(3)

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

SNF-226
-243
K-2
-5
-47
TOTAL 1879 acres
751 hectares

4060
May 17, 1979

ESTABLISHMENT REPORT

L I M P Y R O C K

RESEARCH NATURAL AREA

REGION 6

PACIFIC NORTHWEST STATION

UMPQUA NATIONAL FOREST
OREGON
DOUGLAS COUNTY

U. S. GOVERNMENT PRINTING OFFICE : 1977 O - 251-012

6200–7 (10/73)

DESIGNATION ORDER

By virtue of the authority vested in me by the Secretary of Agriculture under regulation 7 CFR 2.60(a) and 36 CFR 251.23, I hereby designate the Limpy Rock Research Natural Area the lands described in the preceeding report by Jerry F. Franklin, dated May 15, 1979: Said lands shall hereafter be administered as a Research Natural Area subject to the said regulations and instructions thereunder.

8/17/79
Date

Chief

RECOMMENDATION

It is recommended that the Limpy Rock Research Natural Area be established on the lands described in this report, submitted by Jerry F. Franklin.

5/23/79
Date

Submitted: Jerry Jeansonne
District Ranger

24 May 1979
Date

Recommended: R. D. Andrus
Forest Supervisor
Umpqua National Forest

July 9, 1979
Date

Recommended: Robert F. Tarrant
Director
PNW Experiment Station

July 9, 1979
Date

Recommended: for Otto Morton
Regional Forester
Region 6

July 23, 1979
Date

Approved: Signed by Owen T. Jamison Acting
acting Director
Division of Recreation

Date

Approved:
Deputy Chief
Research

Date

Approved:
Chief

ESTABLISHMENT REPORT

LIMPY ROCK RESEARCH NATURAL AREA

Within UMPQUA NATIONAL FOREST,

DOUGLAS COUNTY, OREGON

Principal Distinguishing Features

Limpy Rock Research Natural Area (RNA) is an 1879-acre tract located in the North Umpqua River drainage of the Umpqua National Forest, Oregon. It consists of heavily timbered, moderate to steep, generally-south facing sloped occupied by Douglas-fir (Pseudotsuga menziesii) dominated forests. Most of the drainage of Dog Creek, a perennial stream, is included within the RNA. The outstanding feature of the RNA is the large number of special interest vascular plant species (rare, threatened, and endangered) which occurs within its boundaries, often in several populations. Areas by SAF and Küchler types are:

SAF 226	Pacific Douglas-fir	1,751 acres (700 ha)
SAF 243	Ponderosa Pine-Sugar Pine-Fir	65 acres (26 ha)
Nonforested		63 acres (25 ha)
K 2	Cedar-Hemlock-Douglas Fir Forest	1,751 acres (700 ha)
K 5	Mixed Conifer Forest	65 acres (26 ha)
K 47	Fescue-Oatgrass	63 acres (25 ha)

Justification

The major justification for establishment of the RNA in the large concentration of special interest vascular plant species. These include species that are (a) present as distant outliers from the main body of their range, (b) rare, or (c) threatened and endangered (T&E) as defined

by national and/or state T&E lists. The extent of this concentration has been thoroughly demonstrated in the maps and reports of the Limpy Rock Botanical Committee[1/] and validated by professional botanists. The total list of vascular plants (including area surrounding) the RNA exceeds 400. Eighteen of these species are on the Oregon provisional list of T&E plants as of 1979. They are:

	Asplenium septentrionale	Spleenwort
	Astragalus umbraticus	Milk vetch
2/	Calypso bulbosa	Fairy slipper
2/	Eburophyton austinae	Ghost orchid
	Erythronium citrinum	Fawnlily
	Hemitomes congestum	Gnome plant
	Kalmiopsis leachiana	kalmiopsis
	Lilium pardalinum	lily
	Lilium washingtonianum	Washington lily
	Montia diffusa	Indianlettuce
	Orobanche pinorum	Broomrape
	Pellaea brachyptera	Sierra cliffbrake
3/	Phacelia verna	Phacelia
3/	Pityopus californicus	California hollyfern
	Pleuricospora fimbriolata	Finged pinesap
2/	Rubus nivalis	Snow bramble
	Thelypteris phegopteris	Woodfern
	Woodwardia fimbriata	Giant chainfern

1/ Limpy Rock Botanical Committee. July 13, 1977. Supplemental report of the Limpy Rock Botanical Committee in support of a Limpy Rock Research Natural Area. Various pagination.

2/ On Oregon "watch list" only.

3/ On Smithsonian list of "Endangered and Threatened Plant Species of the United States."

None of these species have appeared in the Federal Register. Although several of these species are now known to be more common than previously supposed, the Limpy Rock site is outstanding for its unusual richness in special interest species and the abundance of their populations.

The RNA will function as a site for preservation and concentrated scientific study of these special interest plants. It will be possible to monitor population trends, study the physiology and autecology of the species, and determine their place in forest succession.

The RNA will also function as a research site for studies of the dry Douglas-fir forest ecosystems characteristic of much of the Umpqua National Forest and surrounding ownerships. Well-stocked mature (around 100-year-old) Douglas-fir stands occupy the bulk of the RNA. Although these forests occur mainly on steep south-facing slopes they appear well stocked and productive. Sugar pine (Pinus lambertiana) and Pacific madrone (Arbutus menziesii) are typical tree associates. Some older forests are also present. In any case, these conifer forests will be valuable control sites for basic and applied research on this extensive forest type. The inclusion of two entire subdrainages of Dog Creek will also make it possible to study stream systems, material cycles at the watershed level, and land X water interactions. The RNA has particular value as a baseline monitoring site.

Location and Access

Limpy Rock RNA is about 45 miles east of Roseburg and 6 miles east of Steamboat, Oregon on the north bank of the North Umpqua River. It is located on the Steamboat Rnager District of the Umpqua National Forest.

The RNA is compact and occupies portions of Sections 6, 7, 8, and 18, R. 2E, T. 26S., and Sections 12 and 13, R. 1E., T. 26S., Willamette Meridian (figure 2).

Access to much of the RNA is excellent (figure 2). Forest Road 2603 forms the upper boundary of the RNA. Forest Road 2643 bisects the RNA about a fourth of the distance down the slope. Forest trail 1550 is located on the ridge which forms the southwest boundary of the RNA. Forest Road 2683 and trail 1553 form much of the eastern boundary of the RNA. A system trail (#1551) drops off Bradley Ridge to the Indian Caves along Dog Creek.

Boundaries

The boundaries of the Limpy Rock RNA are shown in detail on the orthophoto (figure 4). They have been drawn so as to provide easily identifiable boundaries (e.g. roads and ridges) and to include the maximum number of populations of special interest species. The species distribution maps of the Limpy Rock Botanical Committee were of great value in this regard and made it possible to maximize research values within a given size of RNA.

The boundary can be described as follows (points are marked on figure 2): Begin at Point A where Road 2643 crosses Dog Creek and travel SSE along Roads 2643 and 2683 to take off for Trail 1553 (Point B); follow trail and ridge line southwest for 1/2 mile (Point C); travel west down secondary ridgetop to Dog Creek (Point D); follow Dog Creek southeast for about 1 mile to the powerline right-of-way (Point E); follow power line right-of-way west to southwest boundary of Dog Creek drainage basin (Point F); ascend north and northwesterly the bounding ridge of the Dog Creek watershed to junction with Trail 1550 and, eventually, Road 2643 (Point G); follow Road 2643 north to junction with Road 2603 (Point H); follow Road 2603 northeasterly and then east for about 1 1/2 miles to boundary of first clearcut on south side of road (Point I); follow east boundary of clearcut

and then shelterwood for about 1/2 mile southeast to Road 2643 (Point J); and then north along Road 2643 to point of origin (A).

Wherever the boundary follows a road or powerline right-of-way the actual boundary is located 200 feet from the centerline to allow for roadside maintenance and removal of danger trees. During the posting of the boundary minor adjustments may be made to place the boundary on the most prominent topographic features available. The turning points at I, J, C, and D will be monumented following establishment; the boundary from I to J will also be signed at that time.

Physical and Climatic Conditions

Elevations within the Limpy Rock RNA range from 1750 to 4350 feet (525 to 1305 m). Topography is generally steep with more moderate slopes in the northern third of the RNA and some very steep slopes associated with Limpy Rock and the slopes east of Dog Creek. Aspect is generally southerly and although much of the area is broken there are extensive areas of relatively smooth even slopes.

Climate is typical of the west side Douglas-fir region, with cool wet winters and hot dry summers. Average annual precipitation is about 55 inches, most of which occurs from late September to late May and is primarily rain. Occasionally, snow covers the ground between January and March with depths up to 2 feet. Summer temperatures range from 40°F to 90°F with an average of 70°F.* 24 year record at Steamboat Ranger Station located 5 miles west of and 1000 feet lower in elevation

The majority of the soils are quite shallow. They consist of gravelly loams overlying varying bedrock of breccias and tuffs. A few isolated areas have deep soils derived from colluvial materials. One area west of Limpy Rock is associated with old landforms and past unstable landflows which, through time, have stabilized.

* Information on this page provided by Dr. Jerry Franklin by phone on August 8, 1979.

Geological makeup consists of massive beds of andesitic and dacite tuff ash flow, with lesser amounts of flow rock of basaltic composition. The area falls in the Little Butte Volcanic geological classification series.

There are rock outcrops and vertical cliffs along ridges scattered throughout the area. The most prominent landmark is Limpy Rock, a basaltic monolith that rises 50 feet above the vegetative canopy.

Biological Features

Limpy Rock RNA is nearly completed forested. The primary type is mature (75- to 100-year-old) Douglas-fir forest (SAF Type 229, Küchler Types 2). Minor associates include sugar pine, Pacific madrone, western hemlock (Tsuga heterophylla), incense-cedar (Calocedrus decurrens), golden chinquapin (Castanopsis chrysophylla), grand fir (Abies grandis), and ponderosa pine (Pinus ponderosa). It provides an excellent example of southwestern Oregon conifer forests at rotation age. The area was obviously heavily burned in the 19th century and restocked heavily on most of the sites. Residual older stems which escaped fires occasionally are found in the RNA as well as one or two patches of old-growth forest.

Limpy Rock RNA has a high diversity of vascular plant species; a list of known species is included as Appendix I. As mentioned in the "Justification" the RNA is especially rich in populations of special interest species. Some of these are associated with rock outcrops--Kalmiopsis leachiana and Asplenium septentrionale, for example. A second group are achlorophyllous mycotrophic plants of the orchid and ericad families, e.g., Hemitomes congestum, and Eburophyton austinae; many of these plants have previously been described as saprophytic. In any case, this second group are often found in densely stocked forest stands which have nearly barren forest floors.

There are special communities associated with the streamside zones, a small pond, and some grassy forest openings.

The RNA is not well known faunistically. It undoubtedly contains the normal array of bird, mammal, reptile, and amphibian species characteristic of this region (Appendix II).

Impact on Other Resource Values

Archaeological. There is an Indian cave along Dog Creek within the RNA. The RNA should create no special management problems with regards to the cave and pictographs since the Forest objective is to discourage public use of this site.

Minerals. An active mineral claim exists within the RNA (Lough's Mine); the affected area is shown in figure 2. A preliminary mineral exam was done on August 14, 1978. Some grab samples were taken and, when analyzed, were found to contain small traces of gold and copper. Although the area appears to be weakly mineralized, a more detailed analysis of the geochemical and geophysical characteristics is necessary to find out more about the area. There is also an occupied cabin on this claim.

Ground search examinations on June 6, 1977, and August 14, 1978, failed to find any areas of mineralization in the proposed Research Natural Area (except for Lough's Mine which was examined separately). The mineral report of March 30, 1979, concluded that all of the area of Limpy Rock is generally nonmineral in character. Once again, Lough's Mine is excepted without further analysis.

Recreation. About two-thirds of the RNA is within the 6585-acre Limpy Rock Roadless Area (RARE II No. 6125) which is expected to be recommended to Congress for Wilderness Classification.

If a Wilderness is established the direction to guide management of those parts of the RNA that are included will be developed in the Wilderness management plan.

Water. Establishment of the RNA is expected to have a neutral or positive effect on watershed values since disturbance of the area will be minimized.

Timber. Timber resources are substantial on this tract. The standing crop of sound mature timber is high and potential productivity of the site is moderate under management. Most of the area is covered by well-stocked Douglas-fir stands with an average volume estimated at 35,000 bd. ft./acre and average site index is estimated at a Douglas-fir class IV. The acreage incorporated in the RNA is capable of growing about 480 bd. ft./acre/year under normal management procedures. Therefore, the loss of potential timber yield on the Umpqua National Forest is about 901,920 bd. ft. per year.

Establishment of the RNA should not adversely affect transportation and logging plans for adjacent National Forest lands. Forest Road 2683 will remain open through the RNA to logging traffic to allow access to the Dry and Happy Creek drainages.

Protection and Management

The key objective of management within the RNA will be to maintain natural conditions within the trace for scientific study and education. Monitoring and maintenance of the populations of special interest species will also be a concern.

1. Road Corridor. All roads adjacent to or within the Research Natural Area will be maintained according to their maintenance classifications. The intent is to keep the roads in a status to secure present and future public and administrative needs.

Any activity within the 200-foot roadside corridors will be limited to work necessary to keep the roads maintained and safe to meet these public and administrative needs.

2. Forest Management Areas. Several areas within the RNA were treated prior to its consideration for RNA status. These are (see figure 2 for their location): (1) commercial thinning of 99 acres along the northern boundary of the RNA in 1971; and (2) shelterwood cutting of 66 acres along Forest Road 2643 including broadcast burning, replanting, and erosion control in 1974. The overstory is still present in the shelterwood areas. These treated areas are within the RNA and further regular timber management activities will cease. They do present an opportunity to study the effect of timber cutting practices on populations of the special interest species, however.

3. Selected Trees. The status of selected parent trees within the RNA shouldn't be affected. Judicious collection of cones and vegetative material by climbing for propagation will continue.

4. Water Source. The two "pump chances" within the RNA will be maintained. These are within the 200' roadside strip.

5. Maps. The area boundary will be shown on the multiple-use maps for the Steamboat Ranger District.

6. Signs. Permanent boundary markers will be posted on the boundary of the RNA. Pre markers will be the standard yellow 7 x 10 inch metal RNA boundary signs (GSA Catalog No. -00-436-9661-9905). Spacing will be at intervals of 200 feet or less on well defined topographic boundaries and at intervals of 150 feet or less on otherwise poorly defined boundary

locations. The project will be the responsibility of the Steamboat District Ranger, and funds for the signing will be requested immediately after formal establishment of the area. Signing will not be carried out until the Wilderness issue is resolved, however, except along boundary segment I-J.

7. Trails. The two trails on the boundary will be maintained. In addition, some low standard access routes will be developed to provide scientific access into the lower third of the RNA. These are essential to facilitate research because of the rugged topography and dense vegetation. If the area is designated as Wilderness considerations of scientific access will be addressed in the Wilderness management plan.

8. Public Use. No effort will be made to limit recreational use unless this use begins to damage populations of special interest plants or otherwise significantly impairs material conditions.

9. Administration Records and Protection. The principal contact responsible for administering and protecting the physical area is the District Ranger, Steamboat District, Steamboat, Oregon. The coordinator for research and for maintenance of research records is the Director, Pacific Northwest Forest and Range Experiment Station, P. O. Box 3141, Portland, Oregon, 97208.

Environmental Impact Analysis and Public Involvement

The Limpy Rock area was allocated to Special Interest (RNA) in the Land Management Plan for the Umpqua National Forest (USDA-FS-R6-FES(Adm)-77-12) published on June 7, 1978. This plan set the direction for the management of these lands and provided for this establishment report to follow as a means to determine a final manageable boundary, to set more specific direction, and to form the basis for a formal administrative designation. This report will then be amended to the Forest FES (see page 76 of the UNF LMP).

Grazing

"Although grazing has occured, it has been casual and has had no significant effect on the flora."

Flora

References

1. Peck, M. E. 1961. A manual of the higher plants of Oregon. Dinsford and Mort publishers. Second edition, 936 pages Portland, Oregon.

2. Hitchcock, C. L. and A. Cronquist. 1974. Flora of the Pacific Northwest. University of Washington Press. 730 pages.

Fauna

1. Burt, W. H. and R. P. Grossenheider. 1964. A field guide to the mammals. Houghton-Mifflin Company, Boston. Edition 2. 284 pages.

2. Stebbins, R. C. 1966. A field guide to western reptiles and amphibians. Houghton-Mifflin Company, Boston. 279 pages.

3. Peterson, Roger Torrey. A field guide to western birds. Edition 2. Hougton-Mifflin Company, Boston. 309 pages.

Information on this page provided by Dr. Jerry Franklin by phone on August 8, 1979.

APPENDIX I--Vascular Plants of Limpy Rock RNA[1/]

ACERACEAE - Maple Family	
Acer circinatum	Vine Maple
Acer glabrum var. douglasii	Douglas Maple
Acer macrophyllum	Big-leaf Maple
Acer negundo	Box Elder
ANACARDIACEAE - Cashew Family	
Rhus diversiloba	Poison Oak
APOCYNACEAE - Dogbane Family	
Apocynum androssaemifolium	Spreading Dogbane
ARALIACEAE - Gingseng Family	
Aralia californica	Western Aralia
Aralia nudicaulis	Wild Sasaparilla
ARISTOLOCHIACEAE - Birthwort Family	
Asarum caudatum	Western wild Ginger
Asarum hartwegii	Marbled Wild Ginger
ASCLEPIADACEAE - Milkweed Family	
Asclepias cordifolia	Purple Milkweed
BERBERIDACEAE - Barberry Family	
Achlys triphylla	Vanilla-leaf
Berberis aquifolium	Tall Oregon Grape
Berberis nervosa	Long-leaved Oregon Grape
Vancouveria hexandra	Inside-out Flower
BETULACEAE - Birch Family	
Alnus rubra	Red Alder
Corylus cornuta californica	California Hazel

1/ Taken from "Supplemental Report of Limpy Rock Botanical Committee. Part I-s July 13, 1977".

BORAGINACEAE - Borage Family

Cryptantha hendersonii	Large-flowered Cryptantha
Cryptantha intermedia	White Forget-me-not
Cynoglossum grande	Great Hound's Tongue
Mertensia paniculata var. borealis	Tall Lungwort
Myosotis versicolor	Yellow & Blue Forget-me-not
Plagiobothrys nothofulvus	Popcorn flower
Plagiobothrys scouleri	Popcorn Flower

CAMPANULACEAE - Campanula Family

Campanula prenanthoides	California Harebell
Campanula scouleri	Scouler's Harebell
Githopsis specularioides	Bluecup

CAPRIFOLIACEAE - Honeysuckle Family

Linnaea borealis var. americana	American Twinflower
Linnaea borealis subsp. longiflora	Long-tube Twinflower
Lonicera ciliosa	Orange Honeysuckle
Lonicera hispidula	Hairy Honeysuckle
Sambucus glauca	Blue Elderberry
Symphoricarpos albus	Snowberry
Viburnum ellipticum	Oval-leaved Viburnum or Cranberry

CARYOPHYLLACEAE - Pink Family

Arenaria macrophylla	Large-leaved Sandwort
Cerastium arvense	Field Chickweed
Cerastium viscosum	Sticky Chickweed
Silene menziesii var. viscosa	Menzies' Campion
Stellaria crispa	Crisped Starwort
Stellaria media	Common Chickweed
Stellaria nitens	Shining Chickweed
Stellaria umbellata	Umbellate Starwort

CELASTRACEAE - Staff-tree Family

Pachystima myrsinites	Oregon Box wood

COMPOSITAE - Composite Family

Achillea millefolium subsp. lanulosa var. lanulosa	Western Yarrow
Adenocaulon bicolor	Trail Plant or Pathfinder
Agoseris grandiflora	Large-flowered False-dandelion
Agoseris heterophylla	Varied-leaved False-dandelion
Agoseris Sp.	False-dandelion
Anaphalis margaritacea var. occidentalis	Pearly Everlasting
Arnica amplexicaulis	Clasping Arnica
Arnica cordifolia	Heart-leaved Arnica
Arnica cordifolia var. cordifolia	Heart-leaved Arnica
Arnica grayi	Gray's Arnica
Arnica latifolia	Broad-leaved Arnica
Balsamorhiza deltoidea	Northwest Balsamroot
Bellis perennis	English Daisy
Chyrsanthemum leucanthemum	Ox-eye Daisy
Cichorium intybus	Chicory
Cirsium arvense	Canada Thistle
Cirsium centaurea	Slender Mountain Thistle
Cirsium vulgare	Common Thistle
Crepis capillaris	Smooth Hawksbeard
Crocidium multicaule	Gold Star
Erigeron foliosus var. confinis	Leafy Fleabane
Gnaphalium microcephalum var. thermale	Slender Cudweed
Hieracium albiflorum	White-flowered Hawkweed
Lactuca serriola	Prickly Lettuce
Luina nardosmia	Silvercrown
Luina stricta	Rainiera
Machaeranthera shastensis var. eradiate	Shasta Aster
Madia elegans	Showy Tarweed
Madia exigua	Small Tarweed
Madia gracilis	Common Tarweed
Madia madioided	Woodland Tarweed
Petasites speciosa	Western Coltsfoot
Rudbeckia californica	California Cone-flower
Senecio jacobaea	Tansy Ragwort
Senecio sylvaticus	Wood Groundsel

COMPOSITAE - (Continued)

Senecio triangularis	Spear-head Senecio
Sonchus asper	Sow Thistle
Taraxacum eriophorum	Dandelion
Tragopogan porrifolius	Salsify

CONVOLVULACEAE - Morning-Glory Family

Convolvulus nyctagineus	Night-blooming Morning-Glory
Convolvulus sepium var. communis	Hedge Bindweed

CORNACEAE - Dogwood Family

Cornus californica	Western Red Dogwood or Creek Dogwood
Cornus canadensis	Bunchberry Dogwood
Cornus nuttallii	Western Flowering Dogwood

CRASSULACEAE - Stonecrop Family

Sedum douglasii	Douglas Stonecrop
Sedum douglasii var. ciliosum	Fringed Stonecrop
Sedum spathulifolium	Broad-leaved Stonecrop

CRUCIFERAE - Mustard Family

Athysanus pusillus	Sandweed
Cardamine oligosperma	Little Western Bittercress
Conringia orientalis	Hare'sear Mustard
Dentaria tenella CAPUT	Slender Spring Beauty
Erysimum angustifolium	Narrow-leaved Wallflower
Erysimum asperum	Rough Wallflower
~~Erysimum capitatum~~ same	Douglas Wallflower
Thysanocarpus curvipes	Fringe-pod

CUCURBITACEAE - Gourd Family

Marah oreganus	Oregon Wild Cucumber

CUPRESSACEAE - Cypress Family

Calocedrus decurrens	Incense Cedar
Thuja plicata	Red Cedar

DIPSACACEAE - Teasel Family

Dipsacus sylvestris	Common Teasel

EQUISETACEAE - Horsetail Family

Equisetum arvense	Common Horsetail
Equisetum hyemale var. californicus	Western Scouring-rush
Equisetum hyemale var. pseudohyemale	Western Scouring-rush
Equisetum telmateia var. braunii	Giant Horsetail

ERICACEAE - Heath Family

Allotropa virgata	Candy Stick
Arbutus menziesii	Pacific Madrone
Arctostaphylos canescens ARCAS	Hoary Manzanita
Arctostaphylos columbiana ARCO3	Bristly Manzanita
Arctostaphylos nevadensis	Pine-mat Manzanita
Arctostaphylos patula	Green Manzanita
Chimaphila menziesii	Little Prince's Pine or Pipsissewa
Chimaphila umbellata var. occidentalis	Prince's Pine or Pipsissewa
Gaultheria ovatifolia	Slender Gaultheria
Gaultheria shallon	Salal
Hemitomes congestum	Gnome Plant
Hypopitys monotropa	Pinesap
Kalmiopsis leachiana	Kalmiopsis
Monotropa uniflora MOUN2	Indian Pipe
Pityopus californicus	Pine-foot
Pleuricospora fimbriolata PLFI2	Fimbriate Pinesap
Pterospora andromedea	Pine Drops
Pyrola aphylla	Leafless Pyrola
Pyrola asarifolia var. asarifolia	Alpine Pyrola
Pyrola asarifolia var. purpurea	Purple Pyrola
Pyrola bracteata	Large Pyrola
Pyrola chlorantha PYVI	Greenish Pyrola
Pyrola dentata	Toothed Pyrola
Pyrola picta	White-veined Pyrola
Remischia secunda	Side-bell Pyrola
Rhodendron macrophyllum	Western Rhododendron

ERICACEAE - (Continued)	
Vaccinium membranaceum	Thin-leaved Huckleberry or Big Whortleberry
Vaccinium ovatum	Evergreen or Shot Huckleberry
Vaccinium parvifolium	Red Huckleberry
Vaccinium scoparium	Small-leaved Huckleberry
EUPHORBIACEAE - Spurge Family	
Euphorbia crenulata	Western Wood Spurge
Euphorbia peplus	Petty Spurge
FAGACEAE - Beech Family	
Castanopsis chrysophylla	Golden Chinquapin
Castanopsis sempervirens	Bush Chinquapin
Quercus breweri	Brewer's Oak
Quercus douglasii	Blue Oak
Quercus garryana	Oregon White Oak
Quercus kelloggii	California Black Oak
FUMARIACEAE - Fumitory Family	
Dicentra formosa	Western Bleeding Heart
GARRYACEAE - Silk Tassel Family	
Garrya fremontii	Bearbrush or Silk Tassel Bush
GERANIACEAE - Geranium Family	
Geranium molle	Dove's-foot Geranium
Geranium pusillum	Small-flowered Geranium
GRAMINEAE - Grass Family	
Festuca Sp.	Fescue Grass
HYDRANGEACEAE - Hydrangea Family	
Philadelphus lewisii var. gordonianus	Western Syringa
Philadelphus oregonus	Mock Orange
Whipplea modesta	Modesty Vine

HYDROPHYLLACEAE - Waterleaf Family

Nemophila parviflora	Small-flowered Nemophila
Nemophila pedunculata	Spreading Nemophila
Phacelia heterophylla	Varied-leaf Phacelia
Phacelia mutabilis PHHEP	Variable Phacelia
Phacelia verna	Spring Phacelia
Romanzoffia sitchensis	Sitka Mistmaiden
Romanzoffia suksdorfii	Suksdorf's Mistmaiden

HYPERICACEAE - St. John's-wort Family

Hypericum perforatum	Common St. John's-wort

IRIDACEAE - Iris Family

Iris chrysophylla	Slender-tubed Iris
Sisyrinchium angustifolium	Blue-eyed Grass

JUNCACEAE - Rush Family

Juncus longistylis	Long-styled Rush

LABIATAE - Mint Family

Mentha sp.	Mint
Prunella vulgaris var. lancelata	Heal-all
Satureja douglasii	Yerba Buena
Scutellaria angustifolia	Narrow-leaved Skullcap
Stachys cooleyae	Hedge-nettle

LEGUMINOSAE - Pea Family

Astragalus reventus	Long-leaved Milk Vetch
Cytisus scoparius	Scotch Broom
Lathyrus polyphyllus	Leafy Pea
Lotus crassifolius var. crassifolius	Thick-leaved Lotus
Lotus formosissimus LOFO2	Seaside Lotus
Lotus micranthus	Small-flowered Lotus
Lupine andersonii LUAN	Anderson's Lupine

PINE

LEGUMINOSAE - (Continued)

Melilotus alba	White Sweet Clover
Psoralea physodes	California Tea
Thermopsis subglabra	False Yellow Lupine
Thermopsis subglabra var. venosa	Spreading False Yellow Lupine
Trifolium oleganthum	Few-flowered Clover
Trifolium tridentatum	Sand Clover
Trifolium variegatum	White-tip Clover
Vicia americana var. villosa	American Vetch
~~Vicia californica~~ same	Californica Vetch.
Vicia cracca	Cow Vetch
Vicia polyphyllus	Many-seeded Vetch
Vicia sativa	Common Vetch

LILIACEAE - Lily Family

Brodiaea coronaria	Harvest Prodiaea
Brodiaea hendersonii	Henderson's Brodiaea
Brodiaea pulchella	Ookow
Calochortus tolmiei	Cat Ear
Calochortus Sp.	Lily
Clintonia uniflora	Queencup Bead Lily
Disporum hookeri var. oreganum	Oregon Fairy Bells
Erythronium citrinum ERCI3	Cream-colored Fawn Lily
Erythronium oregonum	Giant Fawn Lily
Erythronium oregonum var. leucandrum	White-anthered Giant Fawn Lily
Fritillaria lanceolata	Mission Bells or Rice-root Lily
Lilium columbianum LIC04	Tiger Lily
Lilium pardalinum LIPA2	Leopard Lily
Lilium washingtonianum	Washington Mountain Lily
Smilacina racemosa	False Solomon's Seal
Smilacina stellata	Star-flowered Solomon's Seal
Streptopus amplexifolius var. americanus	Large Twisted Stalk
Trillium ovatum	
Veratrum californicum	California False Hellebore
Xerosphyllum tenax	Bear Grass
Zygadenus venenosus	Poison Camas

LINACEAE - Flax Family

Linum angustifolium	Narrow-leaved Flax

LORANTHACEAE - Mistletoe Family

Arceuthobium campylopodum form tsugensis	Mistletoe

MALVACEAE - Mallow Family

Sidalcea oregana	Oregon Sidalcea
Sidalcea virgata	Rose Sidalcea

ONAGRACEAE - Evening Primrose Family

Circaea alpina	Smaller Enchanted Nightshade
~~Circaea pacifica~~	Western Enchanted Nightshade
Clarkia amoena	Summer's Darling
Epilobium adenocaulon EPWA	Common Western Willow-herb
Epilobium angustifolium	Fireweed
Epilobium glaberrimum	Smooth Willow-herb
Epilobium glandulosum EPGL2	Glandular Willow-herb
Epilobium minutum	Small-flowered Willow-herb
Epilobium paniculatum	Tall Annual Willow-herb
Godetia quadrivulnera CLQU	Small-flowered Godetia
Clarkia rhomboidea	Common Clarkia

ORCHIDACEAE - Orchid Family

Calypso bulbosa	Deer-head Orchid or Oregon Fairy Slipper
Corallorhiza maculata	Spotted Coral-root
Corallorhiza mertensiana	Merten's Coral-root
Corallorhiza striata	Striped Coral-root
Eburophyton austinae	Phantom Orchid
Goodyera oblongifolia	Rattlesnake Plantain
Habenaria dilatata var. leucostachys	Boreal Bog Orchid
Habenaria unalaschensis	Short-spurred Rein Orchid
Habenaria unalaschensis var. elata	Long-spurred Rein Orchid
Listera caurina LICA3	Western Twayblade
Listera convallaroides LICO2	Broad-lipped Twayblade
Listera cordata LICO3	Heart-leaved Twayblade

OROBANCHACEAE - Broom-rape Family	
Orobanche pinorum	Pine Broom-rape
Orobanche uniflora (purple and yellow forms)	Naked Broom-rape
OXALIDACEAE - Wood Sorrel Family	
Oxalis oregana	Oregon Oxalis or Wood Sorrel
Oxalis suksdorfii	Western Yellow Oxalis or Wood Sorrel
PINACEAE - Pine Family	
Abies concolor	White fir
Abies grandis	Grand Fir
Pinus albicaulis	White-bark Pine
Pinus attenuata	Knobcone Pine
Pinus lambertiana	Sugar Pine
Pinus monticola	Western White Pine
Pinus ponderosa	Ponderosa Pine
Pseudotsuga menziesii	Douglas Fir
Tsuga heterophylla	Western Hemlock
PLANTAGINACEAE - Plantain Family	
Plantago lanceolata	English Plantain
POLEMONIACEAE - Phlox Family	
Collomia heterophylla	Varied-leaved Collomia
Collomia tenella	Diffuse Collomia
Gilia capitata	Blue Field Gilia
Linanthus bicolor	Bicolored Linanthus
Linanthus ciliatus	Bristly-leaved Linanthus
Phlox adsurgens	Woodland Phlox
Microsteris gracilis	Pink Annual Phlox
POLYGONACEAE - Knotweed Family	
Eriogonum compositum var. compositum	Heart-leaved Eriogonum or Buckwheat
Eriogonum nudum	Naked Eriogonum or Buckwheat

POLYGONACEAE - (Continued)

Polygonum aviculare	Common Knotweed
Polygonum californicum POCAL6	California Knotweed
Polygonum minimum POMI2	Leafy Knotweed
Rumex acetosella	Dock, Sorrel or Sourweed
Rumex obtusifolius	Broad-leaved Dock or Sorrel

POLYPODIACEAE - Fern Family

Adiantum pedatum var. aleuticum	Western Maidenhair Fern
Asplenium septentrionale	Rare Grass Fern
Athyrium filix-femina	Lady Fern
Blechnum spicant	Deer Fern
Cheilanthes gracillima	Lace Lip-fern
Cheilanthes siliquosa (Cheilanthes densa)	Oregon Cliff-brake Fern
Cryptogramma crispa	Parsley Fern
Cystopteris fragilis	Bladder Fern
Dryopteris arguta	Coastal Wood Fern
Dryopteris austriaca	Shield Fern
Pellea brachyptera PEBR2	Sierra Cliff-brake Fern
Pityrogramma triangularis	Gold-back Fern
Polypodium glycyrrhiza	Licorice Fern
Polypodium hesperium POHE2	Licorice Fern
Polypodium vulgare var. occidentale	Licorice Fern
Polystichum californicum POCA7	Holly Fern
Polystichum munitum	Western Sword Fern
Polystichum munitum var. imbricans	Imbricated Sword Fern
Pteridium aquilinum var. pubescens	Western Brake Fern
Thelypteris nevadensis	Sierra Wood-fern
Thelypteris phegopteris	Beech Fern
Woodsia oregana	Oregon Woodsia
Woodwardia fimbriata	Chain Fern

PORTULACACEAE - Purslane Family

Claytonia lanceolata	Lance-leaved Spring Beauty
Montia diffusa	Branching Montia
Montia parvifolia var. parvifolia	Small Miner's Lettuce

PORTULACACEAE - (Continued)	
Montia perfoliata	Miner's Lettuce
Montia sibirica	Western Spring Beauty or Candy Flower
Montia sibirica var. heterophylla	Western Spring Beauty or Candy Flower
PRIMULACEAE - Primrose Family	
Dodecatheon hendersonii	Broad-leaved Shooting Star or Birdbill
Trientalis latifolia	Broad-leaved Starflower
RANUNCULACEAE - Buttercup Family	
Actaea rubra	Western Baneberry
Anemone deltoidea	Western White Anemone
Anemone lyallii	Little Mountain Anemone
Anemone oregana	Oregon Anemone
Aquilegia formosa	Western Columbine
Cimifuga elata	Tall Bugbane
Coptis laciniata	Western Goldthread
Delphinium menziesii	Menzies' Larkspur
Ranunculus occidentalis	Western Buttercup
Ranunculus occidentalis var. rattanii	Western Buttercup
Ranunculus uncinatus RAUN2	Little Buttercup
Thalictrum occidentale	Western Meadow Rue
RHAMNACEAE - Buckthorn Family	
Ceanothus integerrimus	Deer Brush
Ceanothus sanguineus	Buck Brush
Ceanothus velutinus	Snow Brush
Rhamnus purshiana	Cascara
RIBESACEAE - Gooseberry Family	
Ribes cruentum	Shiny-leaved Gooseberry
Ribes lacustre	Prickly Currant
Ribes sanguineum	Red-flowering Currant
ROSACEAE - Rose Family	
Amelanchier florida AMAL	Serviceberry
Aruncus sylvester	Goats beard

ROSACEAE - (Continued)

Crataegus douglasii	Hawthorne
Fragaria californica FRCA	Strawberry
Fragaria vesca var. bracteata	Strawberry
Fragaria virginiana var. platypetala	Strawberry
Holodiscus discolor	Oceanspray
~~Osmaronia~~ Emeria cerasiformis	Indian Plum or Osoberry
Physocarpus capitatus	Ninebark
Potentilla glandulosa var. glandulosa	Sticky Cinquefoil
Potentilla glandulosa subsp. nevadensis	Sticky Cinquefoil
Prunus emarginata	Bitter Cherry (Shrub)
Prunus emarginata var. mollis	Bitter Cherry (tree)
Prunus subcordata	Western Plum
Rosa eglanteria	Sweetbriar Rose
Rosa gymocarpa	Little Wood Rose
~~Rosa multiflora~~	Multiflora Rose
Rosa nutkana	Nutka Rose
~~Rosa rubiginosa~~ ROEG	Sweetbriar Rose
Rubus laciniatus RUCA2	Evergreen Blackberry
Rubus lasiococcus	Dwarf Bramble
Rubus leucodermis	Western Blackcap
Rubus nivalis	Snow Bramble
Rubus parviflorus	Thimble Berry
Rubus spectabilis	Salmon Berry
Rubus ursinus	Western Dewberry
Sorbus sitchensis	Western Mountain Ash

RUBIACEAE - Madder Family

Galium aparine	Cleavers (Bedstraw)
Galium oreganum	Oregon Bedstraw
Galium trifidum var. pacificum	Small Bedstraw
Galium triflorum	Fragrant Bedstraw
Sherardia arvensis	Blue Field Madder

SALICACEAE - Willow Family	
Populus trichocarpa	Black Cottonwood
Salix lasiandra	Red Willow
Salix scouleriana	Scouler's Willow
Salix sitchensis	Sitka Willow
SAXIFRAGACEAE - Saxifrage Family	
Heuchera micrantha var. pacifica	Small-flowered Alumroot
Lithophragma parviflora	Small-flowered Fringe-cup
Mitella diversifolia	Angle-leaved Mitrewort
Mitella ovalis	Oval-leaved Mitrewort
Mitella pentandra	Five-point Mitrewort
Peltiphyllum peltatum	Great Shield-leaf
Saxifraga mertensiana	Mertens' Saxifrage
Saxifraga oregana	Oregon Saxifrage
Tellima grandiflora	Large Fringe-cup
Tiarella trifoliata	Three-leaved Coolwort
Tiarella unifoliata	Western Coolwort or Foam Flower
Tolmiea menziesii	Youth-on-age
SCROPHULARIACEAE - Figwort Family	
Castilleja miniata	Common Paintbrush
Castilleja pruinosa	Frosted Paintbrush
Castilleja suksdorfii	Suksdorf's Paintbrush
Collinsia grandiflora	Large-flowered Collinsia or Bluelips
Collinsia parviflora	Small-flowered Collinsia
Collinsia rattanii	Rattan's Collinsia
Collinsia sparsiflora	Few-flowered Collinsia or Blue-eyed Mary
Mimulus alsinoides	Chickweed Monkey-flower
Mimulus guttatus	Common Monkey-flower
Mimulus guttatus var. depauperatus	Common Monkey-flower
Orthocarpus hispidus	
Pedicularis racemosa	Sickle-top or Elephant Trunk Pedicula
Penstemon deustus var. heterander	Scorched Pensetemon
Penstemon fruticosis	Shrubby Penstemon

SCROPHULARIACEAE -(Continued)

Penstemon menziesii PEDAM	Creeping Penstemon
Penstemon rupicola	Rock or Cliff Penstemon
Synthyris reniformis	Round-leaved Sunthyris or Grouse Flower
Synthyris reinformis var. Cordata	Synthyris or Grouse Flower or Mowich
Tonella tenella	Small-flowered Tonella
Verbascum blattaria	Moth Mullein
Veronica anagallis	Water Speedwell
Veronica anagallis-aquatica	Water Pimpernel
Veronica arvensis	Common Speedwell
Veronica filiformis	Thread-stalk Speedwell

SELAGINELLACEAE - Selaginella Family

Selaginella oregana	Oregon Selaginella
Selaginella wallacei	Wallace's Selaginella

TAXACEAE - Yew Family

Taxus brevifolia	Western Yew

TYPHACEAE - Cat-tail Family

Typha latifolia	Broad-leaved Cat-tail

UMBELLIFERAE - Parsley Family

Anthriscus scandicina ANSC2	Beaked Parsley
Cicuta douglasii	Western Water Hemlock
Daucus carota DACAH	Wild Carrot
Lomatium dissectum var. dissectum	Lace-leaved Leptotaenia
Lomatium hallii	Canyon Desert Parsley
Lomatium triternatum	Narrow-leaved Desert Parsley
Lomatium utriculatum	Fine-leaved Desert Parsley
Osmorhiza chilensis	Western Sweet Cicely
Osmorhiza occidentalis	Mountain Sweet Cicely
Sanicula crassicaulis	Western Snake Root

VALERIANACEAE - Calerian Family

Plectritis congesta	Rosy Plectritis or Corn Salad
Valeriana sitchensis	Northern Valerian

VIOLACEAE - Violet Family

Viola adunca	Western Long-spurred Violet
Viola glabella	Smooth Woodland Violet
Viola palustris	Marsh Violet
Viola purpurea	Purple-tinged Violet
Viola sempervirens	Evergreen Violet
Viola sheltonii	Shelton's Violet

APPENDIX II.--Birds and Mammals Observed in Limpy Rock Research Natural Area

BIRDS

Turkey vulture	Cathartes aura
Cooper's hawk	Accipiter cooperii
Red-tailed hawk	Buteo jamaicensis
Swainson's hawk	Buteo swainsoni
Rough-legged hawk	Buteo lagopus
Sparrow hawk	Falco sparverius
Blue grouse	Dendragupus obscurus
Ruffed grouse	Bonasa umbellus
Mountain quail	Oreortyx pictus
Pygmy owl	Glaucidium gnoma
Rufous hummingbird	Selasphorus rufus
Red-shafted flicker	Colaptes cafer
Pileated woodpecker	Dryocopus pileatus
Acorn woodpecker	Melanerpes formiciverus
Red-breasted sapsucker	Sphyrapicus varius
Hairy woodpecker	Dendrocopos villosus
Downy woodpecker	Dendrocopas pubescens
Westernwood pewee	Contopus sordidulus
Olive-sided flycatcher	Nuttallornis borealis
Traill's flycatcher	Empidonax traillii
Cliff swallow	Petrochelidon pyrrhonota
Steller's jay	Cyanocitta stelleri
Scrub jay	Aphelocoma coerulescens
Common raven	Corvus corax
Northwestern crow	Corvus caurinus
Black-capped chickadee	Parus atricapillus
Mountain chickadee	Parus gambeli
Common bushtit	Psaltriparus minimus
White-breasted nuthatch	Sitta carolinensis
Red-breasted nuthatch	Sitta canadensis
Brown creeper	Certhia familiaris
Dipper	Cinclus mexicanus

BIRDS - Continued

Bewick's wren	Thryomanes bewickii
Robin	Turdus migratorius
Varied thrush	Ixoreus naevius
Hermit thrush	Hylocichla guttata
Mountain bluebird	Sialia currucoides
Townsend's solitaire	Myadestes townsendi
Ruby-crowned kinglet	Regulus calendula
Orange-crowned warbler	Vermivora celata
MacGillivray's warbler	Oporornis tolmiei
Wilson's warbler	Wilsonia pusilla
Brewer's blackbird	Euphagus cyanocephalus
Western tanager	Piranga ludoviciana
Black-headed grosbeak	Pheuchicus melanocephalus
Lazuli bunting	Passerina amoena
Oregon junco	Junco oreganus
White-crowned sparrow	Zonotrichia leucophrys
Golden-crowned sparrow	Zonotrichia atricapilla
Song sparrow	Melospiza melodia

MAMMALS

Townsend chipmunk	Eutamias townsendi
California ground squirrel	Spermophilus beecheyi
Dusky-footed woodrat	Neotoma fuscipes
Snowshoe hare	Lepus americanus
Brush rabbit	Sylvilagus bachmani
Western gray squirrel	Sciurus griseus
Gold-mantled squirrel	Citellus lateralis
Elk	Cervus canadensis
Black-tailed deer	Odocoileus hemionus columbianus
Black bear	Ursus americanus
Mountain beaver	Aplondontia rufa
Beaver	Castor canadensis
Red fox	Vulpes fulva
Coyote	Canis latrans
Bobcat	Lynx rufus
Busy-tailed woodrat	Neotoma cinerea

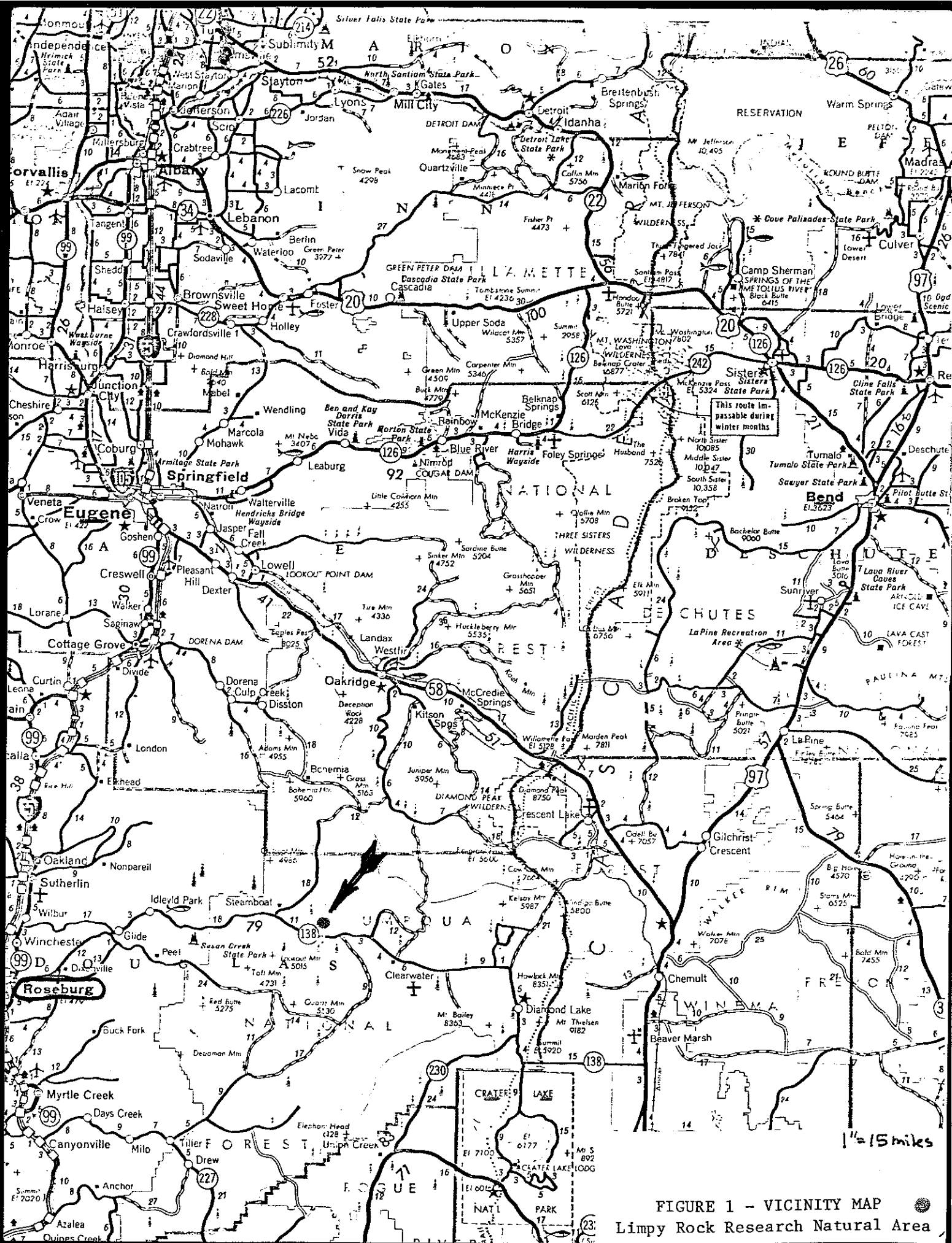


FIGURE 1 - VICINITY MAP
Limpy Rock Research Natural Area

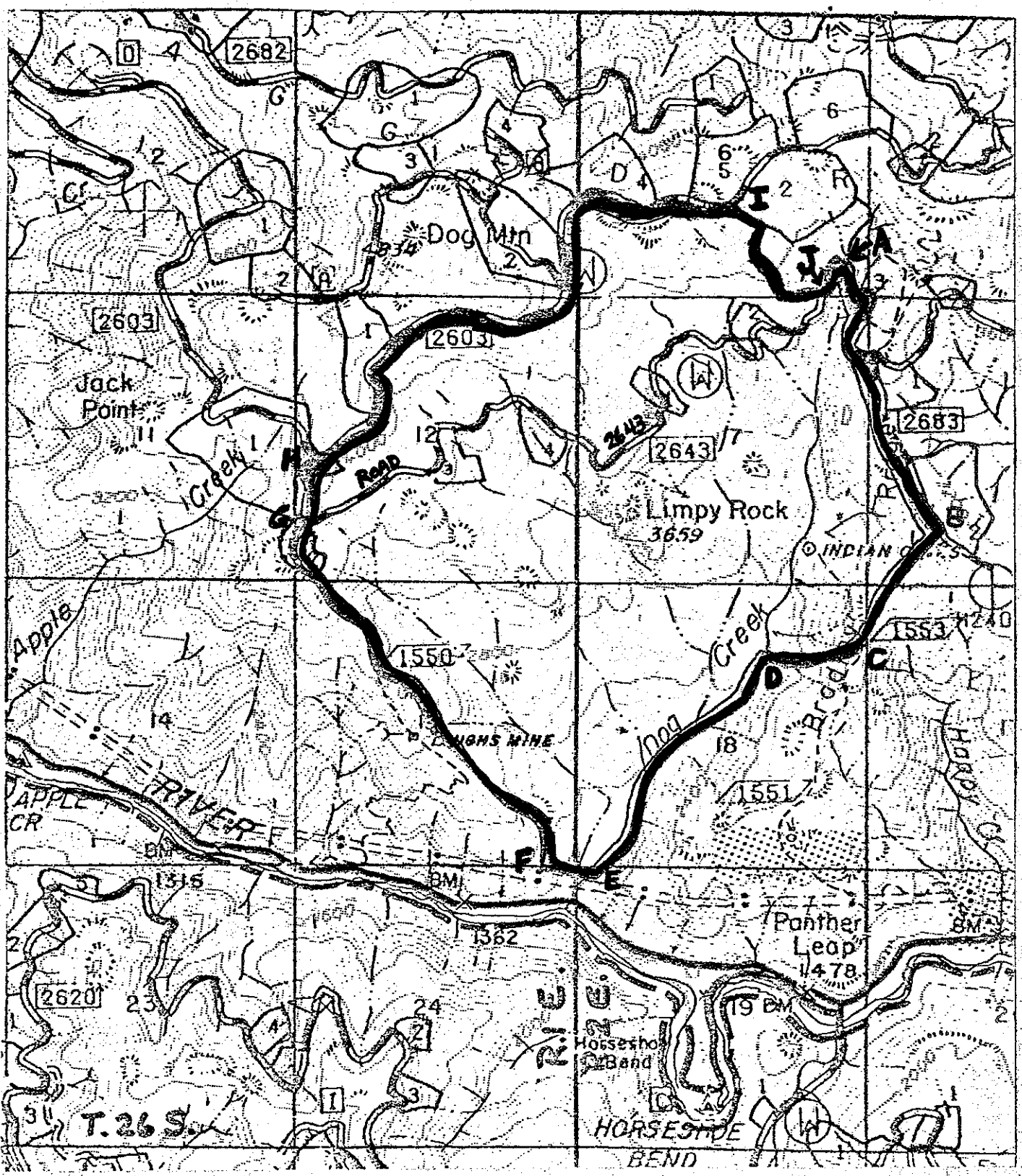
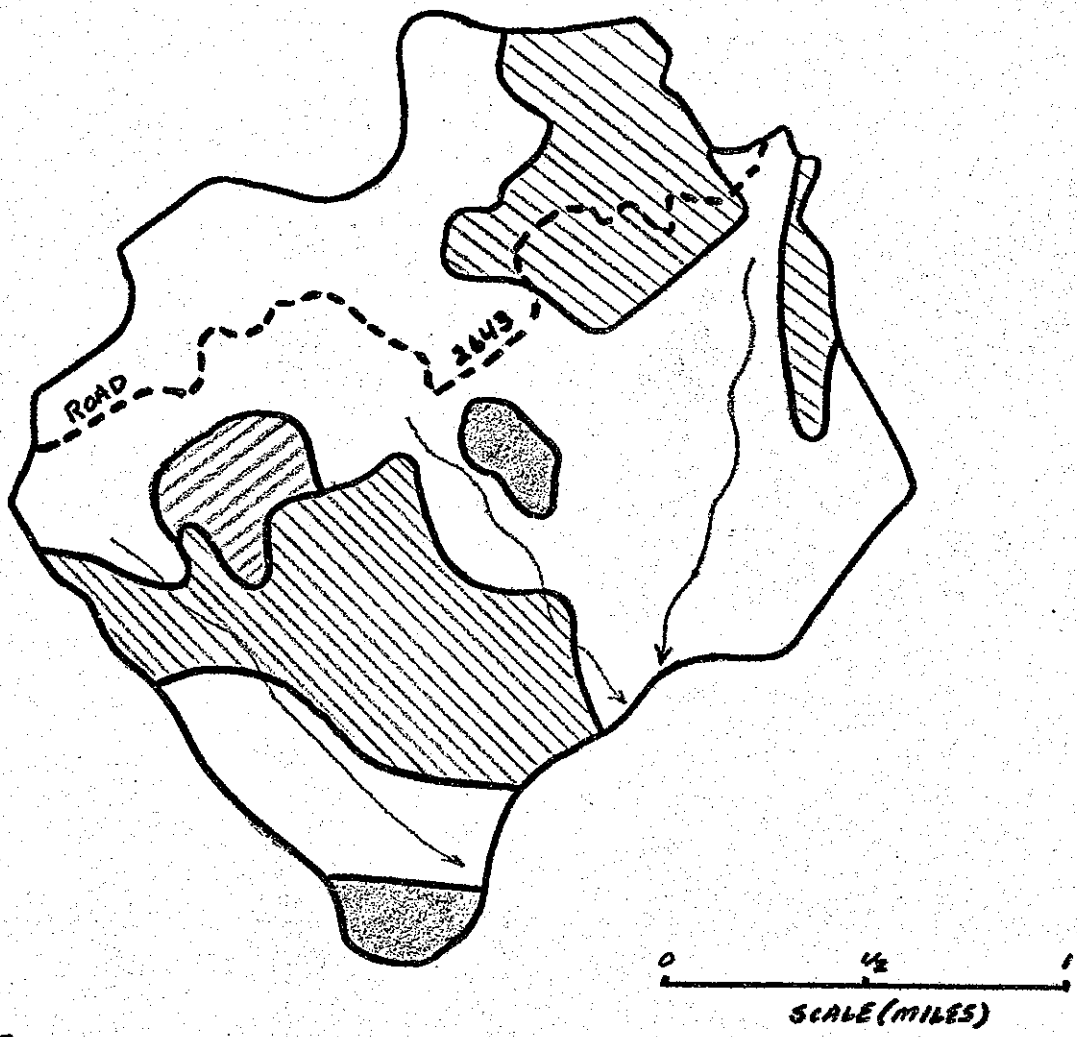


Figure 2.--Limpy Rock Research Natural Area showing the boundary, general features, road system, and boundary control points. Scale 2 in = 1 mile.



Douglas-fir sawtimber, well stocked

Douglas-fir sawtimber, poor to moderate stocking

Sugar pine sawtimber, poorly stocked

Rock or grass and brush

Figure 3.--Generalized timber types of Limpy Rock Research Natural Area.

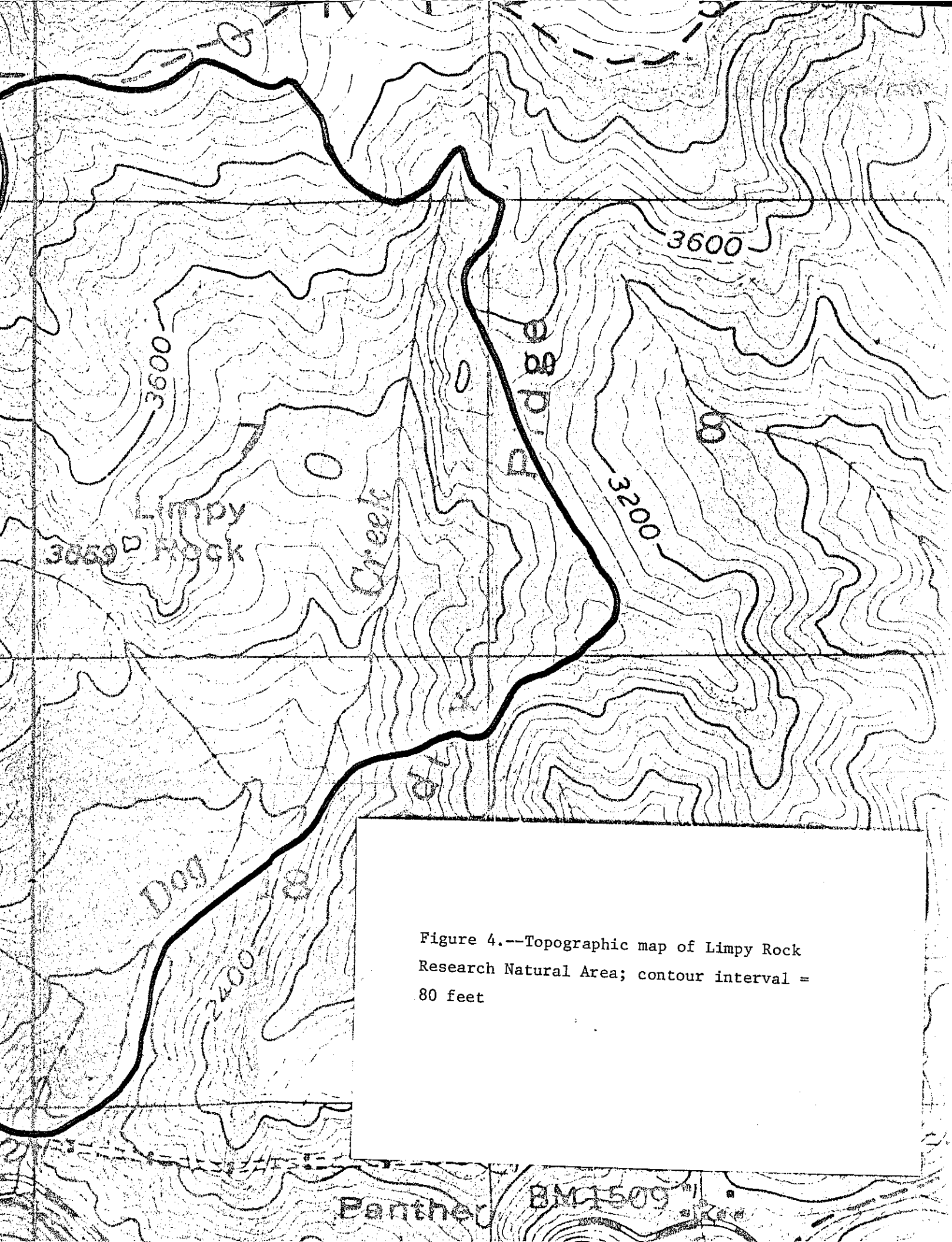
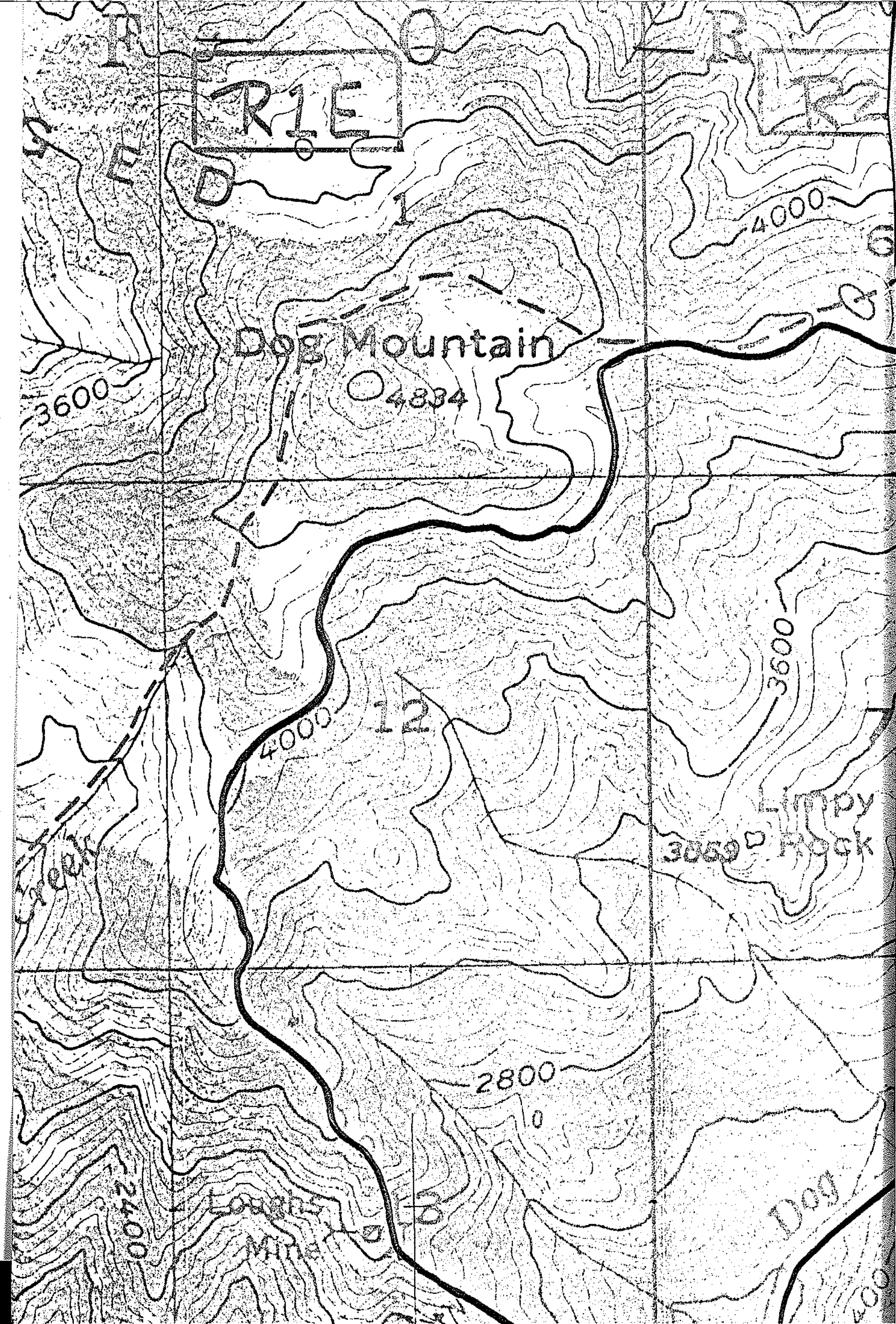


Figure 4.--Topographic map of Limpy Rock Research Natural Area; contour interval = 80 feet


R1E
Dog Mountain
4834
3600
4000
12
4000
Limpy
3869
Rock
3600
2800
Creek
2400
Mine
Dog

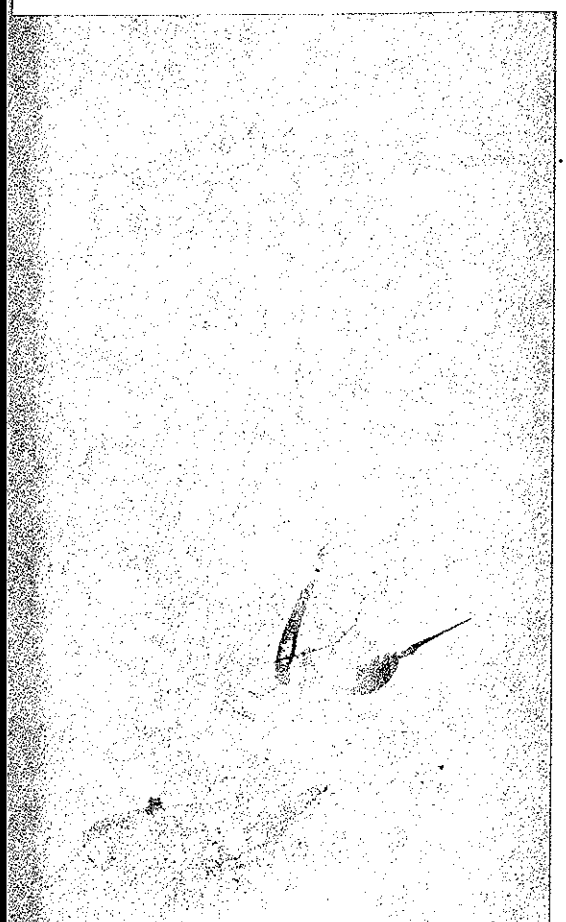


Figure 5.--Upper:Limpy Rock, geological centerpiece of the Research Natural Area.
Lower:Densely stocked Douglas-fir forest in northwest corner of the RNA.

Figure 6.--Upper: Interior of heavily stocked Douglas-fir stand. Lower: Interior of moderately stocked stand containing Douglas-fir, sugar pine, and madrone. Both stands are adjacent to Limpy Rock.

Figure 7.--Nonforested opening of the type found within Limpy Rock Research Natural Area;oaks are present on this rocky habitat.

Figure 8.--Kalmiopsis growing on the side of Limpy Rock

Figure 9.--View of Forest Road 2643 which passes through the upper third of the Research Natural Area; this road will be maintained.