UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

ESTABLISHMENT REPORT
MONTE CRISTO RESEARCH NATURAL AREA
GIFFORD PINCHOT NATIONAL FOREST

* U.S. GOVERNMENT PRINTING OFFICE: 1988-213-563 - 415/6115

FS-6200-7 (10/73)

Cover Page Info for Cover of RNA Establ. Record

Name: Monte Cristo RNA

Region: R06 Station: PNW

State: Washington County: Klickitat

Boundary Certified on - Appendix D

TMIS #: 00

Date Reg. Forester signed: _____

Lat.: 45 degrees 53' N

Long.: 121 degrees 35' W

1980 SAF	Acres	Ha
229 Pacific Douglas-fir	645	261
Grass Bald/Rock	20	8

1966 Kuchler	Acres	Ha
Silver fir-Douglas fir forest (Abies Pseudotsuga)	645	261
Dry Meadow	20	8

Access (under "location"): map vs. description both

Original maps, or photocopies? Photocopies

Photos included? no

Abutted by non-FS land? Yes, Washington Deparment of Natural Resources along the east boundary.

SAF & Kuchler types consistent? yes

Climate records: length of record 3 yr Distance to weather sta. 5 miles

Fauna & Flora authorities: Hitchcock and Cronquist 1973; Little 1979; McCune and Geiser 1997; Phillips 1981 & 1991; Singer 1986; Smith 1975.

Land use conflicts? Grazing? Trails? Recreation? Some recreation use on trail but fairly minor. Possible new horse trail might go through the RNA on the already exisiting road.

Commercial Forest Land: in Wilderness

* Classify at Subsection level if possible: a 5-digit code (or 6-digit, if beginning with "M"). If not possible, then at Section level.

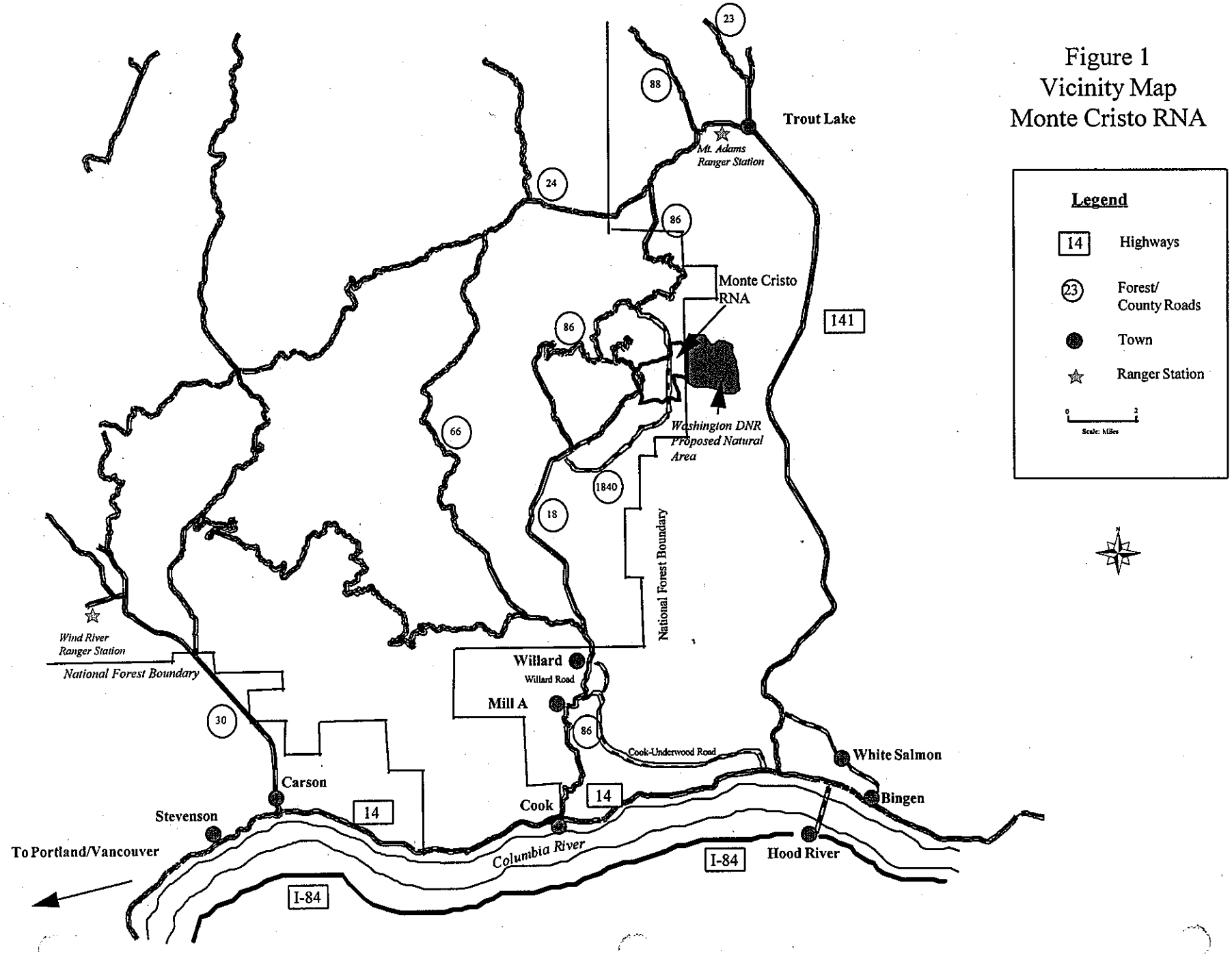

Figure 1
Vicinity Map
Monte Cristo RNA

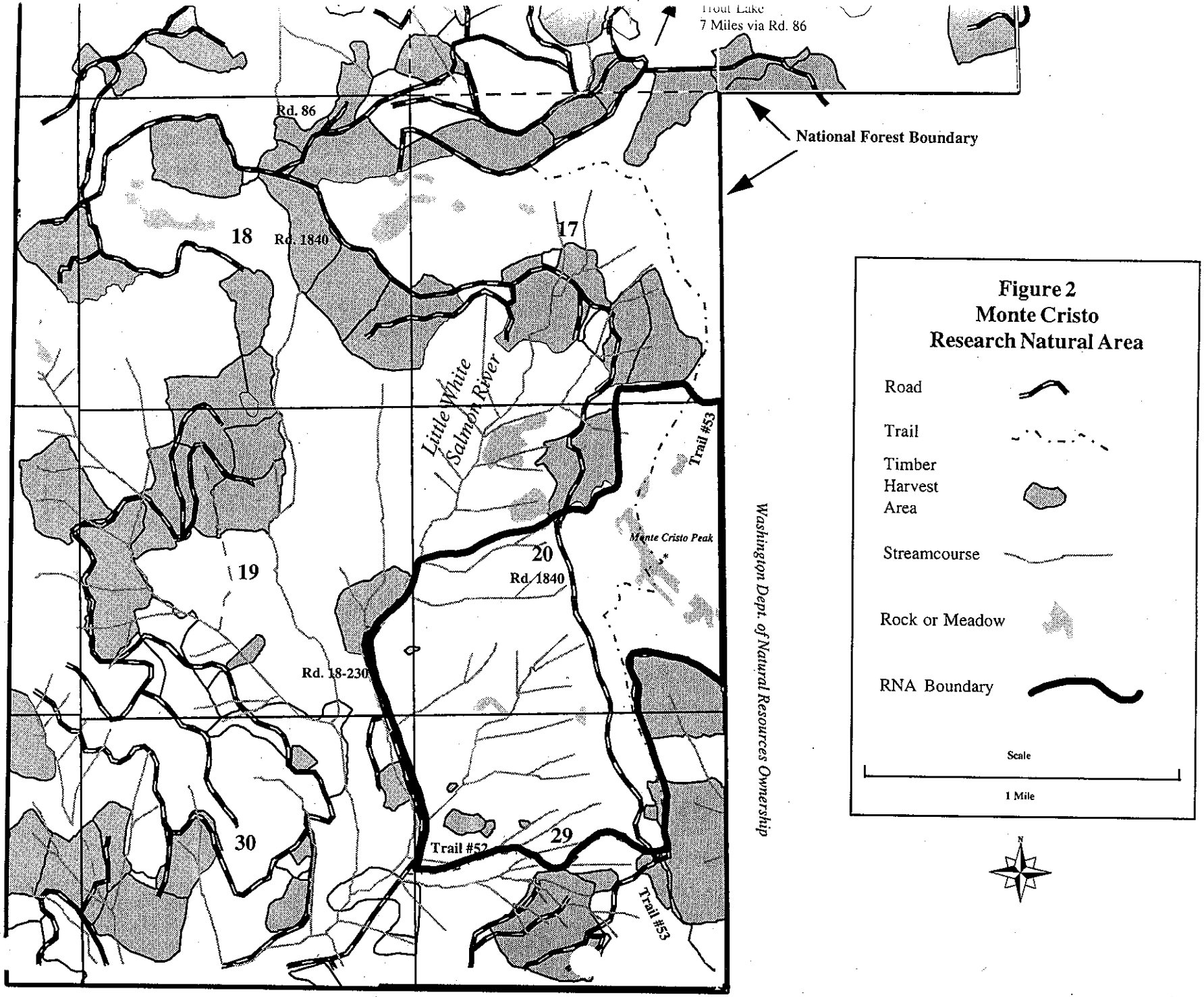

Figure 2
Monte Cristo
Research Natural Area

Road

Trail

Timber Harvest Area

Streamcourse

Rock or Meadow

RNA Boundary

Scale

1 Mile

N

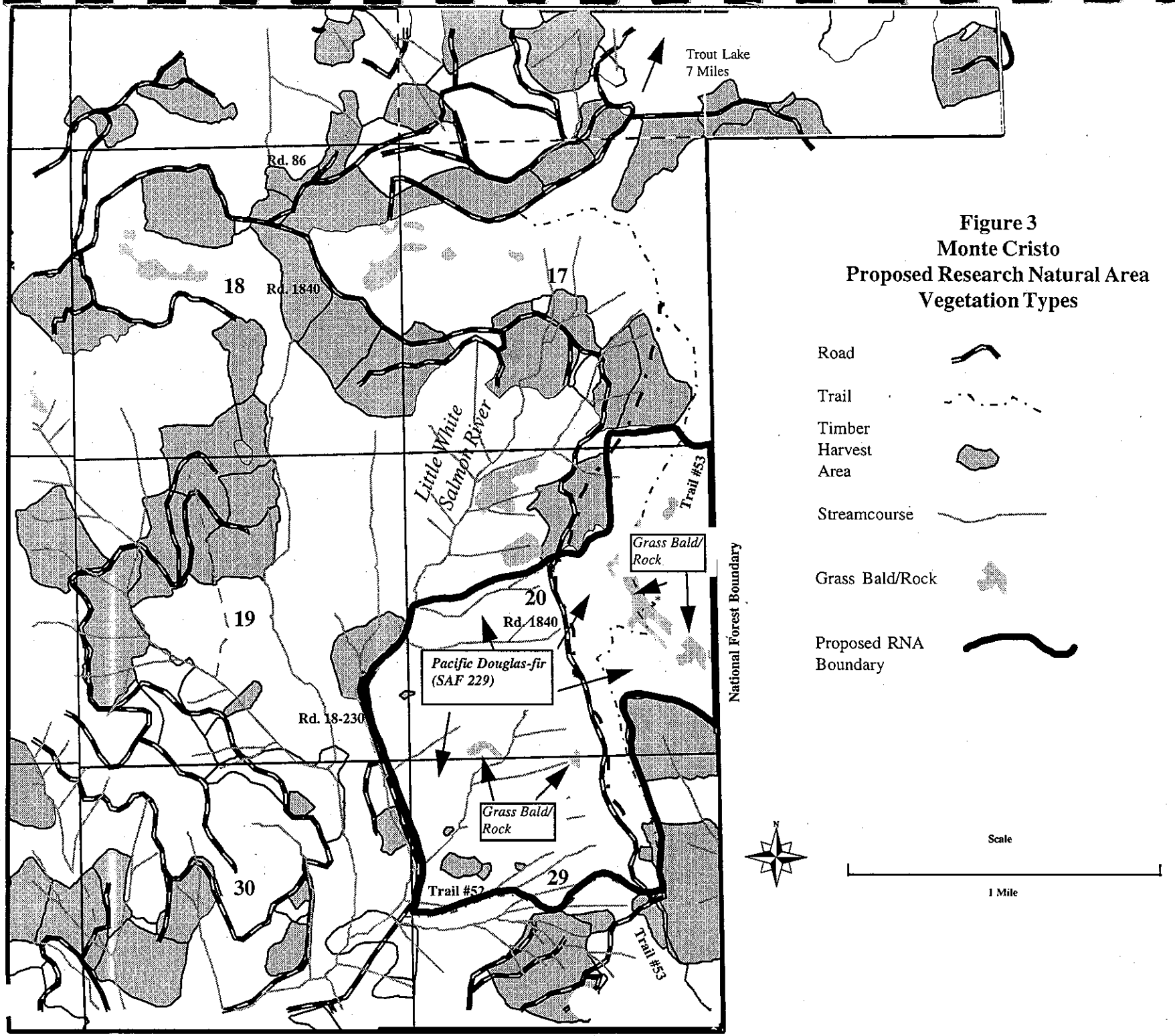

Figure 3
Monte Cristo
Proposed Research Natural Area
Vegetation Types

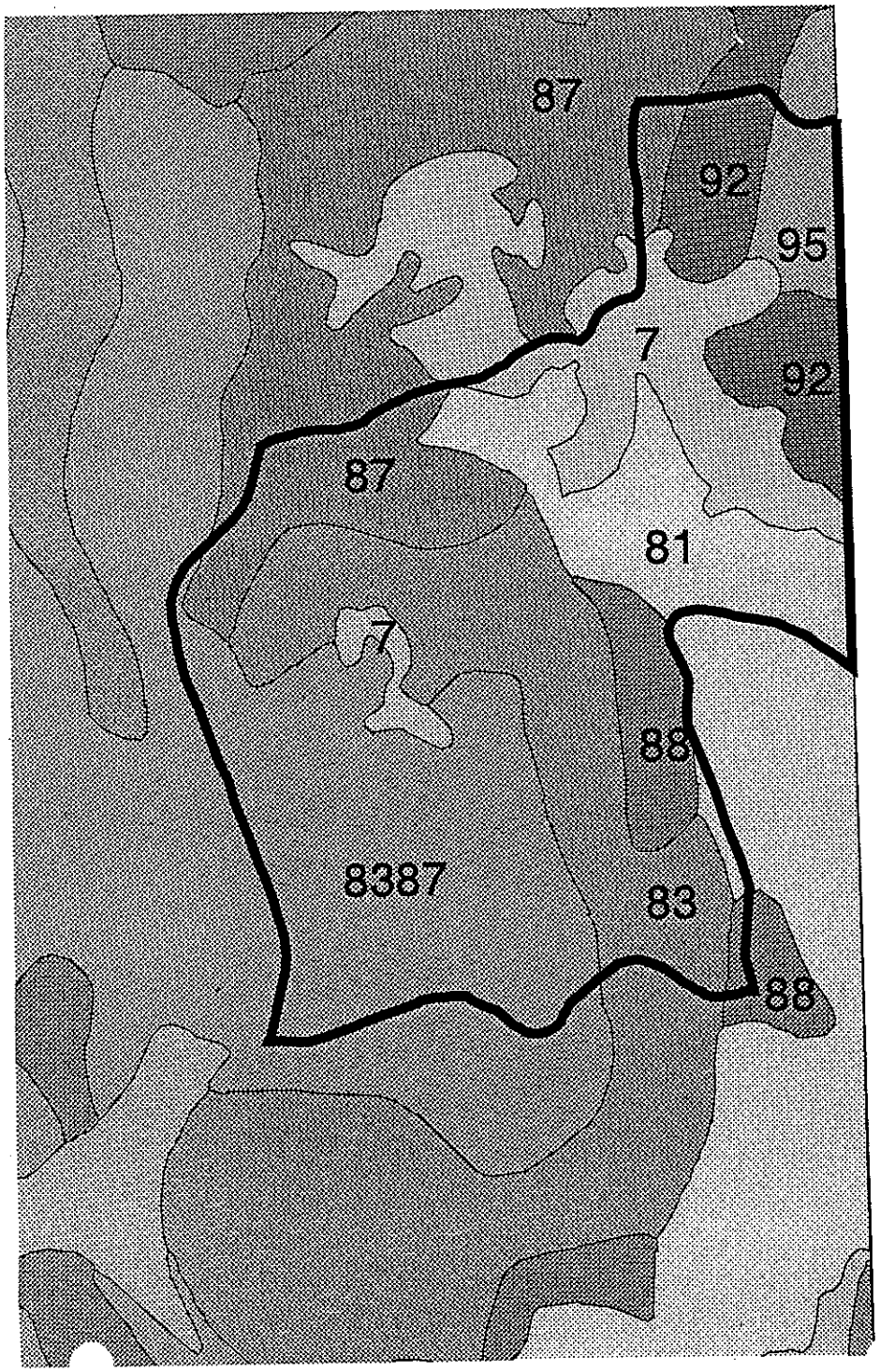

Figure 4
Soil Types
Monte Cristo RNA

7, 87, 8387	Soil Mapping Units (Ref: Gifford Pinchot National Forest Soil Resource Survey)

0.25 0 0.25 0.5 Miles

N

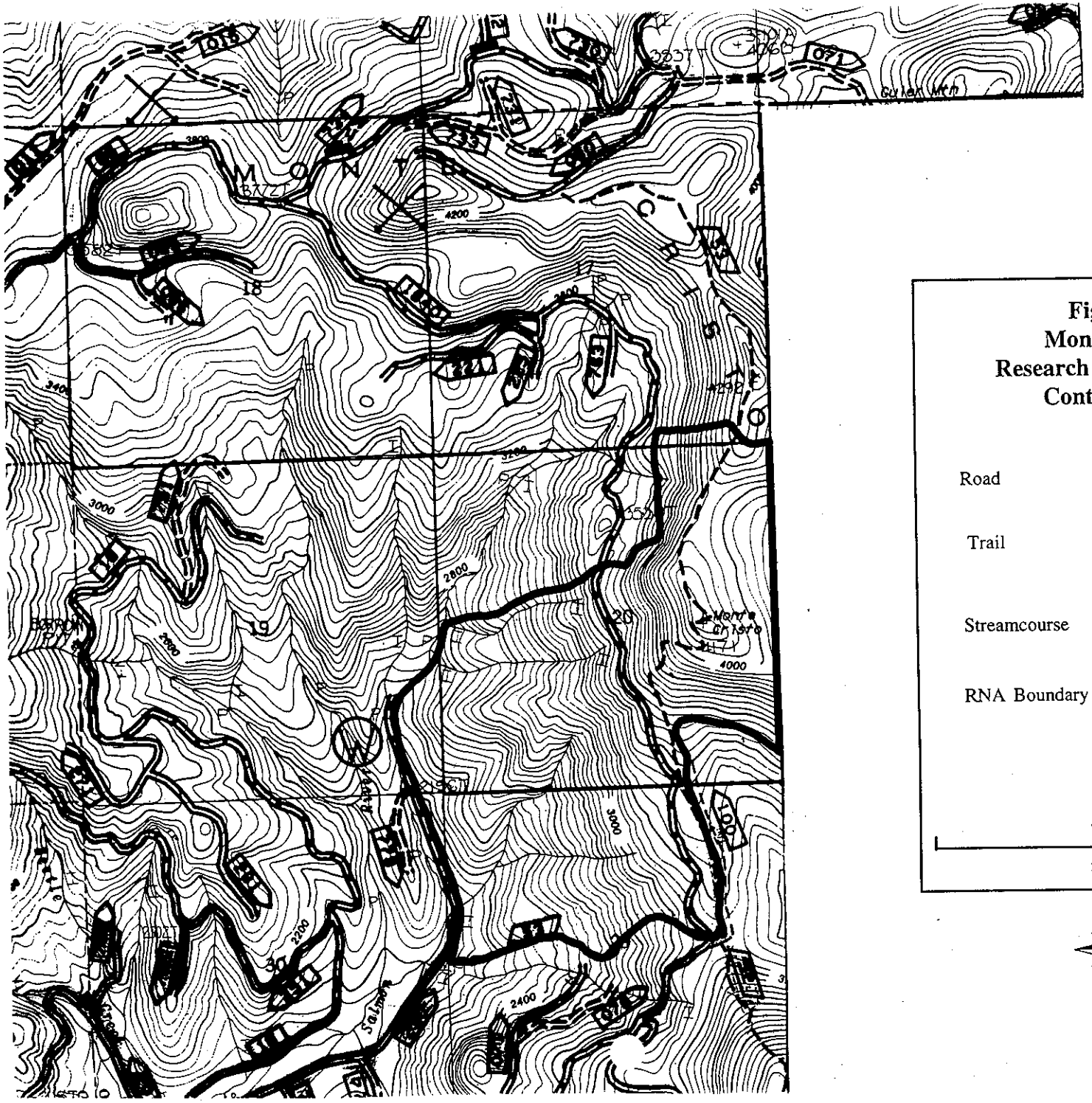

Figure 5
Monte Cristo
Research Natural Area
Contour Map

Road

Trail

Streamcourse

RNA Boundary

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SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Monte Cristo Research Natural Area

Gifford Pinchot National Forest

Klickitat 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 _____ Date 3/3/98
James D. White, General Biologist, Gifford Pinchot National Forest

Recommended by _____ Date 3/3/98
Gregory L. Cox, District Ranger, Mt. Adams Ranger District

Recommended by _____ Date 4-22-98
Acting for Ted C. Stubblefield, Forest Supervisor, Gifford Pinchot National Forest

Concurrence of _____ Date 4/29/98
for Thomas J. Mills, Station Director, Pacific Northwest Research Station

Title Page

ESTABLISHMENT RECORD for MONTE CRISTO RESEARCH NATURAL AREA within Gifford Pinchot National Forest, Klickitat County, Washington

Establishment Record
for
Monte Cristo Research Natural Area
within
Gifford Pinchot National Forest
Klickitat County, Washington

A. INTRODUCTION

The Monte Cristo Research Natural Area (RNA) is located within the Little White Salmon valley, on the Mt. Adams Ranger District, along the eastern edge of the Gifford Pinchot National Forest. The boundaries of the RNA encompass 665 acres (269 hectares). The RNA includes Monte Cristo peak, site of a former fire lookout; dry, grassy meadows along the ridge between the White Salmon and Little White Salmon valley; steep, westerly-facing slopes between the ridge and the Little White Salmon valley; and a small amount of land east of the ridgetop, within the White Salmon valley.

Few management activities have occurred within the RNA. A lookout station was located on the top of Monte Cristo; the lookout cabin was removed in the 1950s. A trail system provided access to the lookout from the Little White Salmon valley, and is still used as a recreation trail. Grazing by sheep has occurred sporadically over the past several decades. A portion of road 1840 is located within the RNA. No timber harvest has occurred within the RNA.

(1) Land Management Planning

The Monte Cristo area was originally considered for RNA status in 1989. Associate Area Ecologist Chris Topik proposed the area for RNA status as input in the Gifford Pinchot National Forest planning process. The Gifford Pinchot National Forest Plan (199Q) noted that the area was being evaluated as an RNA. The Forest Plan also designated a large portion of the proposed RNA as a Botanic Special Interest Area. Actual analysis of the area's potential contribution to the RNA system was conducted in 1995.

B. OBJECTIVES

The objective of establishing the Monte Cristo Research Natural Area is to prevent further disturbance (by humans) of a diverse collection of terrestrial ecosystems that include grand fir zone forests, dry, ridgetop meadows, and small intermittent stream drainages.

These ecosystem types can serve as reference areas for the study of succession, as a baseline for measuring long-term ecological changes, as a reservoir of biologic diversity, and as control areas for monitoring effects of resource management techniques and practices on similar sites.

C. JUSTIFICATION

The Washington Natural Heritage Plan (WNHP) 1993-95 update (Washington State Department of Natural Resources, 1995) identifies several terrestrial elements, within the Eastern Cascades Province, and one individual plant element for which the Monte Cristo RNA offers partial representation. These are:

Element 8, Grand fir/vine maple (Abies grandis/Acer circinatum).

Element 9, Grand fir/mesic forb (Abies grandis/mesic forb).

Element 10, Grand fir/Oregongrape (Abies grandis/Berberis spp.).

Element 11, Grand fir/vanillaleaf (Abies grandis/Achlys triphylla).

Plant Element Cypripedium fasciculatum, clustered lady's slipper

Currently, none of the community elements are adequately represented by natural areas covered in the Washington Natural Heritage Plan, although each may be partially represented.

Elements 8, 9 and 10 are priority 2 in the WNHP. Priority 2 elements typically have regional distribution in Washington, and few occurrences exist in a natural condition. They usually have little or no representation in existing natural areas or protected areas, but may receive some de facto protection in other managed areas.
Element 11 is a priority 3 element. Priority 3 elements typically have regional distribution within Washington, but the number of known occurrences varies greatly within the element. Priority 3 elements may be partially represented in existing natural areas, or are in areas that provide de facto protection.

The Monte Cristo RNA also includes dry, grassy ridgetop meadows, relatively small and unique communities that complement the forested communities. No threatened, sensitive, or endangered species occur in these meadows. The ridgetop contains occasional noble fir (Abies procera), and mountain hemlock (Tsuga mertensiana).

D. DISTINGUISHING FEATURES

The principal distinguishing features of this RNA are the grand fir zone coniferous forests, and the dry, ridgetop meadows. Forests are composed primarily of approximately 150-year old stands of Douglas-fir (Pseudotgsuga menzesii). Shade tolerant tree species, primarily grand fir, have begun to establish themselves. Cooler, more moist locations near the Monte Cristo ridgetop contain a few noble fir, pacific silver fir (Abies amabalis), and an occasional mountain hemlock. Forests near the bottom of the Little White Salmon valley contain western redcedar (Thuja plicata), and western hemlock (Tsuga heterophylla). Oceanspray (Holodiscus discolor) and vine maple (Acer circinatum) are prominent in the understory.

Ridgetop meadows surround Monte Cristo peak. The meadows house a diverse array of native grasses and forbs,and shrubs. See the description of flora and Appendix C for more detail about plant species.

E. LOCATION

(1) The Monte Cristo RNA is located wholly within the Gifford Pinchot National Forest. The lands adjacent to the RNA are National Forest, and land owned by the Washington Department of Natural Resources. The Washington State parcel adjacent to Monte Cristo has been proposed as a state Natural Area Preserve, a designation that would compliment Monte Cristo RNA (see figure 1).

(2) The boundaries of the Monte Cristo RNA are contained within the range of latitudes 45 degrees 52 minutes to 45 degrees 55 minutes north, and the range of longitudes 121 degrees 30 minutes to 121 degrees 37 minutes 30 seconds west.

(3) Boundary Description (provided by Don Karsch, Gifford Pinchot National Forest Land Surveyor): A signed copy of the Boundary Description is located in Appendix E.

(4) The boundaries of the RNA as described herein include a land area of approximately 665 acres (269 hectares).

(5) The RNA ranges in elevation above mean sea level from 2000 feet (610 meters) at the far west edge along road 18-230, near the Little White Salmon river, to 4171 feet (1271 meters) at the top of Monte Cristo peak.

(6) The RNA is located approximately 15 air miles (24 Km.) north of Hood River, Oregon, and approximately 50 air miles (80 Km.) northeast from Portland, Oregon and Vancouver, Washington (See Figures 1 and 2). Access from the Portland/Vancouver area is from Washington Highway 14, or Interstate 84, traveling east through the Columbia Gorge. The following detailed description will follow these routes.

From the city of Vancouver, proceed east on Highway 14 approximately 45 miles (72 Km.), through the communities of Washougal and Stevenson, to Cook, Washington. At Cook, turn left onto County Road 86 (Cook-Underwood road). Follow Cook-Underwood road north approximately 5 miles (8 Km.), through the community of Mill A. North of Mill A, turn left onto Willard road. Follow Willard road north approximately 7 miles (11 Km.), through the community of Willard, onto

National Forest. Willard Road becomes Forest road 18 on the National Forest. Just beyond the intersection of road 18 and Holmes creek, turn right onto Forest Road 1840. Follow Forest road 1840 for approximately 5 miles (8 Km.) to Monte Cristo RNA, starting at the intersection of road 1840 and 1840-100. Turn right onto Forest Road 1840-100, and follow it approximately 1 mile north, to it's terminus, and the trailhead of Monte Cristo trail #53.

From the city of Portland, Oregon, proceed east on Interstate 84 approximately 40 miles (64 Km.) to Cascade Locks, Oregon. Cross the Columbia River on the Bridge of the Gods, intersecting Washington Highway 14, just east of Stevenson, Wa. Follow the above route to the RNA.

F. COVER TYPES

There has been no detailed mapping of forest community types for the entire Monte Cristo RNA. The climax forest type that exists over much of the RNA suggests that community types have not changed significantly over a long period of time. The following table is an estimate of present type areas (also see Figure 3).

	Acres	Hectares
Forest Cover Types (Eyre, 1980)		
Pacific Douglas-fir	645	261
Grass Bald/Rock	20	8
Potential Natural Vegetation (Kuchler, 1964)		
Silver fir-Douglas fir Forest (Abies-Pseudotsuga)	645	261
Other Types		
Dry Meadow	20	8

G. PHYSICAL AND CLIMATIC CONDITION

Geologically, the Monte Cristo range has been dominated by past volcanic activity. Tertiary deposits form most of the White Salmon valley, overlain with pyroclastic flows. Bedrock is very old, in the order of millions of years. Geologic processes of folding and faulting have had ample time to take place. Aeolian ash deposits have helped form soils. Erosive processes, combined with folding, have resulted in steep, dissected terrain, with shallow, well-drained soils, especially on ridgetops and steep slopes.

Weather information can be acquired from several locations near Monte Cristo RNA. The closest weather station is located at the Mt. Adams Ranger Station, about 5 miles north of the RNA. A Remote Access Weather Station is maintained at Trout Creek, west of Trout Lake. The most comparable is probably the Mt. Adams Ranger District Office station. The following table was compiled from that station's data base (on file at the Mt. Adams Ranger District Office) to estimate trends at the RNA.

U.S. Forest Service
Precipitation and Temperature Records for
Mt. Adams Ranger Station
Klickitat County, Washington
Elevation 2000 feet (597 meters)

Average Maximum and Minimum Monthly Temperatures
Mt. Adams Ranger District, 1992-1995

	Ave. High Temp (F°)	Min. Temp (F°)	Ave. Monthly Precip(in.)	(cm)
January	38.9	25.0	5.01	12.73
February	39.8	25.9	4.26	10.82
March	53.3	29.0	3.66	9.30
April	58.7	34.0	4.06	10.31
May	71.4	40.9	1.71	4.34
June	75.2	44.7	0.98	2.49
July	80.3	48.7	0.82	2.08
August	81.4	49.3	0.13	0.33
September	75.2	41.5	0.99	2.51
October	61.5	35.0	4.25	10.80
November	41.3	25.9	4.40	11.18
December	35.2	25.3	6.62	16.81

Ave. Annual Precipitation 36.9 inches (93.73cm)

June-August 4.4 inches (11.18cm)

Mean Annual Maximum Temperature 59.4° F

Average July Maximum 80.3
Average January Minimum_ 25.0

H. DESCRIPTION OF VALUES

(1) Flora

The driest sites within the RNA occupy exposed ridgetops, and areas of very shallow soils. Non-forest plant communities occupy these sites; a few Douglas-fir, Oregon White oak (Quercus garryana) and bitter cherry (Prunus emarginata) do occur. A wide variety of shrubs, forbs, and grasses are present, including pinemat manzanita (Arctostaphylos nevadensis), Indian paintbrush (Castilleja hispida), purble-flower honeysuckle (Lonicera conjugialis), western bladderpod (Lesqueralla occidentalis), Hall's goldenweed (Happlopappus hallii), rocky mountain Helianthella (Helianthella uniflora), arrowleaf balsamroot (Basamorhiza deltoidea), Watson's lomatium (Lomatium watsonii), and green-banded mariposa (Calochortus macrocarpus). A detailed list of species present in the Monte Cristo summit meadow is located in Appendix C.

Forested plant associations included within the RNA are within the Grand Fir Zone, described in more detail in Topik (1989). A few small inclusions, located immediately east of Monte Cristo peak, may be within the Pacific Silver Fir Zone (Brockway and others, 1983).

Drier sites, bordering the non-Forest sites, are occupied by the Grand fir/Oceanspray (Abies grandis/holodiscus discolor)plant association. The Grand fir/Oceanspray association occupies steep, usually south-facing slopes or adjacent ridgetops. Major tree species are Douglas-fir and grand fir. Common understory species include oceanspray, California hazel (Cornus cornuta), and vine maple. Mid-slope and lower slope sites, with deeper soils, are occupied primarily by the grand fir/pacific dogwood/vanillaleaf (Abies grandis/Cornus nuttallii/Achlys tryphylla, grand fir/dwarf oregongrape/vanillaleaf (Abies grandis/Berberis nervosa/Achlys tryphylla), and grand fir/california hazel/vanillaleaf (Abies grandis/Corylus cornuta/Achlys tryphylla) plant associations. Grand fir/Dwarf oregongrape/Vanillaleaf and Grand fir/California hazel/Vanillaleaf occupy warmer, drier sites than does Grand fir/Pacific dogwood/Vanillaleaf.

Douglas-fir and grand fir are the major tree species in the Grand fir/Dwarf oregongrape/vanillaleaf association; common shrubs and herbs include baldhip rose (Rosa gymnocarpa), creeping snowberry (Symphoricarpos mollis) and starflower (Trientalis latifolia). Douglas-fir and grand fir are also the common tree species in the Grand fir/California hazel/Vanillaleaf association. Vine maple and California hazel dominate the tall shrub layer, with creeping snowberry and dwarf Oregongrape also abundant. The Grand fir/Pacific dogwood/Vanillaleaf plant association is characterized by more lush shrub and herb layers, including pacific dogwood, vine maple, and vanillaleaf.

At cooler, more moist locations on higher slopes and ridgetops, the grand fir/thimbleberry/fairybells (Abies grandis/Rubus parviflorus/Disporum hookeri) association is most common. In addition to Douglas-fir and grand fir, these sites support an occasional noble fir, western white pine (Pinus monticola), or Pacific silver fir. The lush shrub and herb layer includes vine maple, thimbleberry, queencup beadlily (Clintonia uniflora), and vanillaleaf.

A plant list has been compiled during the past 5 years, primarily in 1995. Surveys for vascular plants (focusing on the meadows surrounding Monte Cristo peak), lichens, and mosses were surveyed. Species lists are included as Appendix C.

(2) Fauna

A comprehensive listing of wildlife species found specifically within the Monte Cristo RNA is not available. The northern spotted owl (Strix occidentalis), Federally listed as a threatened species, is present within the RNA.

(3) Geology

The following geologic description was prepared by Jim Chamberlin, Geologist, Gifford Pinchot National Forest:

The geology of the Monte Cristo area is characterized by older volcaniclastic rock capped by some flows of the Grande Ronde member of the Columbia River Basalts. The older volcaniclastic rock are composed of tuffs and tuff breccias dated about 25 million years old. These rocks have a tendency to weather into silts and clays which become more susceptible to slope instability. These rocks make up most of the west slopes of the Monte Cristo area. The ridge tops are capped with basalts aged about 15 million years old. This rock is very resistant to weathering which is one reason for the steep slopes on the west side of the ridge. Folding and faulting of these

rocks and erosion by water and air have given us the landscape we see today. Glacial activity has not been present or no evidence of it has been noted to date.

(4) Soils

The following soils description was prepared by Jim Chamberlin, Geologist, Gifford Pinchot National Forest:

Soils in the area are mostly silty sands and gravels with large percentages of rock fragments. These soils are fairly permeable allowing flow of water easily through them. There are some plastic soils which would be a concern from holding water on steep slopes. This could lead to shallow, rapid failures under some conditions.

A soils map is included (figure 4). Descriptions for soil types (Wade and others, 1992) is included in Appendix D.

(5) Lands

The Monte Cristo RNA is located entirely within the Gifford Pinchot National Forest. It lies along the eastern boundary of the Forest; lands to the east are owned by the State of Washington Department of Natural Resources.

(6) Cultural Resources

An extensive cultural resource survey has not been conducted throughout the RNA. Although there are no documented cultural sites within the RNA boundaries there are several known historical activities that occurred. The top of Monte Cristo peak was used as a lookout site in the 1930s; the lookout building was burned in the 1950s. The only remains of the lookout are a few pieces of glass and nail at the site, and what appears to have been a hitching post, used for horses. A trail, originally used to access the lookout, traverses the RNA.

(7) Other Values

Grass Balds/Rock Areas

These areas are located along the summit ridge of Monte Cristo, and in a few places with very shallow soils on steep sideslopes. They add a great deal of diversity to the RNA (see section on Flora, and Appendix C). Some disturbances have occurred; as mentioned above, Monte Cristo peak was formerly the site of a fire lookout, and a trail traverses the summit. Although it is included in a grazing allotment, there is little evidence of past grazing.

I. IMPACTS AND POSSIBLE CONFLICTS

(1) Mineral Resources

There are three main categories of minerals: locatable, leasable, and salable. Locatable minerals are generally hardrock minerals which are mined and processed for the recovery of metals, such as gold, silver, copper, lead, and zinc. Leasable minerals include coal, oil, natural gas, and geothermal. Salable minerals include common mineral materials such as construction stone, sand, gravel, cinders, pumice, and clay.

A search of records determined that there are no approved leases or currently pending leases for any leasable minerals within the proposed RNA (personal communication with Bruce Watson, Gifford Pinchot National Forest Lands Specialist, January 1996). Considering the historical record for leasable minerals in the vicinity and the known geology of the proposed RNA, the area must be considered to have low to moderate potential for oil, gas, and geothermal, and very low potential for coal and all other leasable minerals. The proposed RNA has not had any salable minerals removed in the past.

Following Establishment of Monte Cristo RNA, the area will be proposed for withdrawl from Mineral Entry, in conformance with section 204 of the Federal Land Policy and Management Act of 1976 (90 Stat. 2743, 43 U.S.C. 1701).

(2) Grazing

The Monte Cristo RNA is located within the Twin Buttes Sheep and Goat Allotment. Approximately 2,000 sheep are grazed annually in this approximately 125,000 acre (50,580 ha.) allotment. The RNA lands have been grazed very lightly in the past; steep terrain and dense timber stands limit the forage and livestock access. The 665 acre (269 hectare)RNA would support

an estimated 45 sheep-use months per year (Debra Couche, Gifford Pinchot National Forest Range Specialist).

(3) Timber

Approximately 97 percent of the proposed RNA lands, 645 acres (261 hectares), can be considered productive timber producing lands. These lands contain 125 to 150 year old stands, composed primarily of Douglas-fir and grand fir. Forests are even-age, established following a stand-replacement fire. Forests have low timber defect, and would have high commercial value.

Most of the surrounding Little White Salmon river valley is located in Forest "matrix" lands, managed for production of timber and other commodity values. Lower elevations are also managed as big game winter range. Conflicts may occur as consideration of the RNA is included in management plans or projects on surrounding lands, and will be resolved through Environmental analyses or Environmental Impact Statements.

(4) Watershed Values

The establishment of the Monte Cristo RNA will not conflict with the watershed values of the area. The Northwest Forest Plan (USDA Forest Service, 1994) lists the Little White Salmon river valley is a Key watershed, important in maintaining water quality. Management of Monte Cristo as an RNA should help to maintain water quality.

(5) Recreation Values

The Monte Cristo trail, #53, traverses the RNA (see figure 2). A light amount of hiking occurs on this trail (usually less than 5 people per summer weekend), visiting the summit meadows. Monte Cristo trail #53 has been proposed for inclusion in a loop trail system, with emphasis on horse use. Current plans are, if that trail system is established, to allow livestock to pass through the RNA along road 1840, then again tie in with existing trail #53 north of the RNA, via a new portion of trail.

The RNA receives light hunting use, and little other recreational use.

(6) Wildlife and Plant Values

Establishment of the RNA will in no way change the conditions for wildlife located within the area.

One plant species listed as sensitive (Region 6), Cypripedium fasciculatum, has been found within the RNA. The establishment of the RNA will help to protect this population. One threatened wildlife species, the northern spotted owl, uses the RNA as mentioned earlier.

(7) Special Management Area Values

The proposed RNA does not lie within any Wilderness, Wild and Scenic River corridor or designated roadless area. A portion of the RNA previously was previously designated as Botanical Special Interest, primarily because of the ridgetop meadows surrounding Monte Cristo peak.

(8) Transportation Plans

Establishment of this RNA may result in minor impacts on current Road management for a portion of road 1840, within the RNA (for example, roadside vegetation management or removal of hazard trees will need to take RNA values into consideration). Updates to the Gifford Pinchot Travel and Access Management Plan will take consider the Monte Cristo RNA.

J. MANAGEMENT PRESCRIPTION

The Forest Plan for the Gifford Pinchot National Forest (USDA Forest Service, 1990) will identify the Monte Cristo Research Natural Area as Management Category Y - Research Natural Area. More restrictive Management Area Categories, such as Wilderness designation, do not exist in Monte Cristo. The area is not managed for preservation or unroaded recreation. Any vegetation-manipulating prescriptions developed for the Monte Cristo RNA, such as a Fire Management Plan, will be based on maintaining RNA values and objectives, and shall be reviewed by the Director of the Pacific Northwest Research Station.

K. ADMINISTRATION RECORDS AND PROTECTION

Administration and protection of the Monte Cristo RNA will be the responsibility of the Gifford Pinchot National Forest. The District Ranger, Mt. Adams 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. The director will evaluate research proposals and coordinate all studies and research conducted in the area with the District Ranger.

All plant and animal specimens collected in the course of research conducted in the area will be properly preserved and maintained within university or federal agency herbaria and museums, approved by the Pacific Northwest Research Station Director.

Records of the Monte Cristo RNA will be maintained in the following offices:

Regional Forester, Region 6, Portland, Oregon
Forest Supervisor, Gifford Pinchot National Forest, Vancouver, Washington
District Ranger, Mt. Adams Ranger District, Trout Lake, Washington
Director, Pacific Northwest Research Station, Portland, Oregon
Pacific Northwest Research Station Lab, Corvallis, Oregon

L. ARCHIVING

The research coordinator is the Station Director, Pacific Northwest Research Station, 333 SW 1st Avenue, PO Box 3890, Portland OR 97208-3890. The research coordinator is responsible for coordinating research, as well as maintaining research data files.

M. **REFERENCES**

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Establishment Report
Monte Cristo Research National Area

Appendices

A. Management Direction from Gifford Pinchot National Forest Plan

B. Plant Species Lists for Monte Cristo RNA

C. Soil Types

D. Boundary Description

Appendix A

Management Direction from Gifford Pinchot National Forest Plan

Research Natural Area

Management Area Category-Y

Includes Management Prescriptions-
F8, A8, YC, Y8, and W6

Goal

Manage the Research Natural Area in a natural state for research and education, and/or to maintain biological diversity.

Description of Lands Where This MAC is Applied

Existing Research Natural Areas, classified under the code of Federal Regulations, 36 CFR 251.23. Three of these RNAs are found within the National Volcanic Monument and Experimental Forest (Prescriptions-A8 and F8) and Wilderness-(W6) MACs. As indicated in those Management Area Categories (A, F, and W), direction may be different than that found under MAC-Y. In case of conflict, the direction in other MACs can be no less restrictive for the RNAs involved than those found under MAC-Y. Also applies to potential RNA which are actively being evaluated for RNA status through the Forest Planning process.

Desired Future Condition

Except for development which may have occurred prior to classification, human activities are not evident. Alteration is almost entirely the product of natural processes. Vegetation may vary across the full range of Forest species and sizes including mature and old-growth stands. They provide opportunities for research, study, observation, monitoring, and those educational activities that maintain unmodified conditions.

Standards/Guidelines

The following direction applies to all Management Areas in MAC-Y, unless otherwise specified. In consultation with the Forest Supervisor and District Ranger, the Director of the Pacific Northwest Forest and Range Experiment Station is responsible for approving management implementation plans and for overseeing and coordinating approved research on all Research Natural Areas (RNAs), except for those RNAs in congressionally-designated areas, such as Wilderness and National Monuments. The authority to approve management plans and to oversee and coordinate approved research on RNAs in congressionally-designated areas rests with the Regional Forester. The Regional Forester should coordinate plans for research with the Station Director.

Recreation

Planning

1. Incidental dispersed use may be permitted, but recreational use of the area will not be encouraged. Camping, collecting plants, berrypicking, and other uses which threaten or interfere with research, educational opportunities, or other purposes for which the RNA was established, will be prohibited.

2. The Visual Quality Objective and Recreation Opportunity Spectrum class or Wilderness ROS class assigned to these Management Areas are:

   Management Prescriptions-YC
   VQO - Preservation
   ROS - Semi-Primitive Non-Motorized

   Management Prescriptions-A8, F8, and Y8
   VQO - Preservation
   ROS - Roaded Natural

   Management Prescription-W6
   VQO - Preservation
   WROS - Special Area

   Prescription-A8 is applicable only in the National Volcanic Monument, MAC-A. F8 is applicable only in the Experimental Forest, MAC-F.

Prescription-W6 is applicable only within Wilderness, MAC-W.

3. Interpretation of cultural and other features of interest will not be permitted, except for research or educational purposes.

4. Trail construction or reconstruction will be permitted only if required to meet the needs of research, for educational purposes, or to protect RNA values. RNAs will not be shown on maps intended for sale to the general public.

Use Administration

Off-road vehicles, including snow machines, should not be permitted.

Wildlife and Fish

Surveys, Planning, Prescriptions, Monitoring, Cooperation and Administration

1. No active management will occur unless it is required to protect Sensitive, Threatened, or Endangered Species, or is included in an approved RNA management prescription.

2. Exotic plants and animals are not permitted. Endemic species may be removed if action is deemed necessary to protect the features for which the RNA was established, or to protect adjacent resources.

Range

Planning

1. Livestock grazing will usually occur only if required for noxious weed control or to preserve the vegetation for which the RNA was created.

2. In research natural areas where livestock grazing is not part of the management prescription, the Regional Forester and Station Director shall, as appropriate, establish a level of acceptable casual or incidental livestock use that can be tolerated and is consistent with the management prescription for the research natural area.

Timber

Planning and Inventory

Timber harvest will not be scheduled. Ordinary salvage and other timber management activities will not occur. This does not preclude the cutting of snags and other trees if they are a hazard to life or property. Felled trees should remain in place within the Research Natural Area.

Timber Sale Preparation

Firewood cutting, including campfire wood, will not be permitted.

Minerals and Geology

Inventory and Evaluation and Processing of Site Specific Development Proposals

1. Common variety mineral material sources will not be inventoried or developed.

2. Leasing of mineral or energy resources will only be permitted with a no surface occupancy stipulation.

Lands

Special Use Management (Nonrecreational), Right-of-Way Grants for Roads and Trails

Rights-of-way, easements, and other permits not required for research or educational purposes will not be permitted if there is a practical alternative.

Federal Energy Regulatory Commission (FERC) License and Permits

Licenses or permits will be recommended only when projects are consistent with RNA management.

Withdrawals, Modifications and Revocations

The RNA will be recommended for withdrawal under the public land laws.

Property Boundary Location

RNA boundaries will be surveyed and marked as soon as practical. Posting of markers and signs should not call public attention to these areas.

Landownership Planning

All lands will be placed in Ownership Category II, retain or acquire.

Facilities

Transportation Planning, Road Construction, and Reconstruction

1. When approved by the Station Director, in consultation with the Forest Supervisor, temporary facilities needed for research (e.g., gauging stations and instrument shelters) may be installed.
2. New roads and facilities will be permitted only if they contribute to the Research Natural Area objectives. Existing roads and facilities may be reconstructed if limited to the original clearing limit, and approved by the Station Director.

Protection

Initial Attack and Escaped Fire Suppression

Fires may be permitted to burn only if they are within a prescription designed to accomplish objectives of the RNA. In protecting RNAs within congressionally-designated areas, the management direction for the RNA must meet the statutory mandates for the area.

Treatment of Activity Fuels

1. There will be no treatment of fuels. Fire Hazard Reduction Application, no reduction, should be used.
2. The Station Director, with the concurrence of the Forest Supervisor, may authorize management practices that are necessary for noxious weed control or to preserve the vegetation for which the research natural area was created. These practices may include prescribed burning.

Pest Suppression

No action will be taken against endemic insects or disease unless the outbreak threatens adjacent resources or would significantly alter the natural ecological processes within the RNA. Where pest management activities are prescribed, they shall be as specific as possible against target organisms and induce minimal impact on other components of the ecosystem.

Old Growth

The goal is to maintain sufficient old-growth stands to meet legislative and regulatory direction for ecological diversity, to maintain viable populations of old-growth-dependent species, and to provide easily-accessible stands for recreational enjoyment.

This Plan maintains a total of 85,830 acres of existing old growth (1988 Inventory). Figure IV-19 shows management area categories where existing old growth is retained. No timber harvesting is scheduled in these areas. In addition, approximately 8,100 acres of old growth will be retained on lands classified as not suitable timber land within management areas which have scheduled timber harvest. Included are such lands as those which might sustain irreparable resource damage, and those trail and riparian corridors permitting no scheduled harvest.

The remaining 103,780 acres of old growth will be available for timber harvest within management areas permitting harvest. During the first decade, 9,600 acres of old growth is expected to be harvested, or an average of about 960 acres each year. The total old growth remaining at the end of the first decade of plan implementation is expected to be about 188,000 acres.

FIGURE 19

EXISTING OLD GROWTH RETAINED

Category	Acres
Wilderness	10,740
National Volcanic Monument	11,030
Research Natural Areas	1,440
Wild and Scenic Rivers	7,140
Developed Recreation	260
Special Interest	680
Unroaded Recreation	16,490
Wildlife Special	260
Roaded Recreation	730
Spotted Owl	32,240
Pileated Woodpecker	2,170
Pine Marten	2,650
Administrative Site	280
Utility Corridor/Site	30
TOTAL	86,140

Research Natural Areas

The goal is to manage Research Natural Areas (RNAs) in a natural state for research and education, and/or to maintain biological diversity. They provide opportunities for research, study, observation, monitoring, and those educational activities that retain undisturbed conditions. In effect, they provide a baseline for biological diversity found on the Forest.

The six existing RNAs (Butter Creek-W6; Goat Marsh-A8; Thornton T. Munger-F8; Sisters Rock-YC; and Cedar Flats and Steamboat Mountain-Y8) have specific direction found in the appropriate Management Area Category direction.

Potential RNAs will follow the process for establishing new sites, which includes the following steps:

1. Sites are recommended to the Forest by agency personnel or any member of the public;

2. The Pacific Northwest Research and Experiment Station and RNA Committee evaluate the proposal: The Area Ecologist and District Ranger or Monument Manager consider boundaries and managementconflicts;

3. Forest I.D. Team considers input and makes a recommendation to the Forest Supervisor for or against establishment;

4. Forest Supervisor approves or disapproves recommendation. If establishment is approved, the Forest Supervisor recommends Forest Plan amendment to Regional Forester; and

5. Establishment report to Chief for approval.

Four areas, including Big Lava, Weigle Hill-Jimmy Creek, Monte Cristo, and Smith Butte are currently beingevaluated.

Appendix B

Plant Species Lists for Monte Cristo RNA

Appendix 3
Monte Cristo RNA
Plant Species Lists [1]

Species	Common Name
Trees	
Abies grandis,	Grand fir
Abies procera	Noble fir
Acer macrophyllum	Bigleaf Maple
Cornus nuttallii	Pacific Dogwood
Pinus monticola	Western White Pine
Prunus emarginata	Bitter Cherry
Pseudotsuga menzesii	Douglas-fir
Quercus garryana	Oregon White Oak
Tsuga heterophylla	Western Hemlock
Tsuga mertensiana	Mountain hemlock
Shrubs	
Acer circinatum	Vine Maple
Acer glabrum	Douglas Maple
Amelanchier alnifolia	Serviceberry
Arctostaphylos nevadensis	Pinemat Manzanita
Berberis nervosa	Dwarf Oregongrape
Ceanothus velutinus	Snowbrush
Chimaphila umbellata	Princes Pine
Holodiscus discolor	Oceanspray
Lonicera ciliosa	Orange Honeysuckle
Lonicera conjugialis	Purple-Flower Honeysuckle
Ribes howellii	Mapleleaf Currant
Ribes lacustre	Prickly Currant
Ribes sanguineum	Red Currant
Rosa gymnocarpa	Baldhip Rose
Rubus parviflorus	Thimbleberry
Sorbus scopulina	Cascade Mountain Ash
Spiraea betulifolia lucida	Shiny Leaf Spirea
Forbs	
Achillea millefolium	Yarrow
Achlys triphylla	Vanillaleaf
Actaea rubra	Baneberry
Adenocaulon bicolor	Pathfinder
Anaphalis margaritacea	Pearly Everlasting
Anemone deltoidea	Three-leaved Anemone
Antennaria microphylla	Rosy Pussytoes
Antennaria racemosa	Raceme Pussytoes
Aquilegia formosa	Columbine
Arabis microphylla	Littleleaf Rockcress
Arabis sparsiflora atrorubens	Sicklepod Rockcress
Arenaria macrophylla	Bigleaf Sandwort
Arnica cordifolia	Heart-Leaf Arnica
Arnica latifolia	Mountain Arnica
Aster glaucescens	Klickitat Aster
Balsamorhiza deltoidea	Arrowleaf Balsamroot
Bromus sitchensis	
Calochortus macrocarpus	Green-Banded Star Tulip
Calypso bulbosa	Fairy-Slipper
Campanula scouleri	Scouler's Bluebell
Cardamine pulcherrima pulcherrima	
Castilleja hispida	Harsh Paintbrush
Circaea alpina	Enchanter's Nightshade
Claytonia lanceolata	Western Springbeauty
Clintonia uniflora	Queencup Beadlily
Collinsia grandiflora	
Collinsia parviflora	
Collomia grandiflora	
Convolvulus nyctagineus	Slender Toothwort
Corallorhiza maculata	Spotted Coralroot
Crepis occidentalis	Western Hawksbeard
Cypripedium fasciculatum	Clustered Ladyslipper
Delphinium nuttallianum	Upland Larkspur
Disporum hookeri	Hooker's Fairybells
Eriogonum compositum	Northern Buckwheat
Eriogonum compositum compositum	
Eriogonum elatum	Tall Buckwheat
Eriogonum umbellatum umbellatum	Sulphur Buckwheat
Eriophyllum lanatum	Wooly Sunflower
Eriophyllum lanatum lanatum	
Erysimum asperum	Prairie Rocket
Erythronium grandiflorum	Yellow Fawn-lily
Festuca idahoensis	
Fragaria vesca	Woods Strawberry
Fragaria virginiana platypetala	Broadpetal Strawberry
Fritillaria pudica	Yellowbells
Galium triflorum	Sweetscented Bedstraw
Gilia aggregata	
Goodyera oblongifolia	Rattlesnake Plantain
Haplopappus hallii	Hall's Goldenweed
Helianthella uniflora	Rocky Mountain Helianthella
Hieracium albiflorum	White Hawkweed
Hieracium scouleri	Woolly-weed
Hydrophyllum capitatum thompsonii	Ballhead Waterleaf
Lathyrus nevadensis	
Lesquerella occidentalis	Western Bladderpod
Lithophragma bulbifera	Bulbiferous Fringecup
Lithophragma parviflora	Smallflower Fringecup
Lomatium columbianum	Columbia Lomatium
Lomatium triternatum	
Lomatium watsonii	Watson's Lomatium
Lotus nevadensis	
Lupinus laxiflorus	Spurred Lupine
Microseris nutans	Nodding Microseris
Microsteris gracilis	
Mitella trifida	Three-tooth Mitella
Nemophila parviflora	Small-flowered Nemophila
Nothochelone nemorosa	Nothochelone
Osmorhiza chilensis	Mountain Sweet-cicely
Osmorhiza occidentalis	Western Sweet-cicely
Pedicularis racemosa	Sickletop Pedicularis
Phacelia hastata	Silverleaf Phacelia
Phlox speciosa	Showy Phlox
Phoenicaulis cheiranthoides	Daggerpod
Poa sandbergii	Sandberg's Bluegrass
Pteridium aquilinum	Bracken Fern
Pyrola picta	White-vein Pyrola
Pyrola secunda	Sidebells Pyrola
Sanicula graveolens	Sierra Sanicula
Sedum stenopetalum	Wormleaf Stonecrop
Senecio integerrimus ochroleucus	Western Groundsel
Silene oregana	Oregon Silene
Smilacina racemosa	False Solomonseal

Species	Common Name
Smilacina stellata	Starry Solomonseal
Stipa occidentalis	
Tiarella trifoliata unifoliata	Coolwort Foamflower
Trientalis latifolia	Starflower
Trifolium macrocephalum	Big-head Clover
Trillium ovatum	Western Trillium
Vancouveria hexandra	Inside-out Flower
Vicia americana	American Vetch
Viola glabella	Pioneer Violet

Mosses

Antitrichia californica
Antitrichia curtipendula
Atrichum selwynii
Aulacomnium androgynum
Brachythecium albicans
Brachythecium frigidum
Brachythecium leibergii
Brachythecium velutinum
Bryum pseudotriquetrum
Ceratodon purpureus
Claopodium bolanderi
Claopodium crispifolium
Dendroalsia abietina
Dicranoweisia crispula
Cicranum fuscescens
Dicranum tauricum
Dryptodon patens
Eurhynchium oreganum
Eurhynchium praelongum
Funaria hygrometrica
Grimmia anomala
Grimmia montana
Grimmia tenerrima
Homalothecium aeneum
Homalothecium fulgescens
Homalothecium nuttallii
Hygrohypnum bestii
Hypnum circinale
Hypnum dieckii
Hypnum subimponens
Isothecium myosuroides
Leptobryum pyriforme
Leucolepis acanthoneuron
Metaneckera menziesii
Mnium spinulosum
Orthotrichum consimile
Orthotrichum laevigatum
Orthotrichum lyellii
Orthotrichum pulchellum
Orthotrichum speciosum
Orthotrichum striatum
Philonotis fontana
Plagiomnium venustum
Plagiothecium laetum
Pohlia nutans
Polytrichum juniperinum
Polytrichum piliferum
Pseudoleskea incurvata
Pseudoleskea patens
Pseudoleskea stenophylla
Pseudotaxiphyllum elegans
Racomitrium macounii
Racomitrium ericoides
Racomitrium heterostichum
Rhytideadelphus loreus
Rhytideadelphus triquetrus
Rhytidiopsis robusta
Roellia roellii
Schistidium apocarpum
Tetraphis pellucida
Tortula bartramii
Tortula ruralis

Lichens

Alectoria imshaugii
Alectoria sarmentosa
Bryoria capillaris
Bryoria glabra
Cladonia chlorophaea
Cladonia coniocraea
Cladonia deformis
Cladonia ecmocyna
Dermatocarpon miniatum
Diploschistes scruposus
Esslingeriana idahoensis
Evernia prunastri
Hypogymnia enteromorpha
Hypogymnia imshaugii
Hypogymnia inactiva
Hypogymnia metaphysodes
Hypogymnia physodes
Hypogymnia tubulosa
Lecidella euphorea
Leptochidium albociliatum
Letharia vulpina
Lobaria pulmonaria
Lobaria scrobiculata
Massalongia carnosa
Melanelia exasperatula
Melanelia multispora
Melanelia subaurifera
Mycoblastus sanguinarius
Nephroma helveticum
Nephroma resupinatum
Ochrolechia oregonensis
Parmelia hygrophila
Parmelia sulcata
Parmeliopsis ambigua
Parmeliopsis hyperopta
Peltigera britann
Peltigra collina
Peltigera didactyla
Peltigera leucophlebia
Peltigera membranacea
Physcia aipolia
Physcia dubia
Physconia americana
Physconia isidiigera
Placopsis gelida
Platismatia glauca
Platismatia herrei
Platismatia stenophylla
Pseudephebe pubescens
Psora nipponica
Ramalina farinacea
Sphaerophorus globosus
Tuckermannopsis chlorophyl
Tuckermannopsis orbata
Tuckermannopsis pallidula
Tuckermannopsis platyphalla
Umbilicaria hyperborea

Species	Common Name
Umbilicaria torrefacta	
Usnea subfloridana	
Xanthoparmelia cumberlandi	
Xanthoria polycarpa	
Normandina pulchella	
•	
Fungi	
Agaricus hondensis	
Agaricus xanthodermus	
Amanita constricta	
Armillaria ostoyae	
Boletus aereus	
Boletus chrysenteron	
Boletus fibrillosus	
Camarophyllus borealis	
Chlorociboria aeruginosa	
Clavariadelphus ligula	
Clavariadelphus mucronatus	
Clavicorona sp.	
Clitocybe deceptiva	
Clitocybe sp.	
Conocybe spp.	
Coprinus sp.	
Cortinarius cf. balteatus	
Cortinarius spp.	
Galerina spp.	
Ganoderma oregonense	
Gomphus floccosus	
Gymnopilus luteocarneus	
Hericium abietis	
Hygrophorus sp.	
Inocybe lacera	
Inocybe sororia	
Laccaria amethysteo-occiden.	
Laccaria laccata	
Lactarius deliciosus	
Lactarius rufus	
Lycoperdon perlatum	
Lycoperdon pyriforme	
Marasmius spp.	
Mycena epipterygia	
Mycena leptocephala	
Mycena pura	
Nolanea cf. stricta	
Omphalina luteicolor	
Phaeolus schweinitzii	
Pluteus cervinus	
Polyporus hirtus	
Ramaria formosa	
Ramaria sp.	
Rickenella fibula	
Rozites caperata	
Russula albonigra	
Russula brevipes	
Russula crassotunicata	
Russula xerampelina	
Strobilurus trullisatus	
Tricholoma virgatum	
Xeromphalina campanella	
Xeromphalina cauticinalis	
Xeromphalina picta	

[1] This list was compiled from local Forest Service personnel, plus surveys from the following individuals:
Flowering Plants: Russ Jolley, Portland, Oregon
Mosses: Judith Harpel, Brush Prairie, Washington
Lichens: Jim Riley, Randle, Washington
Fungi: Janet Lindgren, Vancouver, Washington

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Appendix C

Soil Types

SOIL DESCRIPTION

Soils occur intermittently and are generally very shallow to shallow gravelly medium-textured soils with some areas consisting of shallow to deep ash and pumice.

MAPPING UNIT 7

This mapping unit consists of rock outcrop, and talus slopes on rugged landforms.

GEOLOGY

Primarily hard andesite and breccias.

TOPOGRAPHY AND CLIMATE

Slope: 30+ percent
Elevation: 2000-5000 feet

Soil Temperature Regime:

MANAGEMENT

VEGETATION

Islands, stringers, and scattered low site and non-commercial timber.

RANGE OF SOIL PROFILE CHARACTERISTICS OF SOIL

Litter:
Surface Layers:

Subsoil Layer:

Range of Depth to Bedrock:
Drainage Class:
Surface Soil Permeability Class:
Subsoil Permeability Class:

U.S.D.A. Soil Classification:

This Mapping Unit is similar to Soil:

Associated Mapping Unit Complexes:

Number	Components
None	

SOIL DESCRIPTION

Soil 81 is a shallow nonplastic soil derived from residuum and colluvium. Surface soils are thin gravelly sandy loams. Subsoils are thin gravelly loams.

Typically, Soil 81 occurs on steep, slightly dissected sideslopes.

MAPPING UNIT 81

Mapping Unit 81 consists of Soil 81 and inclusions of other soils. The most common inclusions are Soils 82, 83, and 85.

Mapping Unit 81 is similar to Mapping Unit 82 with the exception of landform and inclusions, and to Mapping Unit 51 with the exception that Mapping Unit 81 does not contain surface ash

GEOLOGY

Bedrock consists of hard to moderately hard volcanic breccias or sedimentary rock.

TOPOGRAPHY AND CLIMATE

Slope: 30 to 70+ percent
Elevation: 1000 to 4000 feet

Soil Temperature Regime: Frigid

MANAGEMENT

Erosion potential is moderate. Nutrient cycling and regeneration potential are low to moderate.

VEGETATION

It supports Site Class IV and V Douglas-fir along with hemlock.

RANGE OF SOIL PROFILE CHARACTERISTICS OF SOIL

Litter: 1 to 2 inches
Surface Layers: Thin gravelly sandy loam, very dark grayish brown

Subsoil Layer: Thin gravelly loams, dark brown

Range of Depth to Bedrock: 1 to 3 feet
Drainage Class: Well
Surface Soil Permeability Class: Rapid
Subsoil Permeability Class: Moderate

U.S.D.A. Soil Classification: Andic haplumbrepts, medial over loamy skeletal, mixed, frigid

This Mapping Unit is similar to Soil:
MU 82 - Remarks: MU 82 is the dissected. version of MU 81.
MU 51 - Remarks: MU 51 has a surface layer of ash.
MU 85 - Remarks: MU 85 is the gentle version of MU 81.

Associated Mapping Unit Complexes:

Number	Components
5681	50% Unit 56 and 50% Unit 81
8122	60% Unit 81 and 40% Unit 22
8150	70% Unit 81 and 30% Unit 50
8183	50% Unit 81 and 50% Unit 83
8184	50% Unit 81 and 50% Unit 84
8191	50% Unit 81 and 50% Unit 91

SOIL DESCRIPTION

Soil 83 is a shallow to moderately deep nonplastic soil derived from residuum and colluvium. Surface soils are thin generally nongravelly to gravelly loam or silt loam. Subsoils are thin to thick nongravelly to gravelly loam, silt loam, clay loam, or sandy clay.

Typically, Soil 83 occurs on moderately steep to steep even to somewhat uneven smooth to slightly dissected toeslopes and sideslopes.

MAPPING UNIT 83

Mapping Unit 83 consists of Soil 83 and inclusions of other soils. The most common inclusions are Soils 81, 82, 84, and 87.

Mapping Unit 83 is similar to Mapping Unit 84 with the exception of Site class and vegetative differences.

GEOLOGY

Bedrock consists of hard to moderately hard volcanic breccias and sedimentary rocks.

TOPOGRAPHY AND CLIMATE

Slope: 30 to 70 percent
Elevation: 800 to 3500

Soil Temperature Regime: Frigid

MANAGEMENT

Erosion potential is moderate. Nutrient cycling and regeneration potential are low to moderate.

VEGETATION

It supports Site Classes III and IV Douglas-fir along with hemlock and cedar.

RANGE OF SOIL PROFILE CHARACTERISTICS OF SOIL

Litter: 1 to 2 inches
Surface Layers: Thin nongravelly loam and silt loam, dark brown

Subsoil Layer: Thin to thick gravelly loam, silt loam, clay loam, and sandy clay, dark brown

Range of Depth to Bedrock: 3 to 12 feet
Drainage Class: Well to moderately well
Surface Soil Permeability Class: Rapid to moderate
Subsoil Permeability Class: Slow

U.S.D.A. Soil Classification: Andic haplumbrepts, medial over clayey, mixed, frigid

This Mapping Unit is similar to Soil:
MU 84 - Remarks: MU 84 is at higher elevations and supports lower site timber.

Associated Mapping Unit Complexes:

Number	Components
8183	60% Unit 81 and 40% Unit 83
8283	60% Unit 82 and 40% Unit 83
8322	60% Unit 83 and 40% Unit 22
8387	60% Unit 83 and 40% Unit 87

SOIL DESCRIPTION

Soil 87 is moderately deep to deep slightly plastic to plastic soil derived from residuum and colluvium. Surface soils are loams. Subsoils are clay loams.

Typically, Soil 87 occurs on steep, uneven and/or dissected landforms.

MAPPING UNIT 87

Mapping Unit 87 consists of Soil 87 and inclusions of other soils. The most common inclusions are Soils 81, 82, and 83.

GEOLOGY

Bedrock consists of soft to moderately hard volcanic breccias and sediments.

TOPOGRAPHY AND CLIMATE

Slope: 30 to 60+ percent
Elevation: 1500 to 3500 feet

Soil Temperature Regime: Frigid

MANAGEMENT

Erosion potential is moderate. Mass wasting potential is high. Nutrient cycling and regeneration potential are moderate to high.

VEGETATION

It supports Site Class III and IV Douglas-fir along with hemlock and cedar.

RANGE OF SOIL PROFILE CHARACTERISTICS OF SOIL

Litter: 1 to 2 inches
Surface Layers: Thin nongravelly loam and silt loam, brown

Subsoil Layer: Thin to thick gravelly loam, silt loam, clay loam, and sandy clay, light brown

Range of Depth to Bedrock: 3 to 12 feet
Drainage Class: Moderately well
Surface Soil Permeability Class: Rapid to moderate
Subsoil Permeability Class: Moderate to slow

U.S.D.A. Soil Classification: Andic haplumbrepts, medial over clayey, mixed, frigid

This Mapping Unit is similar to Soil: None

Associated Mapping Unit Complexes:

Number	Components
8287	60% Unit 82 and 40% Unit 87
8387	60% Unit 83 and 40% Unit 87

SOIL DESCRIPTION

Soil 88 is moderately deep to deep nonplastic to slightly plastic soil derived from residuum. Surface soils are thin loams. Subsoils are moderately thick to thick loam to clay loam.

Typically, Soil 88 occurs on gentle even to somewhat uneven benches or toeslopes.

MAPPING UNIT 88

Mapping Unit 88 consists of Soil 88 and inclusions of other soils. The most common inclusions are Soils 14, 58, and 22.

GEOLOGY

Bedrock consists of moderately hard volcanic breccias.

TOPOGRAPHY AND CLIMATE

Slope: 0 to 30 percent
Elevation: 1000 to 3500 feet

Soil Temperature Regime: Frigid

MANAGEMENT

Erosion potential is moderate. Displacement potential is moderate. Compaction potential is moderate to high. Nutrient cycling and regeneration potential are moderate.

VEGETATION

It supports predominately Site Class III and IV Douglas-fir along with hemlock.

RANGE OF SOIL PROFILE CHARACTERISTICS OF SOIL

Litter: 1 to 2 inches
Surface Layers: Thin loam, dark brown

Subsoil Layer: Moderately thick to thick loam to clay loam, yellowish brown

Range of Depth to Bedrock: 4 to 12 feet
Drainage Class: Well
Surface Soil Permeability Class: Rapid
Subsoil Permeability Class: Moderate

U.S.D.A. Soil Classification: Andic haplumbrepts, medial over clayey, mixed, frigid

This Mapping Unit is similar to Soil: None

Associated Mapping Unit Complexes:

Number	Components
None	

SOIL DESCRIPTION

Soil 92 is a shallow to moderately deep nonplastic soil derived from residuum and colluvium. Surface soils are gravelly loam. Subsoils are cobbly sandy loam.

Typically, Soil 92 occurs on steep sideslopes.

MAPPING UNIT 92

Mapping Unit 92 consists of Soil 92 and inclusions of other soils. The most common inclusions are Soils 40, 91, and 95.

Mapping Unit 92 is similar to Mapping Unit 91 with the exception of inclusions, elevation and Site Class.

GEOLOGY

Bedrock consists of hard andesites or basalts.

TOPOGRAPHY AND CLIMATE

Slope: 30 to 70 percent
Elevation: 3000 to 4700 feet

Soil Temperature Regime: Frigid

MANAGEMENT

Erosion potential is moderate. Nutrient cycling and regeneration potential are low.

VEGETATION

It supports Site Class V Douglas-fir along with true fir.

RANGE OF SOIL PROFILE CHARACTERISTICS OF SOIL

Litter: 1 to 2 inches
Surface Layers: Sandy loam, very dark brown

Subsoil Layer: Loams, dark brown

Range of Depth to Bedrock: 2 to 6 feet
Drainage Class: Well
Surface Soil Permeability Class: Rapid
Subsoil Permeability Class: Moderate

U.S.D.A. Soil Classification: Andic cryumbrepts, medial over loamy skeletal, mixed

This Mapping Unit is similar to Soil:
MU 95 - Remarks: MU 95 is the gentle version of MU 92.
MU 91 - Remarks: MU 91 occurs at lower elevations and supports higher site class timber.

Associated Mapping Unit Complexes:

Number	Components
1892	50% Unit 18 and 50% Unit 92
9240	70% Unit 92 and 30% Unit 40

SOIL DESCRIPTION

Soil 95 is a shallow to moderately deep nonplastic soil derived from residuum and colluvium. Surface soils are gravelly loams. Subsoils are cobbly sandy loams.

Typically, Soil 95 occurs on gentle ridgetops and benches.

MAPPING UNIT 95

Mapping Unit 95 consists of Soil 95 and inclusions of other soils. The most common inclusions are Soils 92 and 94.

Mapping Unit 95 is similar to Mapping Unit 94 with the exception of inclusions, elevation and Site Class, and Mapping Unit 92 with the exception of landform and inclusions.

GEOLOGY

Bedrock consists of hard andesites or basalts.

TOPOGRAPHY AND CLIMATE

Slope: 0 to 30 percent
Elevation: 3200 to 4400 feet

Soil Temperature Regime: Frigid

MANAGEMENT

Erosion and displacement potential are moderate. Compaction potential is high. Nutrient cycling and regeneration potential are low.

VEGETATION

It supports Site Class V Douglas-fir along with true firs.

RANGE OF SOIL PROFILE CHARACTERISTICS OF SOIL

Litter: 1 to 2 inches
Surface Layers: Sandy loam, very dark brown

Subsoil Layer: Loams, dark brown

Range of Depth to Bedrock: 2 to 6 feet
Drainage Class: Well
Surface Soil Permeability Class: Rapid
Subsoil Permeability Class: Moderate

U.S.D.A. Soil Classification: Andic cryumbrepts, medial over loamy skeletal, mixed

This Mapping Unit is similar to Soil:
MU 92 - Remarks: MU 92 is the steep version of MU 95.
MU 94 - Remarks: MU 94 occurs at lower elevations and supports lower site class timber.

Associated Mapping Unit Complexes:

Number	Components
1795	50% Unit 17 and 50% Unit 95

Appendix D

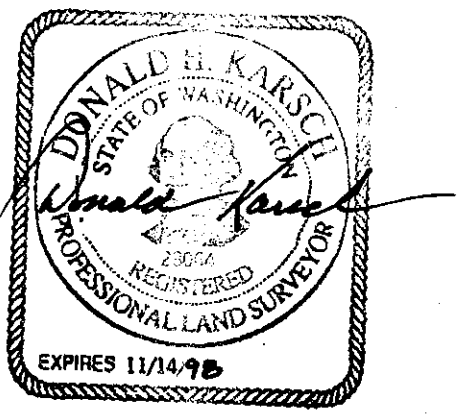
Boundary Description

MONTE CRISTO RESEARCH NATURAL AREA

BOUNDARY DESCRIPTION

An area within the Gifford Pinchot National Forest, Klickitat County, Washington, comprising portions of Section 17, 19, 20, 29, and 30; T5N, R10E, WM; as shown on the attached map entitled "**MONTE CRISTO RESEARCH NATURAL AREA**", said map being made herewith a part of this description and said area being more particulary bounded and described as follows:

Beginning at the section corner of sec 16, 17, 20, and 21; T5N; R10E, designated point "A" on the referenced map (latitude 45°54'52" N; Longitude 121°34'22"W); thence westerly 400 feet; thence northwesterly to the southeast corner of a harvest unit; thence westerly along the south edge of the harvest unit to the east edge of FS road 1840; thence southeasterly to the northeast corner of a harvest unit, in the NE 1/4 of section 20; thence southerly along the east edge of the harvest unit approximately 1300 feet to the southeast corner of the harvest unit; thence southwesterly along the south edge of the harvest unit approximately 1000 feet to the intersection of the east edge of FS road 1840, in the SW 1/4 NE 1/4 of section 20; thence southwesterly along a ridge approximately 2500 feet to the northeast corner of a harvest unit, near the east 1/4 corner of section 19; thence southwesterly along the east and south edges of the harvest unit approximately 1300 feet to the northerly end of FS road 18-230; thence southerly along the east edge of FS road 18-230 approximately 4000 feet to the intersection of FS road 18-230 and trail #53; thence easterly along the north edge of FS trail #53 approximately 4000 feet, crossing FS road 1840, to the intersection of trail #53 and the west edge of FS road 1840-100; thence northerly along the west edge of FS road 1840-100 approximately 2500 feet to it's terminus in a harvest unit, in the NE 1/4 of section 29; thence northerly along the west edge of the harvest unit approximately 1000 feet to the northwest corner of the harvest unit; thence southeasterly along the north edge of the harvest unit approximately 1600 feet to the Forest Boundary on the section line between sections 20 and 21; thence north along the section line approximately 4800 feet to the NE section corner of section 20 and the point of beginning, designated point "A" on the reference map.

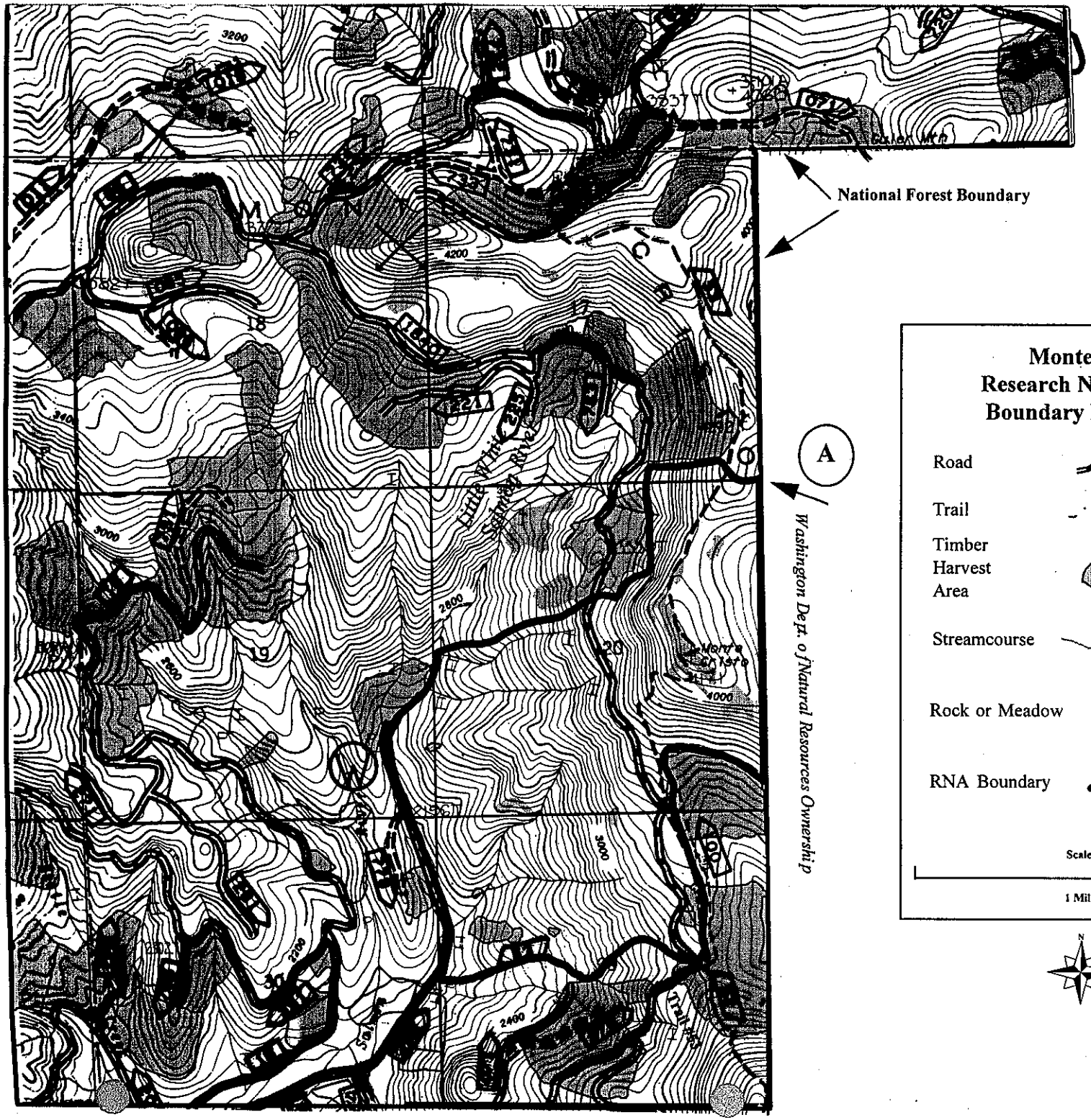


PREPARED BY: JIM WHITE, BIOLOGIST

DON KARSCH, PLS

GIFFORD PINCHOT N.F.

FOREST HEADQUARTERS


National Forest Boundary
A
Washington Dept. of Natural Resources Ownership
Monte Cristo
Research Natural Area
Boundary Description
Road
Trail
Timber
Harvest
Area
Streamcourse
Rock or Meadow
RNA Boundary
Scale
1 Mile
N

DECISION NOTICE/DESIGNATION ORDER
and
FINDING OF NO SIGNIFICANT IMPACT

MONTE CRISTO RESEARCH NATURAL AREA

U. S. D. A. Forest Service
Gifford Pinchot National Forest
Mt. Adams Ranger District

Klickitat County, Washington

A. INTRODUCTION AND BACKGROUND

The Mt. Adams Ranger District, Gifford Pinchot National Forest, is proposing a Research Natural Area (RNA) in the Little White Salmon Valley, to be established during Fiscal Year 1998. No actions or projects are associated with this Establishment.

The proposed project is located in Township 5 North, Range 10 East, Sections 19, 20, 29, and 30, Klickitat County; Willamette Meridian, unsurveyed, in Washington State.

The environmental analysis for this project was preceded by the Little White Salmon Watershed Analysis (1995), of which the planning area is part. Watershed Analysis is an examination of the existing resource conditions and ecosystem functions. The analysis also identified resource needs and recommendations intended to move the area closer toward the desired future conditions of the landscape, as identified in the Gifford Pinchot National Forest Land and Resource Management Plan (GP Forest Plan), as amended.

The Monte Cristo Research Natural Area Establishment Record describes the current condition of the proposed RNA in detail.

B. DECISION AND RATIONALE

Description of Decision

Based on the analysis described in the Monte Cristo Research Natural Area EA, it is my decision to implement Alternative 2. Implementation of this alternative will amend the Gifford Pinchot National Forest Land and Resource Management Plan, resulting in the establishment of an RNA totaling approximately 665 acres. To allow potential for development of a Horse-emphasis loop trail in the Little White Salmon Valley, future development of such a trail along the existing road 1840 corridor would be allowed. (map page 3)

Applicable Laws and Regulations

1. Forest Plan Management Direction

Management direction for this project is found in the Gifford Pinchot National Forest Land and Resource Management Plan (USDA 1990) [GP Forest Plan], as amended by 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 and USDI 1994) [Northwest Forest Plan].

2. Endangered Species Act

Under the Endangered Species Act, the Forest Service is required to formally consult with the U. S. Fish and Wildlife Service (USFWS) to determine the impact of proposed activities on threatened and endangered species. This is to occur before issuing a decision notice, whenever the proposed activity may affect a listed species.

Major Issues that were Considered

Issues identified for this proposed action were identified through the scoping process by an Interdisciplinary Team, contact with federal and state agencies, interested parties, and groups from the general public. The major issues considered in the analysis were: (table page 3)

1. Establishment of a Research Natural Area may not be compatible with proposed Oklahoma Horse Trail loop. A prime consideration in managing Research Natural Areas is maintenance of unmodified conditions and natural processes. Trail#53, which passes through the proposed RNA for about .75 miles, has been proposed for upgrade to become part of the proposed Oklahoma loop system.

2. The proposed Research Natural Area is included in the Twin Buttes Sheep and Goat Range Allotment Grazing is not compatible within RNAs, unless it contributes toward meeting the objectives for which the RNA was created. Designation of a Monte Cristo RNA would decrease the amount of acres, and the amount of forage, available to range permittees in the Twin Buttes Allotment.

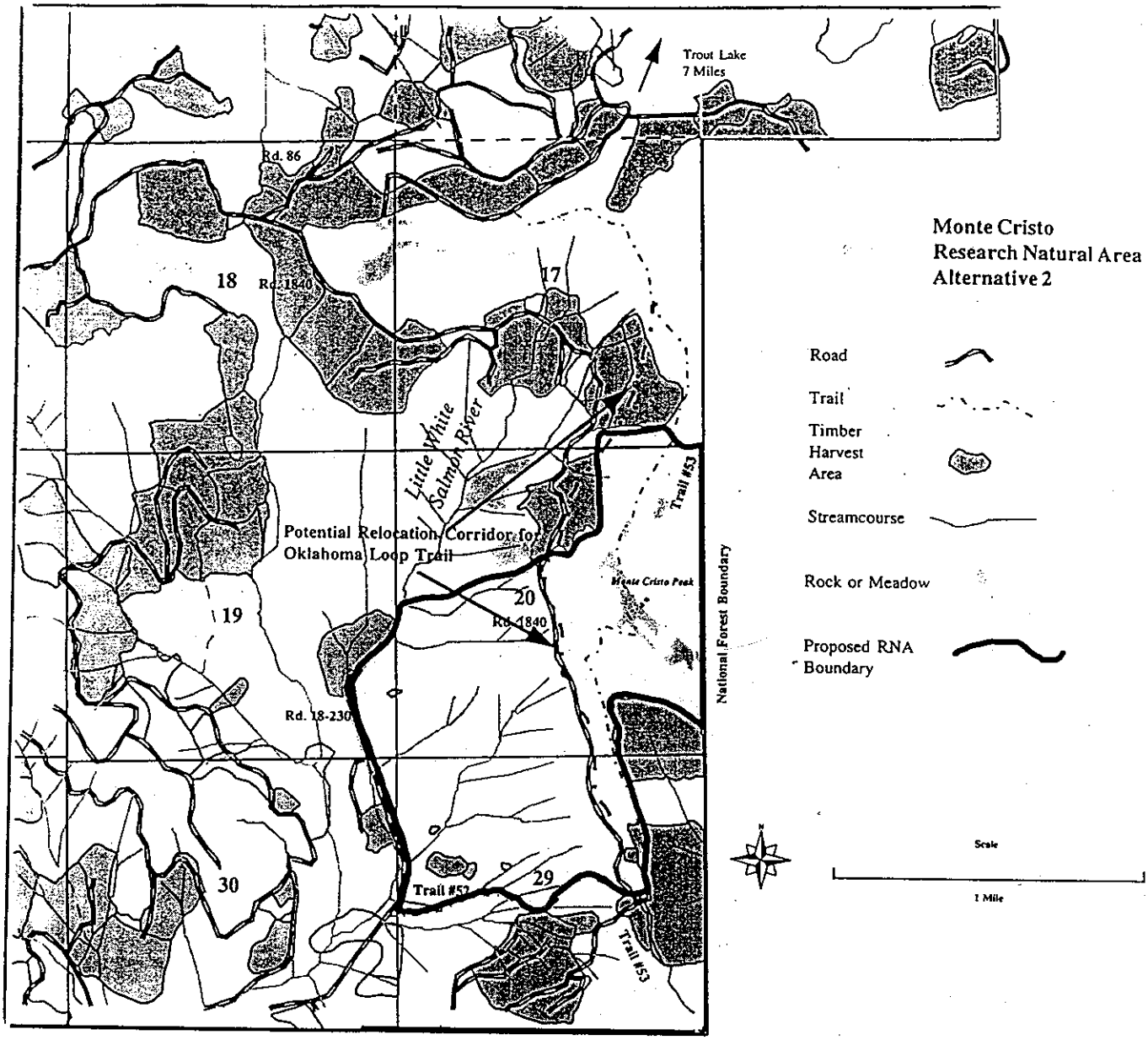
3. A portion of the proposed RNA lies in lands currently managed for multiple-use commodity production (General Forest). A change in the land allocation to Research Natural Area will preclude commodity production from these lands.

Other Factors

The primary purpose of the proposed Monte Cristo RNA is to contribute to a series of RNAs designed 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. Monte Cristo would contribute to this series of RNAs by providing an example of several grand fir zone forest types, which are noted as not full represented in the Washington Natural Heritage Plan. An evaluation by the Regional RNA committee, pursuant to direction in Forest Service Manual (FSM) 4063.04b), of the need for RNAs, identified these types as suitable and desirable for inclusion in the national network.

Rationale for the Decision

The selected alternative was chosen because it best meets the project purpose and need, while maintaining future trail development options . It also would be adjacent to the State of Washington's proposed Dry Creek Preserve, a Natural Area Preserve proposed to the east.
The selected alternative provides the best combination of physical, biological, social, and economic benefits.



Issues	ALTERNATIVES			
	1	2	3	4
Establishment Objectives				
Elements Represented	0	4	4	4
Dry Meadows	N/A	Yes	Yes	No
Trail #53				
Miles within RNA	0	.75	1.5	0
Potential to mitigate recreation effects	N/A	Mod.	Low	N/A
Twin Buttes Allotment				
Potential grazing loss (acres)	0	518	525	394
(Sheep Use-Months)	0	11	19	7
Loss of Commodity Production Potential				
Commodity Production (acres)	0	531[1]	552[2]	343[3]

[1] This alternative includes approximately 74 acres potentially unstable soils that could possibly be considered suitable upon further examination.
[2] This alternative includes approximately 75 acres potentially unstable soils that could possibly be considered suitable upon further examination.
[3] This alternative includes approximately 74 acres potentially unstable soils that could possibly be considered suitable upon further examination.

C. ALTERNATIVES CONSIDERED (table page 3)

Alternative 1

Alternative 1 (No Action) was not selected because it does not address the resource needs and management objectives identified during scoping for this project.

Alternative 3

Alternative 3 was not selected since it would preclude a greater length of Trail #53 from potential development as part of the proposed Oklahoma Horse loop. 1.5 miles of that trail would be located in the RNA under Alternative 3. Alternative 3 would, require a larger portion of a future Horse loop trail to be located along the existing road corridor for road 1840 and possibly road 86, for a longer stretch than would alternative 2 . This location would have less recreational appeal.

Alternative 4

Alternative 4 was not selected, as it would exclude the dry meadows at the summit of Monte Cristo, and would result in an RNA that contains less biological diversity than other alternatives. It also would not connect with the State of Washington's proposed Dry Creek Natural Area Preserve.

Alternatives Considered but not Analyzed in Detail

Road 1840

Road 1840, which travels through the proposed RNA, was discussed during the development of alternatives for this project. Establishment of roads in RNAs is not permitted, although many contain existing roads. Road 1840 is a major road in the Little White Salmon river valley. The opinion of the interdisciplinary team was that increased use of the RNA from 1840 would not be a major problem, because of steep sideslopes on either side of the road. The Interdisciplinary team felt that the road presents minimal problems for the proposed RNA, and did not analyze this issue in depth.

D. PUBLIC INVOLVEMENT

Initial scoping for the proposed Monte Cristo RNA was conducted in 1991, at an Open House on the Mt. Adams Ranger District. A scoping letter, dated April 6, 1995 was sent to about 300 potentially interested individuals and agencies.

On January 14, 1997 a letter announcing the availability of the Monte Cristo EA for public review and comment was sent to about 400 individuals or groups. Also at that time, a copy of the EA was sent to the parties who had provided input during the scoping process. The public comment period for the Monte Cristo EA ended on February 18, 1996. A total of eleven responses were received during and after the comment period. Excerpts from the letters received containing substantive comments, and my responses to those comments have been included in the Appendix B of the Monte Cristo EA.

E. NFMA AND OTHER FINDINGS

The National Forest Management Act (NFMA) and implementing regulations require specific findings to be made when implementing the GP Forest Plan. In accordance with this requirement, I conclude from the results of site-specific analysis of consequences, documented in the EA and the project analysis file, that:

- The selected alternative is consistent with the GP Forest Plan, as amended by the Northwest Forest Plan. The Monte Cristo RNA will contribute toward completing a series of Research Natural Areas, adding plant communities either not currently represented or not adequately represented.

-The proposal will not have adverse effects on threatened or endangered species, and is consistent with the Endangered Species Act.

F. FINDING OF NO SIGNIFICANT IMPACT

I find that this is not a Federal action that would significantly affect the quality of the human environment; therefore, an environmental impact statement is not needed. This determination was made after consideration of following factors and consequences documented in the EA:

1. Development of a loop trail in the Little White Salmon Valley, emphasizing horse use, would not be precluded. The trail could be located along the road 1840 corridor within the RNA.

2. The Twin Buttes Sheep and Horse Allotment would not be significantly affected, since most of the RNA is little utilized. An estimated annual loss of 1% of total animal-use months would result from establishment of the RNA.

3. Commodity production would not be significantly affected. Approximately 53 acres would be lost for potential commodity production.

4. There are no prime farmlands or rangelands located in the project area. There will be no effects to floodplains located within the planning area. Effects to wetlands located within the project area are discussed in the EA. The project follows the Standards and Guidelines of the GP Forest Plan, as amended, for protection of wetlands. No significant effects are anticipated.

5. There are no irreversible resource commitments involved with this project.

6. This project is being implemented in accordance with the management direction of the Gifford Pinchot National Forest Land and Resource Management Plan (GP Forest Plan), as amended by the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (Northwest Forest Plan).

7. This project protects any cultural resources that are known to exist, or may be found, in the project area.

8. No activities will result that would pose public health or safety hazards.

9. The environmental analysis does not identify any short-term, long-term or cumulative impacts involving unique or unknown risks.

10. This action does not set a precedent for future activities.

11. No impacts were identified that will affect consumers, civil rights, minority groups, or women.

12. No violations of Federal, State, or local law, or requirements for protecting the environment will occur.

13. This project is not expected to adversely affect American Indians. One local tribe was contacted concerning this project. No written comment was received.

14. Effects to "survey and manage" species (Record of Decision, Northwest Forest Plan, Table C-3, page C-49) are included in the EA. No significant effects are anticipated. Known Survey and Manage species within the RNA will help to assess Survey and Manage Species status on the Gifford Pinchot National Forest.

G. IMPLEMENTATION

Implementation of this decision shall not ocurr within 7 days following publication of the legal notice of this decision in The Seattle Post-Intelligencer.

H. ADMINISTRATIVE APPEAL RIGHTS

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

Chief
USDA, Forest Service
ATTN: NFS Appeals
14th and Independence Avenue, SW
P. O. Box 96090
Washington, D.C. 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) and must include the reasons for appeal and be submitted within 45 days from the date of the legal notice of this decision in The Seattle Post-Intelligencer.

I. CONTACT PERSON

For further information on Monte Cristo RNA, contact James White, Mount Adams Ranger District, Gifford Pinchot National Forest, 2455 Highway 141, Trout Lake, Washington, 98650, phone 509-395-3372.

for Richard A. Fenn

ROBERT W. WILLIAMS
Regional Forester
Pacific Northwest Region

5/29/98
Date

Monte Cristo
Research Natural Area
Environmental Assessment

Gifford Pinchot National Forest
Mt. Adams Ranger District

prepared by:
James White

Table Of Contents

Appendix

A. Comments Received

B. Responses to Comments received

C. 1989 Letter proposing Monte Cristo RNA

D. Specialist Reports

Botany
Range
Wildlife
Recreation

Chapter I

PURPOSE AND NEED FOR ACTION

A. THE PROPOSED PROJECT

The Gifford Pinchot National Forest is proposing to establish a Research Natural Area (RNA) in the vicinity of Monte Cristo Peak, and to manage it according to the direction provided for established RNAs in the Gifford Pinchot National Forest Land and Resource Management Plan. The proposed action, formal designation of the RNA by the Regional Forester, will amend the Gifford Pinchot National Forest Plan. The area was noted in the Forest Plan as one being considered for designation as an RNA.

The proposal would involve no managerial activities, but would change Management Direction for lands involved. The Gifford Pinchot National Forest Plan would be amended to change management direction from Botanical Special Interest and General Forest, to Research Natural Area (Management Area Category Y.

1. Purpose and need for action

The purpose of establishing the Monte Cristo RNA is to contribute to a series of RNAs designated to "illustrate adequately or typify for research or education purposes, the important forest and range types in each forest region, as well as other plant communities that have special or unique characteristics of scientific interest and importance" (36 CFR 251.23). Monte Cristo would contribute to this series of RNAs by providing an example of several grand fir zone forest types. An evaluation by the Regional RNA Committee, pursuant to direction in Forest Service Manual (FSM) 4063.04b), of the need for RNAs, identified these types as suitable and desirable for inclusion in the national network. Establishment of Monte Cristo RNA would provide long-term protection and recognition of this type.

The Monte Cristo RNA was originally proposed in 1989. Associate Area Ecologist Chris Topik identified several candidate RNAs on the Forest, in a letter to the Forest Supervisor. He noted the occurrence of plant communities currently not represented in the Washington Natural Heritage Plan, the steep elevation gradient and change in forest types from the White Salmon river to Monte Cristo ridge, and the presence of uncommon habitats, such as the summit meadows on Monte Cristo. Subsequently, Monte Cristo was listed in the Gifford Pinchot National Forest Plan as "currently being evaluated" (Gifford Pinchot National Forest Plan, 1990, p. IV-36).

The area was proposed as an RNA since it would contribute to the State of Washington's Natural Heritage Program. The Natural Heritage Program preserves "significant examples of typical and rare terrestrial, aquatic, and marine ecosystems, special species and rare geologic features". In the Pacific Northwest, the Forest Service uses state Natural Heritage Programs as basis for determining Research Natural Area needs and priorities. Monte Cristo would represent several plant community types not currently represented in

the Heritage Plan, and includes uncommon plant species mentioned in the Plan.

2. Objective

The objective is to contribute to the Washington Natural Heritage Plan, by establishing an RNA that includes elements that are not adequately represented in the Heritage Plan.

Monte Cristo was proposed in order to add several ecological elements (plant communities) that currently are not adequately represented in the US Forest Service Research Natural Area System, and in the Washington Natural Heritage Plan. The US Forest Service uses Natural Heritage Plans as a basis for determining RNA needs.

Elements that would be included are grand fir/mesic forb; grand fir/Oregon grape; grand fir/vanillaleaf; and grand fir/vine maple. Each of these elements is listed as priority 2 (the first three) or priority 3 (grand fir/vine maple) in the Washington Natural Heritage Plan 1993-95 update. Priority 2 items usually have little or no representation in existing natural areas; priority 3 elements may be partially represented in existing areas (Washington Natural Heritage Plan, 1995 update).

B. PLANNING AREA DESCRIPTION

The Monte Cristo Planning Area is located approximately ten miles south of Trout Lake, Washington (see figure 1). It is adjacent to the southeastern boundary of the Gifford Pinchot National Forest. The majority of the planning area lies in the Little White Salmon River watershed; a small area lies in the White Salmon River watershed. The legal description of the planning area is all or part of sections 17 and 20, T.5N R.10E, Willamette Meridian.

The proposed RNA encompasses a portion of the Monte Cristo range, located in the Little White Salmon River valley. Elevations range from about 2100 feet, along the upper reaches of the Little White Salmon river, to 4171 feet, at the summit of Monte Cristo peak (figure 2). The area is relatively dry, receiving about 50 inches of precipitation per year. The Monte Cristo range lies east of the Cascade crest; however, it's proximity to the crest, and to the Columbia river gorge, cause it to receive some maritime influence. Winds are often strong and prevail from the west, as evidenced by heavy flagging of trees at the ridgeline.

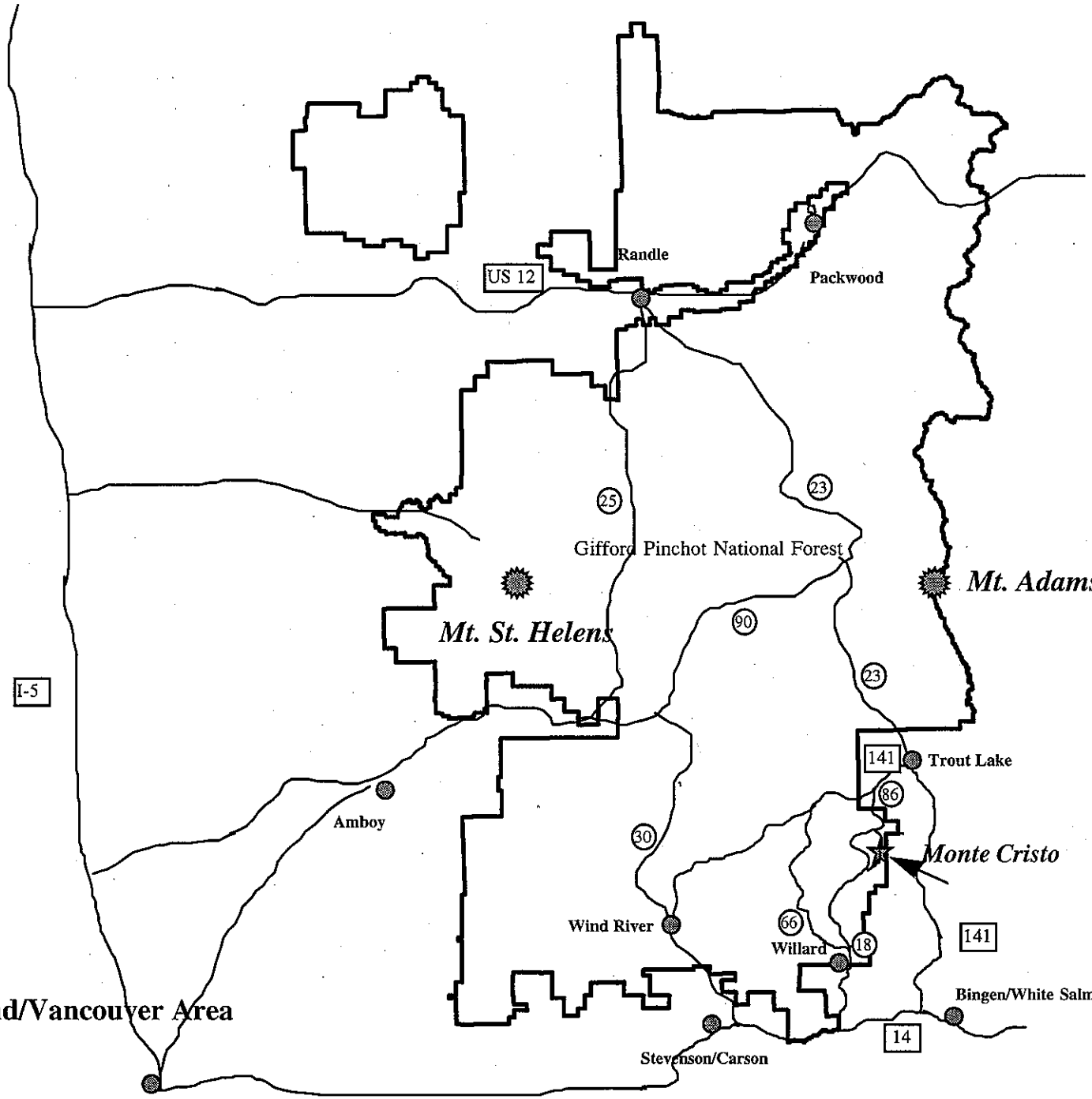


Figure 2
Monte Cristo
Proposed RNA
General Location

Legend

14 Highways

23 Forest Roads

0 10

Scale: Miles

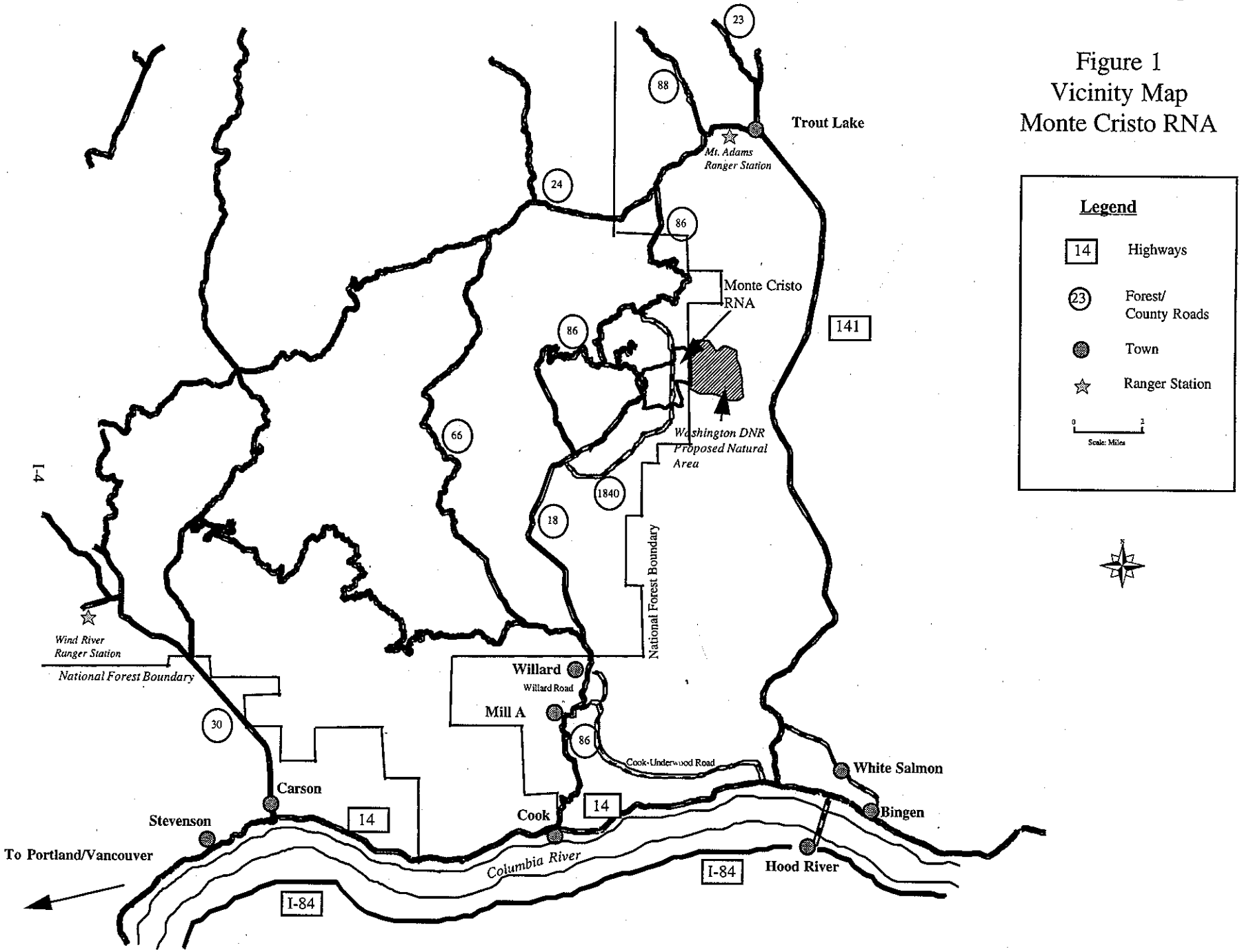


Figure 1
Vicinity Map
Monte Cristo RNA
Legend
14 Highways
23 Forest/ County Roads
Town
Ranger Station
Scale: Miles
Trout Lake
Mt. Adams Ranger Station
Monte Cristo RNA
Washington DNR Proposed Natural Area
141
National Forest Boundary
Wind River Ranger Station
National Forest Boundary
Willard
Willard Road
Mill A
Cook-Underwood Road
White Salmon
Bingen
Carson
Stevenson
Cook
Hood River
To Portland/Vancouver
Columbia River
I-84
I-84
14
14
I-4
23
88
24
86
86
66
1840
18
30
86

Vegetation

Most of the proposed RNA is composed of forests typical of the Little White Salmon valley. Forests are dominated by stands of Douglas-fir, with smaller amounts of shade-tolerant grand fir, western hemlock, and western redcedar. Noble fir and an occasional mountain hemlock occur at higher elevations. Higher elevations contain some inclusions of noble fir, and Pacific silver fir. The northern portion of the planning area contains a stand of old-growth noble fir.

Most of the forests lie in the grand fir zone (Topik, 1989). Northerly slopes, in the north end of the proposed RNA, lie in the Pacific silver fir zone (Brockway et al, 1983). Within the small portion of the proposed RNA that is in the Pacific silver fir zone, common plant associations include Pacific silver fir/vanillaleaf/bluebead lily, and Pacific silver fir/big huckleberry/queencup. In the grand fir zone, grand fir/thimbleberry/fairybells is most common on cooler, more moist sites (higher elevations, gentler slopes on high ridges). On steep, west and south facing slopes, the relatively warm and dry climate favors the grand fir/oceanspray association. This association is most common on the west-facing slope in the lower portion of the proposed RNA, below road 1840. Grand fir/dwarf Oregon grape/vanillaleaf, grand fir/California hazel/vanillaleaf, and grand fir/dogwood/vanillaleaf also occur on this slope, usually in more moist locations (more northerly slopes, near streams, sites with deeper soils).

Forest timber stands are mostly 140-160 years old, with the exception of the noble fir stand. Stands originated from large, stand-replacement fires that occurred in the 1820's (Little White Salmon Watershed Analysis, 1995). One small (about 5 acres) existing clearcut is located in the southwestern corner of the proposed RNA.

A smaller portion of the proposed RNA, surrounding Monte Cristo peak, is composed of dry meadows. They contain a large variety of shrub and herbaceous vegetation, including Oregon white oak (Quercus garryana), arrowleaf balsamroot (Balsamorhiza deltoidea), purple-flowered lonicera (Lonicera conjugialis), western bladderwort (Lesquarella occidentalis, and Hall's goldenweed (Haplopappus hallii). Refer to the Botanical report for more detailed information and plant species lists.

One sensitive plant species occurs in the proposed RNA. A population of clustered lady's slipper, Cypripedium fasciculatum, occurs west of road 1840, in the main forested section of the proposed RNA. C.fasciculatum is also a special plant element in the State of Washington Natural Heritage Plan (Washington Department of Natural Resources, 1995).

Three species have been identified that occur on the list of "Survey and Manage" species in the Record of Decision for the Northwest Forest Plan (table C-3). One vascular plant, Allotropa virgata, is listed as a Strategy 1 species, meaning that immediate management actions must be taken for the species. Two lichens, Lobaria oregana and Lobaria pulmonaria, are listed as strategy 3 and 4. Strategy 3 and 4 species require additional surveys to determine high-priority sites for species management (Record of Decision for the Northwest Forest Plan, p. C-5).

Wildlife

Wildlife species present in the proposed RNA are typical of the Little White Salmon river valley. A bald eagle was sighted soaring over the area, during reconnaissance in June, 1995. A spotted owl pair was located in the western portion of the proposed RNA in the mid-1980's. The pair was last located in summer

1994; a 100-acre pair protection area is located in the central portion of section 20, T.5N, R.10E.

Recreation

Recreation uses of the proposed RNA consist primarily of hiking, botanical visits to the ridgetop meadows, and hunting in the fall. Monte Cristo trail (#53) travels through the proposal, providing access to the ridgetop meadows. The trail once provided access to a fire lookout, located at the summit of Monte Cristo peak. The trail appears to receive light use, although no data has been collected on levels of use.

Monte Cristo trail is open to both hiking and recreational livestock. In the mid to late 1980's, the trail was proposed as part of an improved loop trail system, with emphasis on providing a new area for recreational horseback riding. The system was anticipated to help take use pressure off Indian Heaven Wilderness, which is very popular for recreational horseback riding. Several loops were proposed, with a focal point being a horse camp near Oklahoma campground, near the Little White Salmon river, in the bottom of the Little White Salmon valley. The proposal was listed as a proposed recreation development in the Gifford Pinchot Forest Plan, and has been listed on the Forest's Capital Investment program for a number of years. More detailed planning, however, has not been done. Reconnaissance in September, 1995 indicated that extensive re-engineering and trail re-location would be necessary in the vicinity of Monte Cristo peak, due to steep conditions on portions of existing trails.

Range

The proposed RNA is located within the Twin Buttes Sheep and Goat allotment, one of three range allotments on the Mt. Adams Ranger District. Approximately 3000 sheep use the allotment when it is active; the current permittee has not used the allotment for several years.

The proposed RNA receives very light grazing use. Grazing is not permitted in Botanical Special Interest Areas, which makes up a portion of the acreage in the proposed RNA. In the rest of the area, little grazing occurs because of the steep slopes, and lack of forage under the forest canopy. Sheep are herded through the proposed RNA along road 1840 as part of their seasonal movement in the range allotment. Use is limited to "travel through" movement, due to the nearby location of a sensitive plant, and proximity to the Monte Cristo Botanical Special Interest Area.

The allotment includes a small corral, located south of the proposed RNA, at the junction of roads 1840 and 1840-100. The corral was used in the late 1980's, as part of a program testing use of sheep to control shrub competition to young trees.

Cultural Resources

The one cultural resource in the proposed RNA is the Monte Cristo Lookout Site. A lookout was constructed on Monte Cristo peak in 1933, abandoned in 1945, but was still reported to be in existence in 1954. It is not known in what year it was destroyed.

The present remains at the site include a U.S.G.S. brass benchmark, two brass reference caps, four metal struts, glass, nails and several white wooden posts. The posts may have been used to hitch up pack horses.

C. MANAGEMENT DIRECTION

Currently, the proposed Monte Cristo RNA is included in two Management Area Categories, in the Gifford Pinchot National Forest Land and Resource Management Plan (Forest Plan). They are Special Interest (Botanical), code 9L, and General Forest, Code TS.

Each of these items is discussed in detail below.

THE FOREST PLAN

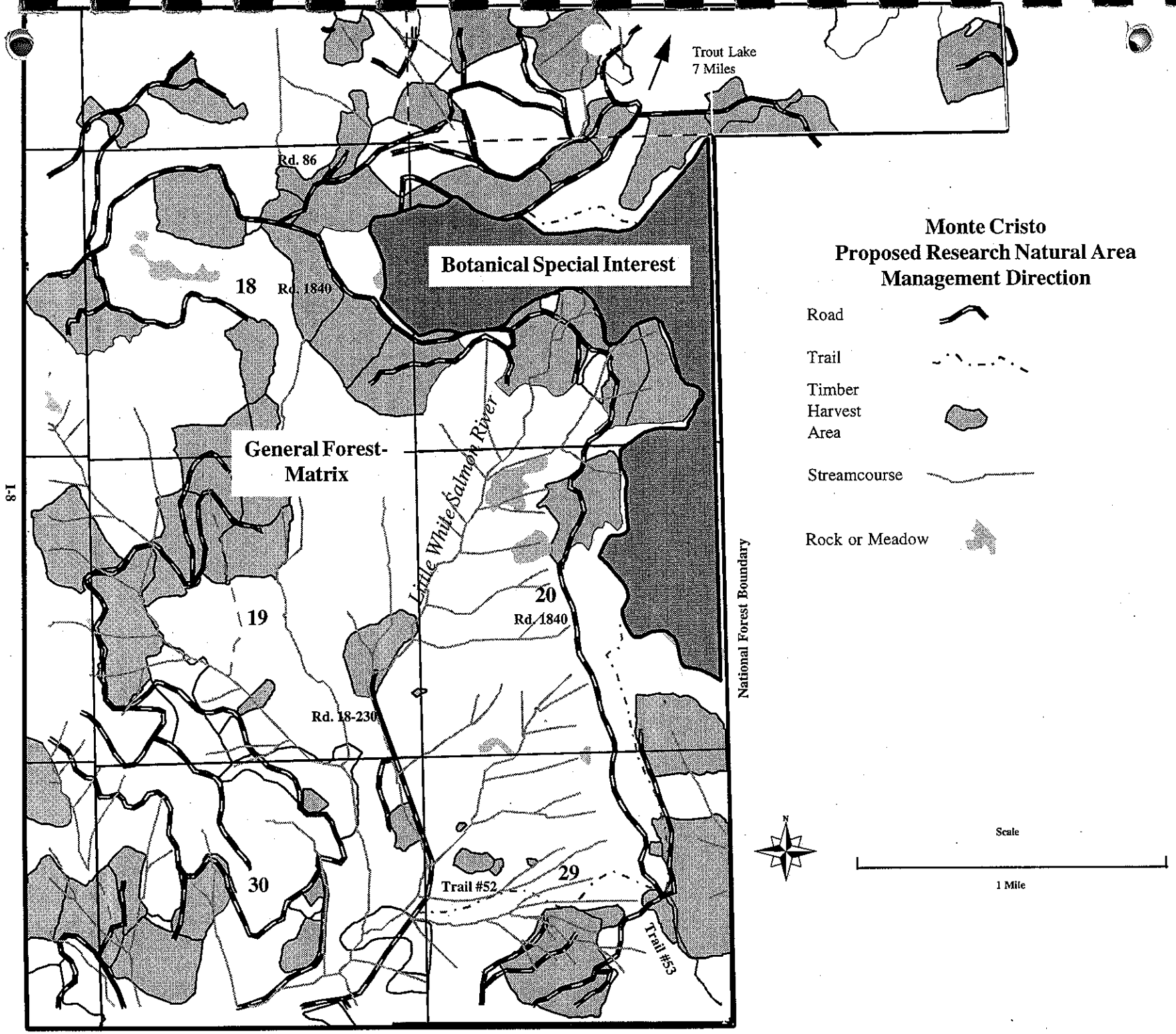
The project would be implemented under the direction of the Gifford Pinchot National Forest Land and Resource Management Plan, 1990. It is commonly known as the Forest Plan. The land within the planning area has been allocated by the Forest Plan to the Management Area Categories (MACs) listed below. Refer to the Forest Plan and Amendment 11 for further detail. Establishment of the proposed Monte Cristo RNA would amend the Forest Plan.

On April 13, 1994, the Gifford Pinchot National Forest Land and Resource Management Plan (USDA 1990) was amended by the Secretary of Agriculture as documented in the **Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl, and the Standards and Guidelines for Management of Habitat for Late Successional and Old-Growth Related Species Within the Range of the Northern Spotted Owl**. The Record of Decision and accompanying Standards and Guidelines, commonly called the **Northwest Forest Plan**, will hereafter be referred to as the ROD. Generally the ROD Standards and Guidelines (S&Gs) supersede similar provisions in the 1990 Forest Plan. However, the Forest Plan S&Gs will apply "where they are more restrictive or provide greater benefits to late-successional forest related species."(ROD C-39)

The ROD outlines a comprehensive ecosystem management strategy. This strategy specifies six categories of designated area managed to protect and enhance habitat for late successional and old growth forest related species such as the spotted owl. The portion of National Forest lands outside the six categories is identified in the ROD as the Matrix. It is the area in which most timber harvest on the National Forest will be conducted.

In February, 1995, Amendment 11 to the Gifford Pinchot National Forest Plan was issued. Amendment 11 serves to update the Forest Plan, including requirements of the Northwest Forest Plan.

Forest Plan Management Area Categories (MACs), and Designated Areas from Amendment 11 are described below. See Table 1 - Alternatives for acres.


Trout Lake
7 Miles
Rd. 86
Botanical Special Interest
18
Rd. 1840
General Forest-
Matrix
Little White Salmon River
20
Rd. 1840
19
Rd. 18-230
30
Trail #52
29
Trail #53
National Forest Boundary
I-8
Monte Cristo
Proposed Research Natural Area
Management Direction
Road
Trail
Timber
Harvest
Area
Streamcourse
Rock or Meadow
N
Scale
1 Mile

General Forest (TS) - (Forest Plan, Amendment 11, p. 6-25)

The goal for the General Forest MAC is to produce a predictable and sustainable level of timber sales and non-timber resources that will not degrade the environment. The desired future condition for this MAC is: evidence of land managed for timber production and other commodities is apparent. All tree sizes and mixtures of native species from seedlings to mature sawtimber are well distributed.

The majority of General Forest lands in the Monte Cristo proposed RNA are overlain by Riparian Reserve (described below), a portion of a spotted owl pair center, or are withdrawn from timber suitability because of unstable soils. As a result, only a small portion of General Forest lands are considered suitable for production of timber and non-timber commodity resources in the Monte Cristo proposed RNA.

Botanical Special Interest (9L) - (Forest Plan, Amendment 11, p. 5-39)

The goal of Botanical Special Interest Areas is to maintain, in a substantially natural condition, lands containing plant species or communities which are significant because of form, occurrence, habitat, rarity, or other reasons. Refer to Amendment 11 for more detail (see Table 1- Alternatives).

Aquatic Conservation Strategy - (Refer to Amendment 11 of Forest Plan, page 2-1).

The ROD identifies an Aquatic Conservation Strategy (ACS) as part of it's comprehensive ecosystem management strategy. In part, the strategy requires watershed analysis prior to timber harvest in Key Watersheds. Key watersheds, such as the Little White Salmon River, are a system of large refugia comprising watersheds that are crucial to at-risk fish species and stocks, and provide high water quality. A watershed analysis of the Little White Salmon River basin, which was completed and approved in fall 1995, will be used by the decision maker to support his/her determination of whether or not this proposal meets or does not prevent attainment of the Aquatic Conservation Strategy objectives of the ROD (ROD B-10)

Riparian Reserve Designated Areas - (Forest Plan, Amendment 11, p. 2-4)

Riparian reserves are portions of watersheds where riparian-dependent resources receive primary emphasis and where special standards and guidelines apply. Riparian reserves occur at the margins of standing and flowing water, intermittent stream channels, ephemeral ponds and wetlands. Riparian reserve widths vary from approximately 300 feet slope distance, either side, of fishbearing streams, to 100 feet either side for intermittent streams. Watershed analysis may result in different recommendations for riparian reserves. Refer to Amendment 11 for additional information.

Included within riparian reserves are lands that are unsuitable or potentially unsuitable for timber and other commodity production, because of soil instability or potential soil instability.

Riparian reserve designated areas "overlay" the Forest Plan MACs; standards and guidelines for riparian reserves apply where they are more restrictive.

Twin Buttes Sheep and Goat Allotment

The proposed RNA lies entirely within the Twin Buttes Sheep and Goat Allotment. The Twin Buttes allotment covers approximately 125,000 acres, including the Little White Salmon river valley, and lands in the Trout Lake Creek and Lewis River watersheds. The allotment supports an estimated 10,437 Animal-Use-Months (AUMs) of forage annually. Grazing is allowed if it does not detract from the special features, public use and enjoyment, in the Monte Cristo Botanical Special Interest Area allocation (Gifford Pinchot National Forest Plan, 1990).

D. ISSUES

Scoping Summary

Scoping is a process used early in the planning effort to determine issues concerning the proposed action. Comments are solicited from the public, employees of the Forest Service, and other public agencies. Once identified, the issue becomes the basis for determining the impacts to study during the environmental analysis.

Historical Background

Scoping was conducted in 1991, as part of a public open house on the Mt. Adams Ranger District. No additional planning was accomplished at that time. In spring, 1995, additional scoping was conducted. The proposed project was included in the Gifford Pinchot's "Pinchot Projects" publication. A position statement was prepared and mailed to groups and individuals on the Mt. Adams Ranger District mailing list.

In 1992, Forest personnel met with representatives of the Washington State Department of Natural Resources, who were considering a similar land allocation (a Natural Area Preserve) on State of Washington lands immediately east of Monte Cristo. The State is continuing to pursue designation of this area, known as Dry Creek, as a Natural Area Preserve.

An Interdisciplinary team (IDT) has reviewed and consolidated the information gathered during scoping efforts. The IDT reviewed the project objectives, all the issues and identified principal issues that would drive the development and evaluation of alternatives.

Project Objective

As identified in the Proposed project and in the Purpose and Need, the objective is to create a Research Natural Area that would contribute to the National Forest System of RNAs and would include grand fir zone elements that are not adequately represented in the Washington Natural Heritage Plan.

Evaluation Criteria:

- Representation of elements in the proposed RNA
- Occurrence of other uncommon habitats or plants

Issues:

1. Establishment of a Research Natural Area may not be compatible with proposed Oklahoma Horse Trail Loop

   A prime consideration in managing research natural areas is maintenance of unmodified conditions and natural processes. Trail 53, which passes through the proposed RNA, is open to recreational livestock use, and has been proposed for upgrade to become part of the proposed Oklahoma horse loop system. The Oklahoma proposal would emphasize horse use, to help reduce horse use in Indian Heaven Wilderness, by providing alternative horse trails. Development of the Oklahoma Loop trail, with emphasis on horse use would be incompatible within an RNA. Recreational use in RNAs needs to be kept at

a level that results in no introduced plants or animals.

Evaluation Criterion:

- Miles of trail within the proposed RNA open to other than foot traffic

2. The proposed RNA is included in the Twin Buttes Sheep and Goat Range Allotment

The proposed RNA is located entirely within this existing allotment. Grazing is not compatible within RNAs, unless it contributes toward meeting the objectives for which the RNA was created. Designation of a Monte Cristo RNA would decrease the amount of acres, and the amount of forage, available to range permittees in the Twin Buttes Allotment.

Evaluation Criteria:

- Acres of proposed RNA within grazing allotment
- Estimated loss of grazing use within grazing allotment.

3. The proposed RNA is partially located in the General Forest land management allocation, capable of commodity production

A portion of the proposed RNA lies in lands currently managed for multiple-use commodity production (General Forest). A change in the land allocation to Research Natural Area will preclude commodity production from these lands.

Evaluation Criterion:

- Acres of General Forest Land included within proposed RNA

Issues initially considered but not given detailed analysis:

Road 1840

Road 1840 travels through the proposed RNA. Establishment of roads in existing RNAs is not permitted (FSM 4060.3), but many RNAs contain existing roads. Road 1840 is a major road in the Little White Salmon river valley. The opinion of the interdisciplinary team was that increased use of the RNA from 1840 would not be a major problem, because of steep sideslopes on either side of the road. The Interdisciplinary team felt that the road presents minimal problems for the proposed RNA, and did not analyze this issue in depth.

Chapter II

PROJECT ALTERNATIVES

A. INTRODUCTION

This section contains descriptions of the proposed alternatives, proposed mitigation measures, and a comparison of the alternatives.

The Monte Cristo Interdisciplinary team (IDT) developed alternatives to address the objective and the principal issues concerning the planning area. A no action alternative (no establishment of an RNA) was also considered, and serves as a baseline for comparing alternatives.

B. ALTERNATIVE DESCRIPTIONS

Alternative 1.

No action at this time. Establishment of a Research Natural Area would not occur. This alternative serves as the basis for comparison of the action alternatives.

Alternative 2. (The Forest Service Preferred Alternative)

Alternative 2 would create an RNA that is approximately 665 acres in size. The RNA would include a steep, forested west-facing slope, extending from the ridgetop to the Little White Salmon river valley bottom. Also included would be the complex of dry, grassy meadows around Monte Cristo peak.

Road 1840 and trail #53 are included in the RNA under this alternative. Approximately .75 miles of trail #53 would be located within the RNA.

Mitigation measures:

1. Oklahoma Loop Trail:

   This alternative provides a corridor in which the proposed Oklahoma Horse Loop trail system, if developed, could pass through the RNA. The Horse trail would leave existing trail #53 at the junction of trails #52 and #53, and follow road 1840 north through the RNA. At the northern edge of the RNA, new trail would be constructed northeast, uphill, to the ridgetop north of the RNA. It would join the existing trail #53 in a ridge saddle, north of the RNA border. See the attached map labeled "Monte Cristo Proposed RNA Trail Locations". Trail would be constructed adjacent to road 1840; recreational livestock would be restricted to this trail within the RNA.

2. Range Allotment Livestock:

Range permit livestock annually pass through the proposed RNA along road 1840. This use would be allowed to continue, on a once-per-year "travel-through" basis. This access would be monitored annually by the Range Permit administrator, and Botanist or RNA manager. Monitoring would be to ensure livestock stay on the 1840 corridor, and for new, introduced plants.

3. Range Allotment Corral:
The corral, located at the junction of roads 1840 and 1840-100, would be removed.

Alternative 3.

Alternative 3 would create an RNA that is approximately 925 acres in size. It would include all of alternative 2, plus lands to the north that are currently managed as Botanical Special Interest. The RNA would be "split" into two parcels, divided by a landing and clearcut, along the ridge between the White Salmon and Little White Salmon valleys. This alternative is very similar to the original proposal by Chris Topik in 1989.

Road 1840 and trail #53 are included in the RNA under this alternative. Approximately 1.5 miles of trail #53 would be located within the RNA.

Mitigation measures:

1. Oklahoma Loop Trial:
This alternative does not provides a corridor in which the proposed Oklahoma Horse Loop trail system, if developed, could pass through the RNA. The Horse trail could, however, leave existing trail #53 at the junction of trails #52 and #53, and follow road 1840 north to it's junction with road 86, and connect with remaining portions of the loop at that point. Trail would be constructed adjacent to road 1840; recreational livestock would be restricted to this trail within the RNA.

2. Range Allotment Livestock:
Range permit livestock annually pass through the proposed RNA along road 1840. This use would be allowed to continue, on a once-per-year "travel-through" basis. This access would be monitored annually by the Range Permit administrator, and Botanist or RNA manager. Monitoring would be to ensure livestock stay on the 1840 corridor, and for new, introduced plants.

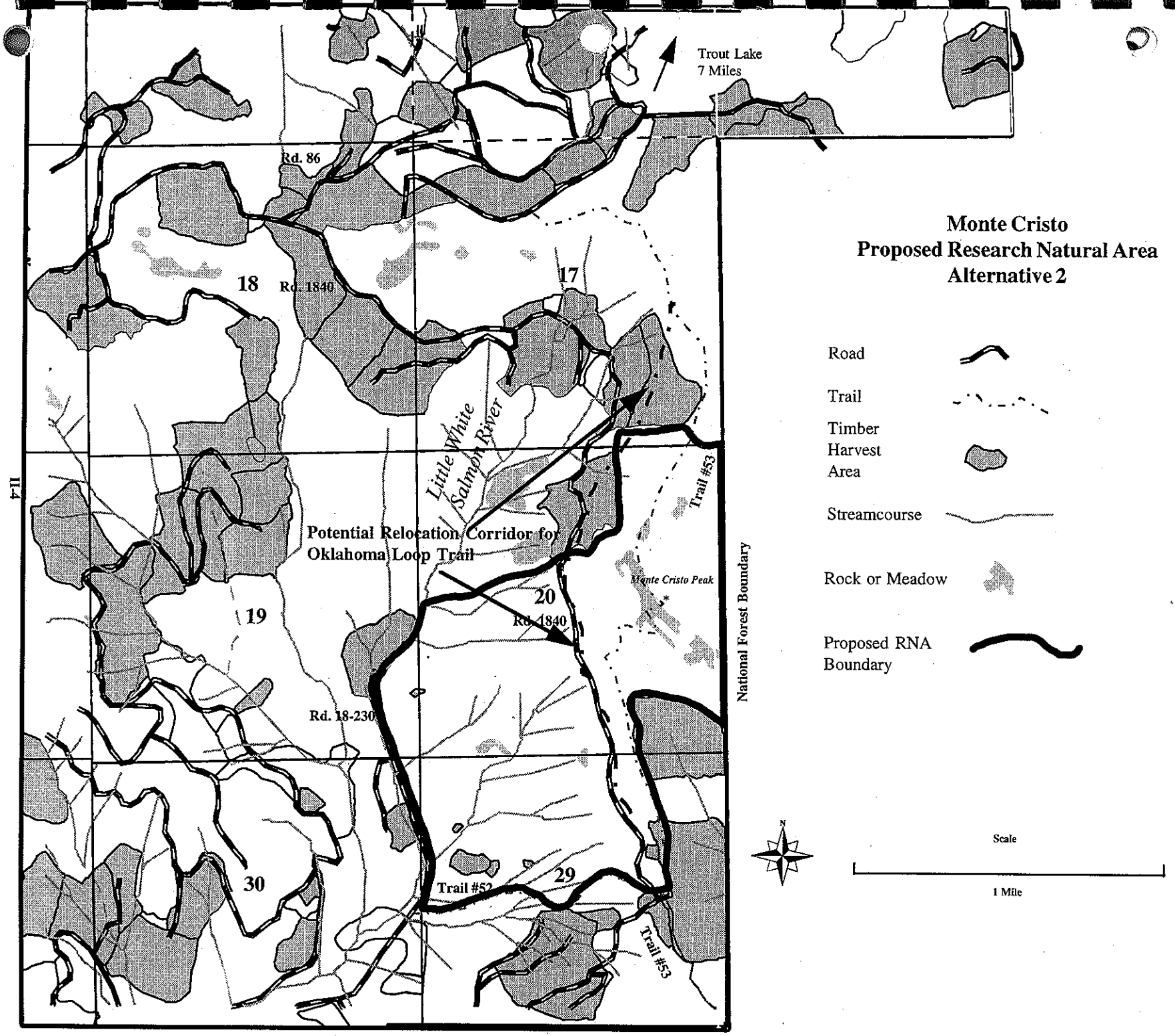
3. Range Allotment Corral:
The corral, located at the junction of roads 1840 and 1840-100, would be removed.

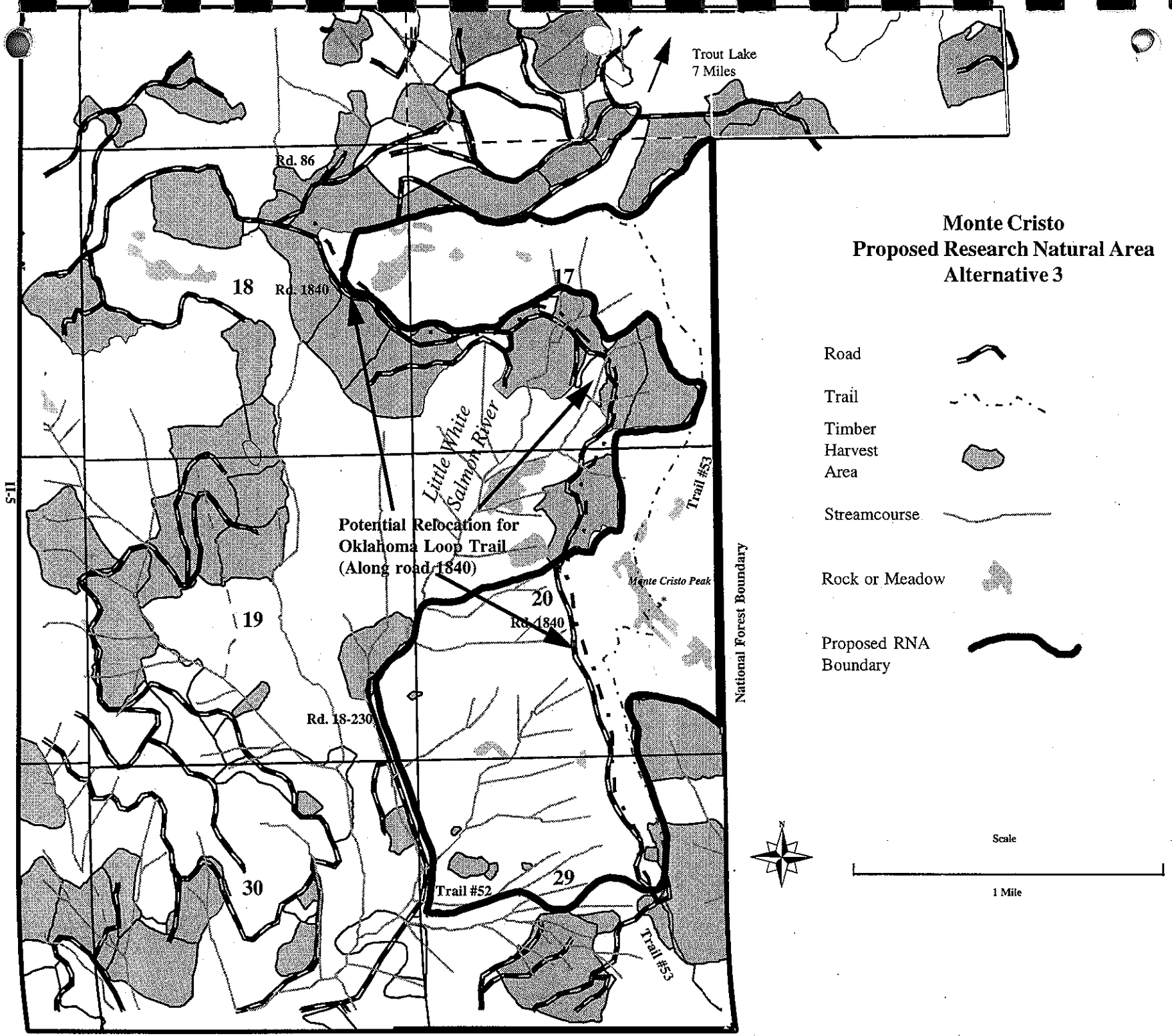
Alternative 4.

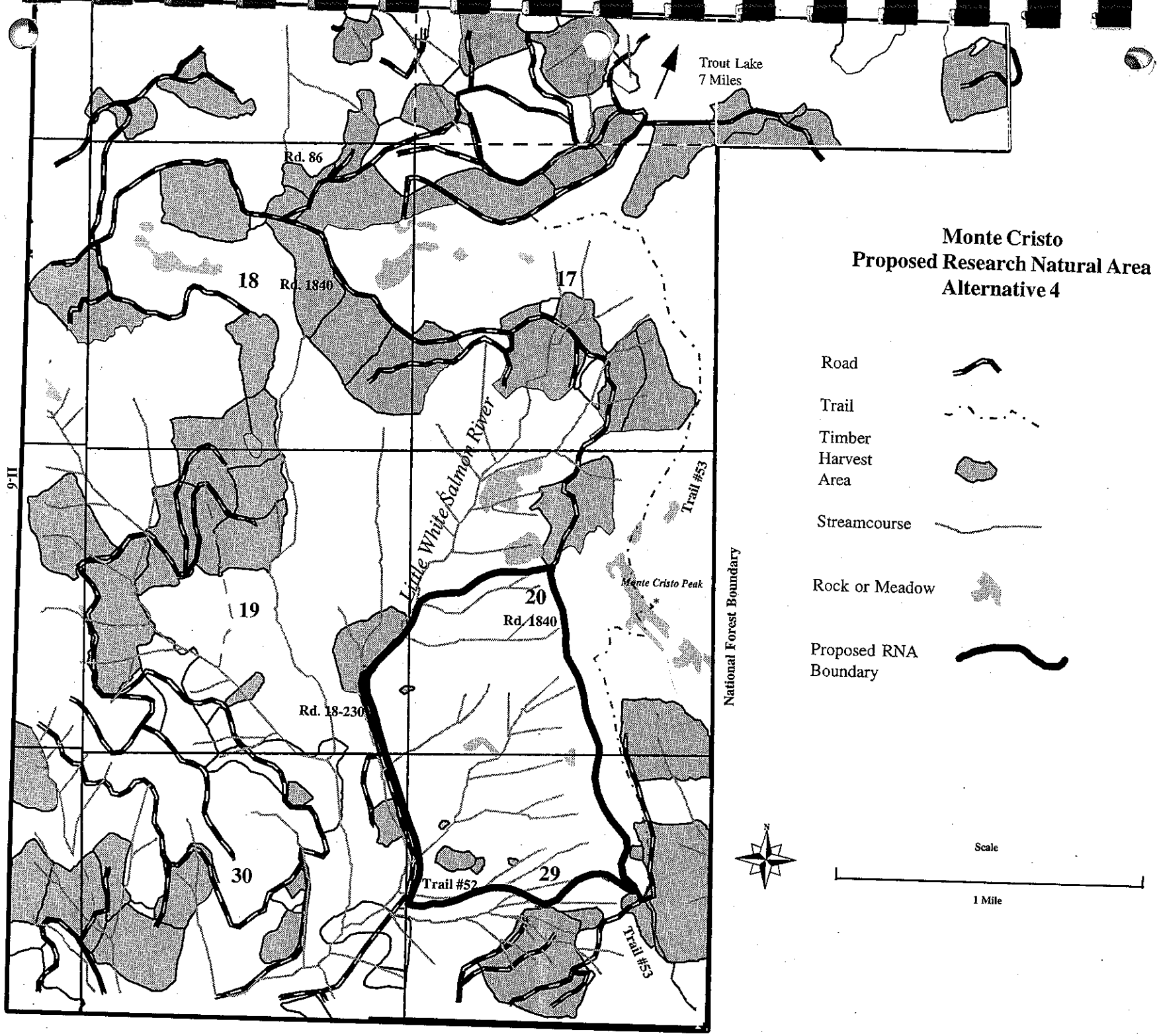
Alternative 4 would create an RNA that is approximately 394 acres in size. The RNA would include the steep, forested west-facing slope, extending from road 1840 to the Little White Salmon river valley bottom. Lands east of road 1840, including the meadows around Monte Cristo peak, would not be included. Trail #53 would not be included. This alternative also addresses the Range and Commodity issues, by including fewer acres that currently allow grazing and other commodity production.

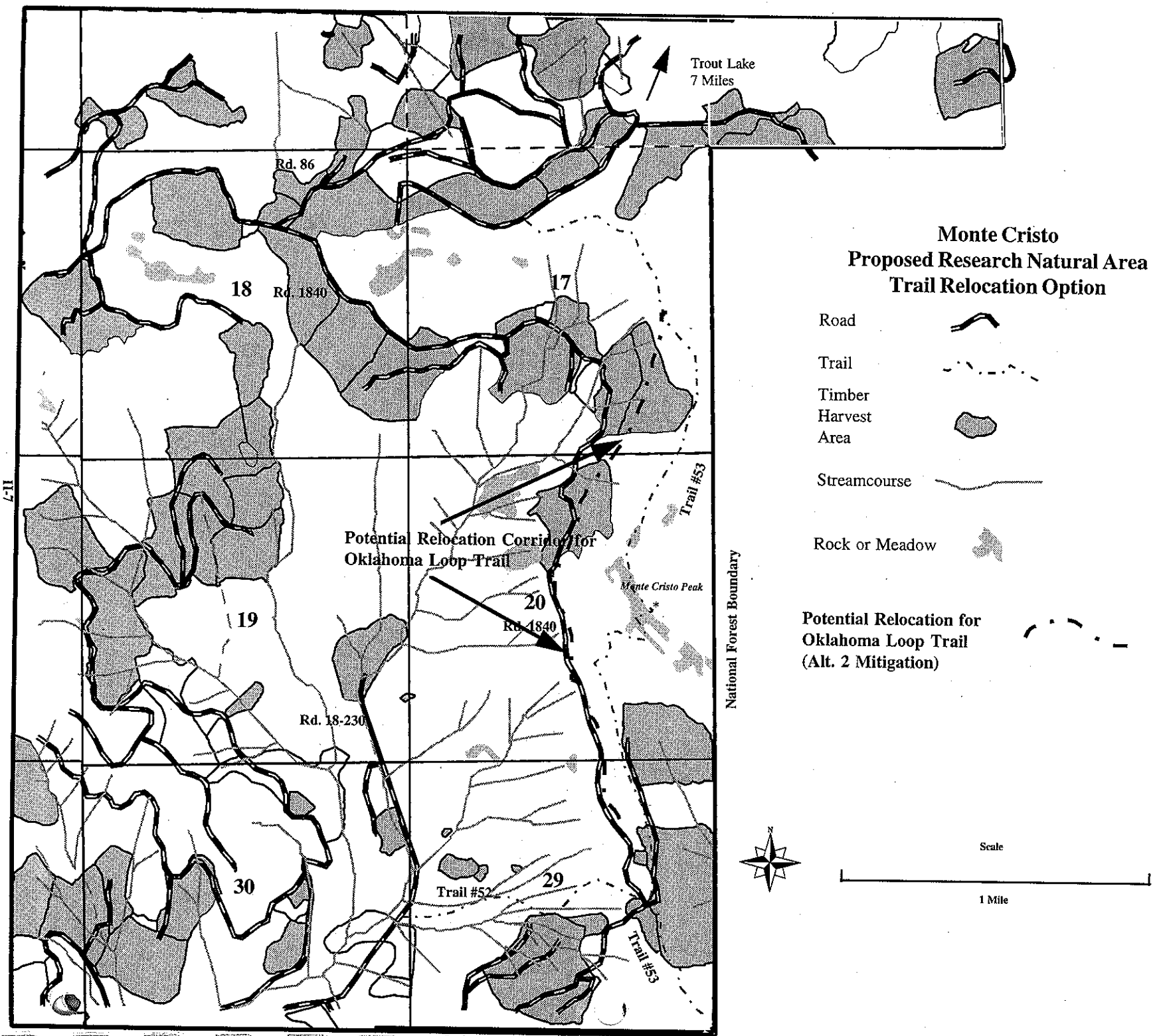
Table 1- Alternatives.

Management Direction	Alternatives			
	1	2	3	4
Botanical Special Interest	N/A	147	400	
General Forest (Matrix)	N/A	518	525	394
Total Acres	0	665	925	394


Trout Lake
7 Miles
Rd. 86
18
Rd. 1840
17
Little White Salmon River
Trail #53
Potential Relocation Corridor for
Oklahoma Loop Trail
Monte Cristo Peak
20
Rd. 1840
19
Rd. 18-230
National Forest Boundary
30
Trail #52
29
Trail #53
Monte Cristo
Proposed Research Natural Area
Alternative 2
Road
Trail
Timber Harvest Area
Streamcourse
Rock or Meadow
Proposed RNA Boundary
N
Scale
1 Mile


Trout Lake
7 Miles
Rd. 86
18
Rd. 1840
17
Little White Salmon River
Trail #53
Potential Relocation for
Oklahoma Loop Trail
(Along road 1840)
Monte Cristo Peak
20
Rd. 1840
19
Rd. 18-230
National Forest Boundary
30
Trail #52
29
Trail #53
Monte Cristo
Proposed Research Natural Area
Alternative 3
Road
Trail
Timber
Harvest
Area
Streamcourse
Rock or Meadow
Proposed RNA
Boundary
N
Scale
1 Mile


Trout Lake
7 Miles
Rd. 86
18
Rd. 1840
17
Little White Salmon River
Trail #53
Monte Cristo Peak
20
Rd. 1840
19
Rd. 18-230
30
Trail #52
29
Trail #53
National Forest Boundary
11-6
Monte Cristo
Proposed Research Natural Area
Alternative 4
Road
Trail
Timber Harvest Area
Streamcourse
Rock or Meadow
Proposed RNA Boundary
N
Scale
1 Mile


Trout Lake
7 Miles
Rd. 86
18
Rd. 1840
17
Trail #53
Potential Relocation Corridor for
Oklahoma Loop Trail
Monte Cristo Peak
20
Rd. 1840
19
Rd. 18-230
National Forest Boundary
30
Trail #52
29
Trail #53
Monte Cristo
Proposed Research Natural Area
Trail Relocation Option
Road
Trail
Timber
Harvest
Area
Streamcourse
Rock or Meadow
Potential Relocation for
Oklahoma Loop Trail
(Alt. 2 Mitigation)
N
Scale
1 Mile

Chapter III

ENVIRONMENTAL CONSEQUENCES

A. INTRODUCTION

This chapter discusses the potential effects on the human and natural environment resulting from the implementation of each the four alternatives in this proposal. It is organized by issue, addressing the Principal Issues, and Other Issues listed in Chapter I. Also discussed are a series of issues common to all harvest proposals such as air quality, consumers, minorities, women, civil rights, American Indian rights, cultural resources, prime farmland, rangeland and forest land, wetlands and floodplains, threatened, endangered, and sensitive species, management indicator species, vegetative management, watershed effects, and irreversible and irretrievable commitments of resources.

B. EFFECTS OF IMPLEMENTATION

PROJECT OBJECTIVES

Contribution to the Washington Natural Heritage Program, and to USFS Region Six Research Natural Area System

Evaluation Criteria:

- Representation of elements in the proposed RNA
- Occurrence of other uncommon habitats (dry meadows) or plants

Alternative 1

Alternative 1 would not contribute to the Forest Service System of RNAs, and would not contribute to the Natural Heritage Program. Lands would be managed for multiple-use, and as Botanical Special Interest, following standards and guidelines in the Gifford Pinchot National Forest Plan.

Alternative 2

This alternative would create an RNA containing including all the elements, and botanically diverse meadows considered in the 1989 letter by Chris Topik.

This alternative would encompass approximately 665 acres of intact forest and adjacent meadows surrounding Monte Cristo peak. Several grand fir zone plant community elements, listed in the Washington Natural Heritage Plan, would be represented, include grand fir/vine maple, grand fir/mesic forb, grand fir/dwarf Oregon grape, and grand fir/vanillaleaf. The entire elevation gradient from the Little White Salmon river valley bottom to Monte Cristo ridge would be included. One special plant element Cypripedium fasciculatum, would be represented.

Alternative 2 would connect with the State of Washington's proposed Dry Creek Natural Area Preserve, creating an area of over 1300 acres in size (the proposed Dry Creek NAP encompasses approximately 700 acres). The size and lack of

irregular boundaries buffers plant and animal populations from outside influences, such as introduced species. The inclusion of dry meadow increases the biological diversity of the site, and maintains connectivity with adjacent lands in the headwaters of the White Salmon valley drainage.

Alternative 3

This alternative would also connect with the State of Washington's proposed Dry Creek Natural Area Preserve, creating an area of over 1500 acres in size. This alternative would encompass approximately 925 acres of intact forest. As with alternative 2, the size and lack of irregular boundaries buffers plant and animal populations from outside influences, such as introduced species. The gradient of change from the Little White Salmon river valley bottom to the Monte Cristo ridge would be included. The inclusion of dry meadows, plus old-growth noble fir, increases the biological diversity of the site.

Alternative 4

This alternative would create an RNA containing all the elements considered in the 1989 letter by Chris Topik, and excludes ridgetop dry meadows.

The alternative would encompass approximately 394 acres of intact forest. The exclusion of the dry meadows at Monte Cristo summit would result in an RNA that contains less biological diversity than other action alternatives. An elevation gradient from the Little White Salmon river valley bottom to road 1840 would be included.

The quality of the elements represented would be lessened, with greater potential for invasion of non-native species. A greater percentage of RNA acres would lie close to edges.

PRINCIPAL ISSUES

Issue #1 - Trail #53

Evaluation criteria:

- Miles trail within RNA
- Potential to Mitigate
- Recreation effects

Alternative 1

This alternative would not result in RNA-related limitations on uses of trail #53.

Alternative 2

Alternative 2 would include about .75 miles of trail #53 within the RNA. Recreation use would be limited to foot traffic within the RNA, precluding the option of using the trail as part of a horse-loop trail system, on the existing trail system.

Alternative 2 would allow for a horse-loop trail, by relocation of a portion of trail #53, as previously described. This mitigation would minimize potential for introduction of non-native plants, erosion, and other disturbances within the RNA, by placing use along the existing road 1840 corridor.

Location of the horse loop trail along road 1840 would allow establishment of a loop system. The portion of trail along road 1840, and below the ridgetop immediately north of the RNA, would have less recreational appeal than the ridgetop location, which passes through the summit meadows.

Alternative 3

Alternative 3 would include approximately 1.5 miles of trail #53 within the RNA. Recreation use would be limited to foot traffic within the RNA, precluding the option of using the trail as part of a horse-loop trail system, within the RNA. Alternative 3 would allow establishment of a loop system, by locating the trail along road 1840,

passing through the RNA, and continuing along road 1840. This location would have less recreational appeal than the ridgetop location, which passes through the summit meadows and ridgetop forests.

Alternative 4

Under alternative 4, Monte Cristo trail #53 would not be included within the RNA. Use restrictions on the trail would be limited to those currently applying.

Issue #2 - Twin Buttes Allotment

Evaluation criteria:

- Acres of proposed RNA within grazing allotment
- Estimated loss of grazing use within grazing allotment.

Alternative 1

This alternative would not result in RNA-related limitations on range resources.

Alternative 2

Alternative 2 would result in approximately 518 fewer acres available for grazing within the Twin Buttes allotment, of which about 15 acres are suitable for grazing. An estimated annual loss of 11 sheep-use months would result, less than 1% of the estimated total of 10,437 animal-use months available in the allotment. Allotment management would be minimally affected, by requiring consideration of the RNA in annual pass-through movement.

Alternative 3

Alternative 3 would result in approximately 525 fewer acres available for grazing within the Twin Buttes allotment, of which about 19 acres are suitable for grazing. An estimated annual loss of 19 sheep-use months would result, less than 1% of the estimated total of 10,437 animal-use months available in the allotment. Allotment management would be minimally affected, by requiring consideration of the RNA in annual pass-through movement.

Alternative 4

Alternative 4 would result in approximately 175 fewer acres available for grazing within the Twin Buttes allotment, of which about 9 acres are suitable for grazing. An estimated annual loss of 7 sheep-use months would result, less than 1% of the estimated total of 10,437 animal-use months available in the allotment. Allotment management would be minimally affected, by requiring consideration of the RNA in annual movement adjacent to the RNA.

Issue #3 - Commodity Production

Alternative 1

This alternative would not result in RNA-related limitations on potential commodity production.

Alternative 2

Alternative 2 would result in the loss of approximately 53 acres for timber production. Potential for timber harvest, and future timber management would be foregone. The potential loss would be relatively small because of the current management allocations that make up this alternative. The remaining acres in this alternative are allocated as Botanical Special Interest, riparian reserve, or have been identified as having unstable soils or high landslide potential. Approximately 74 acres are classed as "potentially" unstable, and could be added to the commodity production base if determination is made that management activities would not have detrimental consequences.

In addition, production potential for special forest products, such as mushrooms, would be foregone on all RNA acres.

Alternative 3

Alternative 3 would result in the loss of approximately 55 acres for timber production. Potential for timber harvest and future timber management would be foregone. As with alternative 2, the potential loss would be relatively small because of the current management allocations that make up this alternative. Approximately 75 acres are classed as "potentially" unstable, and could be added to the commodity production base if determination is made that management activities would not have detrimental consequences.

In addition, production potential for special forest products, such as mushrooms, would be foregone on all RNA acres.

Alternative 4

Alternative 4 would result in the loss of approximately 34 acres for timber production. Potential for timber harvest and future timber management would be foregone. The potential loss is smaller, since fewer acres are involved in the proposed RNA. Approximately 74 acres are classed as "potentially" unstable, and could be added to the commodity production base if determination is made that management activities would not have detrimental consequences.

In addition, production potential for special forest products, such as mushrooms, would be foregone on all RNA acres.

Table 2 - Comparison of Alternatives

CRITERION	ALTERNATIVES			
	1	2	3	4
Establishment Objectives				
Elements Represented	0	4	4	4
Dry Meadows	N/A	Yes	Yes	No
Trail #53				
Miles within RNA	0	.75	1.5	0
Potential to mitigate recreation effects	N/A	Mod.	Low	N/A
Twin Buttes Allotment				
Potential grazing loss (acres)	0	518	525	394
(Sheep Use-Months)	0	11	19	7
Loss of Commodity Production Potential				
Commodity Production (acres)	0	531[1]	552[2]	343[3]

[1] This alternative includes approximately 74 acres potentially unstable soils that could possibly be considered suitable upon further examination.
[2] This alternative includes approximately 75 acres potentially unstable soils that could possibly be considered suitable upon further examination.
[3] This alternative includes approximately 74 acres potentially unstable soils that could possibly be considered suitable upon further examination.

OTHER ISSUES

Impacts to Wetlands and Floodplains

No floodplains occur within the planning area. Wetlands are limited to intermittent streamcourses. Designation as RNA would have no impacts on wetlands within the proposal.

Threatened, Endangered, and Sensitive Species

An evaluation was made to determine the presence of threatened, endangered and sensitive plant and animal species (See Biological Evaluation in the analysis file). The only listed species confirmed were the northern spotted owl, and the Bald Eagle (one sighting in June, 1995). A biological determination of no effect from this proposed action was made for federally listed species.

In addition to the northern spotted owl, the Monte Cristo RNA Planning Area contains habitat for many animal species. Other threatened, endangered, or sensitive species that may occur (Information from Little White Salmon Watershed Analysis): Grizzly bear, Bald Eagle, Gray Wolf.

The only known sensitive plant in the proposed RNA is the clustered ladyslipper. No other sensitive, threatened, or endangered species are known.

Survey and Manage Species

The Northwest Forest Plan identifies several late-successional forest species which require additional protection outside of that provided by main reserves. This includes the "survey and manage" species listed in Table C3 of the ROD and Appendix J2 of the Supplemental EIS. Additional species are mentioned under "protection buffers" for the various reserves and matrix. The likelihood of these species occurring within the planning area is based on an assessment of habitat and review of Forest Service data bases of sightings. Refer to the Habitat Exam and Botany input in the analysis file

For Survey and Manage species, RNAs may help by providing another protected area for those species, and may provide excellent "baseline" sites from which to compare the effects of management on these species.

Fungi

A survey of fungi was accomplished in fall, 1995. 67 species were identified, including two Survey & Manage species, Gomphus floccosus (strategy 3) and Clavariadelphus mucronatus (strategy 3 and 4).

Other Cryptogams

Of the 81 lichens, and 23 bryophytes (mosses and liverworts) that are listed in the Table C3 and Appendix J2, many have potential to occur in the planning area. Lichen and moss surveys conducted in summer, 1995 revealed 2 lichen species present, that are included in Table C3. Those species are Lobaria oregana, and Lobaria pulmonaria.

Vascular Plants

Surveys conducted in 1995 listed over 150 species, including one Strategy 1 Survey and Manage Species present in the proposed RNA, Allotropa virgata. Several uncommon species, are present, including *Lonicera conjugialis, Lesquerella occidentalis, Happlopappus hallii, Helianthella uniflora, Balsamorhiza deltoidea, Lomatium watsonii, Calochortus macrocarpus,* and *Quercus garryana* (high-elevation population).

Refer to the botany report for further information.

Amphibians

The Larch Mountain salamander potentially occurs in this area. Habitat consists of rock outcrops and other mesic environments. No individuals have been found.

Birds

The black-back woodpecker, pygmy nuthatch, and flammulated owl may all occur in this planning area which is located on the east slope of the Cascade Range. A bald eagle was seen during a reconnaissance trip in June, 1995, near the summit of Monte Cristo peak.

Cultural Resources

No surveys were conducted, since no potentially site-disturbing activities are planned. The only known cultural resources include the remnants of the Monte Cristo fire lookout, which as burned in the 1950's.

Prime Farmland or Rangeland

There is no farmland or prime rangeland in the planning area.

Consumers, Civil Rights, Native Americans, Minority Groups, and Women

There will be no adverse affects on consumers, women, minorities, or any other class of people. Proposed activities comply with existing treaties with the Yakima Indian Nation and with all laws.

Irreversible Resource Commitments

No alternative results in an irretrievable commitment of resources.