNA has unsuitable soils for producing commercial timber. This land was not included in the timber base for the Forest Plan. Therefore, establishment will have no effect on probable sale quantity.

Recreation: Current use is occasional and mostly restricted to the trail corridor. This use is expected to continue unless it negatively impacts the fragile rare plant communities found in the RNA.

Figure 6: Little Granite RNA



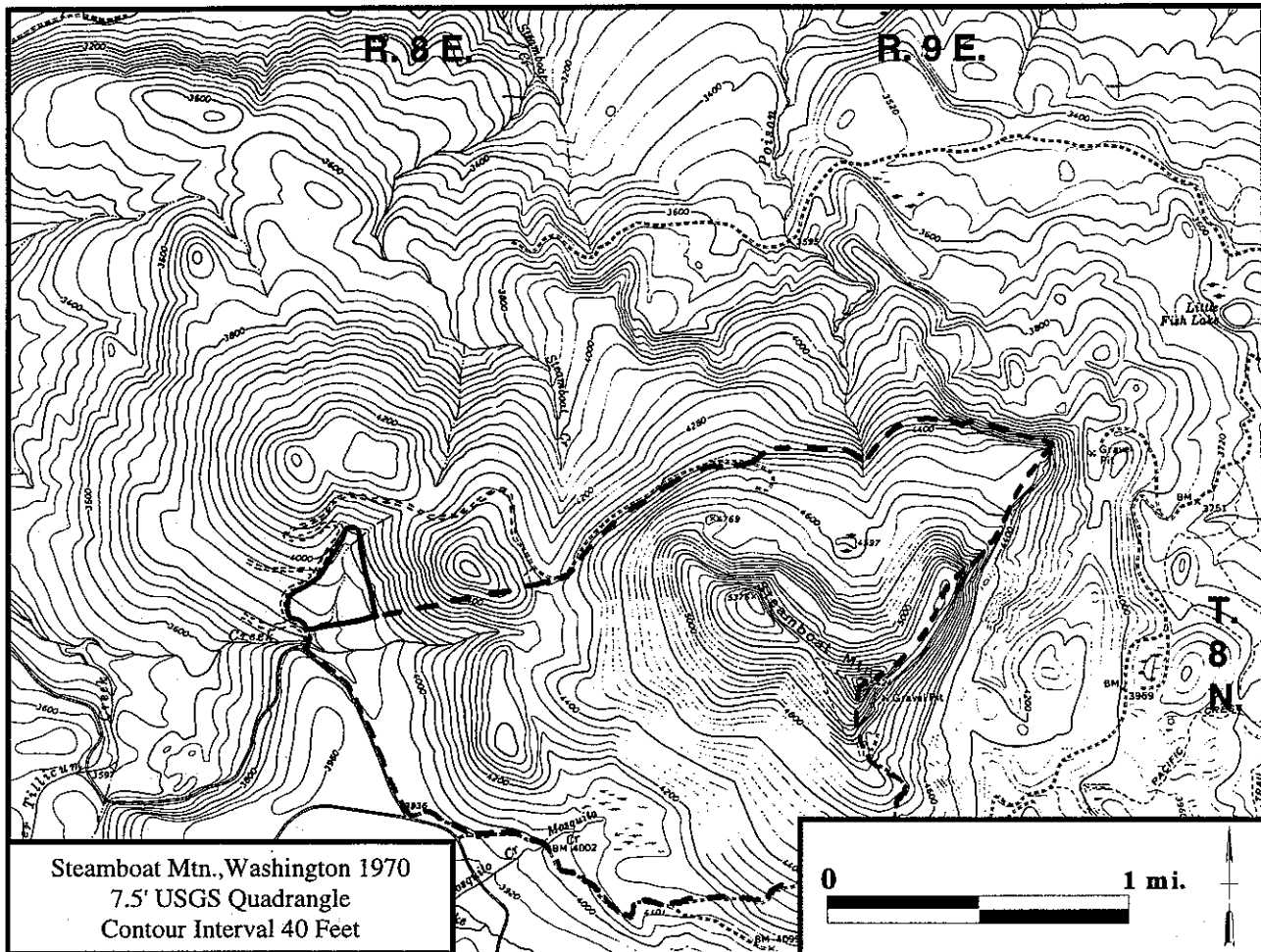
Mineral Resources: There are no active hardrock mining claims in this RNA. There has been gold mining activity north of this RNA and is likely that some exploratory mining has taken place in the RNA in the past.

Grazing: There are no grazing allotments in this RNA. There is some incidental grazing from pack and saddle stock during the summer and fall. This limited use is expected to continue unless it creates unforeseen conflicts with RNA educational or research objectives.

Timber: This RNA is entirely within the Hells Canyon Wilderness so timber management is precluded by that designation. Therefore, establishment will have no effect on allowable sale quantity.

Recreation: There is substantial recreation use in the upper lakes basin from backpackers and horse packers during the summer months, with use concentrated around the lakes themselves. There are two trails through the RNA and the lower end also receives occasional use by river runners during the spring season. There is some use of the upper elevations in the fall from hunters. Increased recreational use is expected over time but it is not expected to impact RNA values and no changes in management of recreation are proposed at this time.

Figure 7: Steamboat Mt. RNA Addition



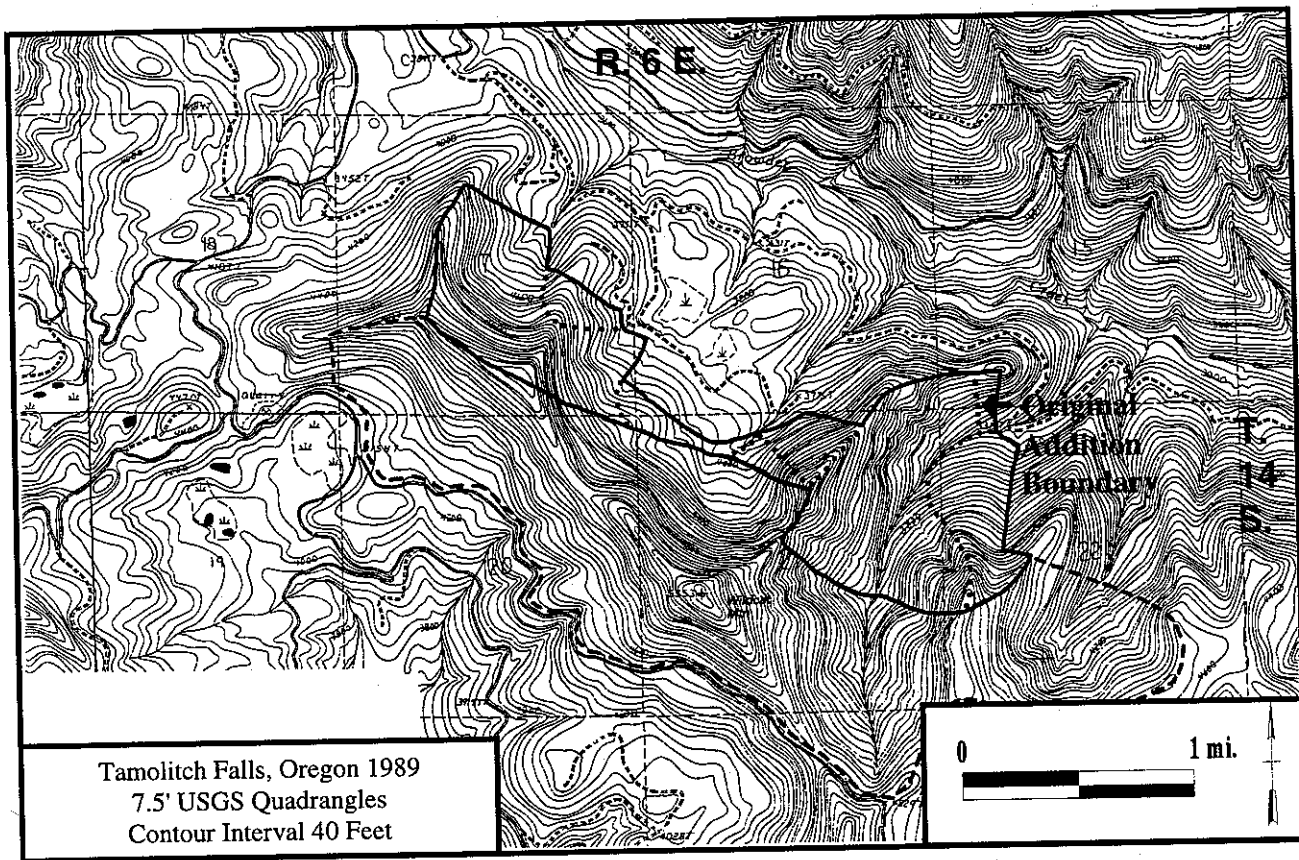
Mineral Resources: There are no known mineral resources in this addition to the RNA.

Grazing: There is no grazing in this RNA.

Timber: Approximately 35 acres out of 40 are within a Riparian Reserve. These lands are not available 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: Dispersed recreation such as hunting and hiking will continue unless it reduces the research or educational values of the RNA.

Figure 8: Wildcat Mt. RNA Addition



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

Grazing: There is no grazing in this RNA.

Timber: The addition proposed in the 1990 Willamette National Forest Land Management Plan totaled 384 acres. The current proposed addition totals 525 acres. The current proposed addition to the RNA contains approximately 178 acres of forest suitable for timber management, approximately 51 acres more than the original proposed addition. Of the 178 acres only 50 are available for timber harvest due to other concurrent land management allocations such as Riparian Reserves, a Late-Successional Reserve, and Special Habitat. This reduction in suitable and available acres was accounted for in calculation of probable sale quantity during the development of the Northwest Forest Plan, therefore there will be no effect from establishment.

Recreation: There is very limited recreational use within the RNA due to its lack of trails or any other recreational facilities. The most likely use is some hunting which is limited by the steep slopes and Sitka alder/devil's club patches. This use is not expected to conflict with the research or educational values of the RNA or be affected by designation of this addition to the RNA.