

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

Establishment Report

For

THREE CREEK RESEARCH NATURAL AREA

Willamette National Forest

Sweet Home Ranger District

Linn County, Oregon



SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Three Creek Research Natural Area

Willamette National Forest

Linn County, Oregon

The undersigned certify that all applicable land management planning and environmental analysis requirements have been met and that boundaries are clearly identified in accordance with FSM 4063.21, Mapping and Recordation and FSM 4063.41 5.e(3) in arriving at this recommendation.

Prepared by:

Richard Brainerd Date 1/11/95
Richard Brainerd, Salix Associates

BRUCE NEWHOUSE Date 11 JAN. 95
Bruce Newhouse, AICP, Salix Associates

Peter Zika Date 11 Jan 95
Peter Zika, Salix Associates

Recommended by:

Rolf Anderson Date 1/30/95
Rolf Anderson, District Ranger,
Sweet Home Ranger District

Recommended by:

Darrel Kenops Date 2/8/95
Darrel Kenops, Forest Supervisor,
Willamette National Forest

Recommended by:

George H. Mailler Date 2/17/95
for Charles Philpot, Station Director,
Pacific Northwest Research Station

Cover Page Info for RNA Establ. Record

Name: Three Creeks RNA

Region: R06

Station: PNW

State: Oregon

County: Linn

Boundary Certified on page 35

TMIS #: 00

Date Reg. Forester signed: _____

Lat.: 44°20' north

Long.: 122°15' west

| 1980 SAF | Acres | Ha | 1966 Kuchler | Acres | Ha |
|--------------|-------|-----|--------------|-------|-----|
| 205 | 62 | 25 | 3 | 578 | 234 |
| 226 | 418 | 169 | | | |
| 230 | 98 | 40 | Nonforested | 113 | 46 |
| Non-forested | 113 | 46 | | | |
| Total: | 691 | 280 | | 691 | 280 |

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

Original maps, or photocopies? original

Photos included? yes

Abutted by non-FS land? NO

SAF & Kuchler types consistent? (see page _____)

Climate records: length of record? 30 Distance to weather sta.? 16 miles east

Fauna & Flora authorities: Little 1979; Hitchcock & Cronquist 1973; Vitt et al. 1988; Nussbaum et al 1983; Scott 1983; Bridges 1965.

Land use conflicts? Grazing? Trails? Recreation?

No current conflicts.
Some interest in opening adjacent rock climbing trail but
no money and District is currently against this idea.

TITLE PAGE

Establishment Record for Three Creek
Research Natural Area within Willamette
National Forest, Linn County, Oregon.

INTRODUCTION

The Three Creek Research Natural Area (RNA) in the Willamette National Forest (WNF) is comprised of north-facing glacial cirques that contain a forest mosaic of Alaska-cedar (Chamaecyparis nootkatensis), Douglas-fir (Pseudotsuga menziesii), and Pacific silver fir (Abies amabilis) up to 800 years old. A unique topographic position has resulted in a moist environment protected from forest fires and high winds. This has allowed the development of these very old, late-successional stands. The headwaters of Three Creek originate within the RNA and flow northward to the South Santiam River. Rocky ridges, steep forested slopes, and massive rock cliffs dominate the topography of the area. Photographs 1a through 11b illustrate the vegetation and landforms of the RNA.

Indian use of the area probably concentrated on the ridgetops, which were used as travel routes as recently as 1910 (Farque, pers. comm.). Since that time, use of the area has been minimal, mostly limited to a fire lookout (no longer present) on the southern boundary, and dispersed recreation by hunters and day hikers.

The RNA and surrounding lands are entirely under National Forest ownership. Private inholdings are located within 1/4 mile of the RNA boundary to the southwest, south and east. The proposed area is not within any designated wilderness, wild and scenic river, national recreation area, or any other congressionally designated area.

Land Management Planning

The Three Creek RNA is designated as an RNA in the WNF Land and Resource Management Plan (1990). The plan contains objectives and management guidelines applicable to all RNAs within the Forest (Appendix B).

OBJECTIVES

The main objective of establishing the Three Creek RNA is to preserve the late successional Alaska-cedar forest mosaic that has developed in the glacially-carved cirque at the head of Three Creek. These undisturbed stands are some of the oldest remaining in Oregon and may be older than any contained in other RNAs in the Pacific Northwest. Most of the other forest stands in the RNA are in mid- to late-succession with canopies dominated by Pacific silver fir and western hemlock (Tsuga heterophylla). Large, old Douglas-fir and noble fir (Abies procera) are still important components of most stands. The RNA will provide the opportunity to study successional processes as climax condition is approached.

RNA establishment will preserve biological and genetic diversity of undisturbed, old-growth forest communities, and of plant communities associated with wet meadows, shrubby talus slopes, and large rock cliffs. The area will provide baseline information about long-term ecological changes in all of these systems. Since it is somewhat buffered against environmental extremes by its location and orientation, the RNA should be particularly valuable for comparison to other areas affected by possible climate or other environmental change. With the increasing interest in managing Pacific Northwest forests for mid- to late-successional characteristics, RNA research will be valuable for comparison to results of manipulative research conducted elsewhere, and for monitoring the effects of resource management practices. Proximity to the H. J. Andrews Experimental Forest, Wildcat Mountain RNA, Middle Santiam RNA, Bagby RNA, and university and Forest Service research facilities make the RNA a valuable resource for education and research.

JUSTIFICATION STATEMENT FOR ESTABLISHMENT OF AREA

The Three Creek RNA fills a stated need in the Oregon Natural Heritage Plan (Appendix A) for an Alaska-cedar forest mosaic. Its value is enhanced by the advanced age of the forest stands that meet this need. The RNA designation will also preserve nesting and foraging habitat of the northern spotted owl (Strix occidentalis caurina), a federally listed threatened species that has been documented in the RNA (Morris, pers. comm.). Cliffs in the RNA may be suitable nesting habitat for the peregrine falcon, federally listed as endangered.

PRINCIPAL DISTINGUISHING FEATURES

The principal distinguishing features of the Three Creek RNA are:

1. North facing glacial cirques containing very old stands of Douglas-fir, Pacific silver fir, and Alaska-cedar;
2. Confirmed sightings of, and suitable habitat for, the northern spotted owl (federally listed as a threatened species);
3. Plant associations in the Pacific silver fir, mountain hemlock (*Tsuga mertensiana*), and western hemlock series, as well as riparian, wet meadow, talus, and rock garden plant communities;
4. Rock cliffs several hundred feet high formed by glacial action and massive slumping.

LOCATION

The Three Creek RNA is located in the Sweet Home Ranger District of the Willamette National Forest. The approximate center of the

RNA is at latitude 44° 20' north and longitude 122° 15' west.
It contains portions of sections 18, 19, and 20 in T14S, R5E, and
a portion of section 13 in T14S, R4E, Willamette Meridian, Oregon.

See attached

Boundary

The boundaries of the Three Creek RNA are shown on Map 3 (WNF, Geometronics and Geographic Mapping Division 1991).

THREE CREEKS RESOURCE NATURAL AREA BOUNDARY DESCRIPTION

| ANGLE POINT | BEARING | DISTANCE FEET (METERS) | DESCRIPTION |
|----------------|-----------|------------------------------|--|
| A.. | northwest | | Summit of the most southerly of Twin Buttes (VABM 5312). This point is in the SE 1/4 SE 1/4 of Section 19, T. 14 S. R. 5 E. W.M. |
| B.. | northwest | | Descending along the top of a major ridge. |
| C.. | northwest | | Low point in a saddle on the top of the ridge. |
| | northwest | | Ascend along the top of a ridge. |
| D.. | | | A high point on the ridge. |
| | northeast | | Descend along the top of a ridge |
| E.. | | | Low point in a saddle on the top of the ridge. |
| | northwest | | Ascend along the top of a ridge. |
| F.. | | | A high point on the ridge. |
| | | | Descend along the top of |



United States
Department of
Agriculture

Forest
Service

Willamette National Forest

211 East 7th Avenue
P.O. Box 10607
Eugene, OR 97440

File Code:
Route To: 4000

Date: May 5, 2002

Subject: Three Creek boundary correction

To: Sarah Greene

The Twin Buttes fire in September 2001 prompted a look at the files that generated the Three Creek RNA boundary. It came to the attention of Cathy McGrath, the geometronics specialist on the Willamette, that the boundary in the Establishment Report as displayed in Map 3 did not reflect the intended boundary. McGrath had worked closely with the land surveyor in the boundary development and noticed that the correct boundary was not a part of the ER. In addition the boundary description found in the ER did not reflect the monuments placed in the ground along the northern boundary by surveyor Donn Rowe.

We have corrected the boundary description to accurately portray the intended boundary and generated a new boundary based on the corrected description. The final boundary has been reviewed and approved by Cindy McCain, RNA Coordinator and Alice Smith, RNA steward. Please use the enclosed boundary description and Map 3 to update your copy of the Three Creek Establishment Report.

Y. Robert Iwamoto
ACTING FOREST SUPERVISOR



Three Creek Research Natural Area
Willamette National Forest

I hereby certify the enclosed boundary description for the Three Creek Research Natural Area on the Willamette National Forest.

Date 12/7/2001

Signed Donn Rowe
Donn Rowe, Land Surveyor

Seal

THREE CREEK RESEARCH NATURAL AREA

| QUAD NAME | ANGLE POINT | BEARING | DISTANCE FEET | DESCRIPTION |
|-----------------|----------------|---------|------------------|--|
| Tidbits Mtn. | A | | | True Point of Beginning is the most southerly summit of Twin Buttes (VABM 5312). This point is in the SE 1/4 SE 1/4 of Sec 19, T14S, R5E, WM |
| | | | | ----- Descending along the top of a major ridge. ----- |
| | B | | | Low point in a saddle on the top of the ridge. ----- Ascend along the top of the ridge. ----- |
| | C | | | A high point on the ridge. ----- Descend along the top of the ridge. ----- |
| | D | | | Low point in a saddle on the top of the ridge. ----- Ascend along the top of the ridge. ----- |
| | E | | | A high point on the ridge. ----- Descend along the top of the ridge. ----- |
| | F | | | Low point in a saddle on the top of the ridge. ----- Ascend along the top of the ridge. ----- |
| | G | | | A high point on the ridge. ----- Descend along the top of a spur ridge. ----- |
| | H | | | A point 50 ft. southwesterly of and perpendicular to the centerline of USFS road 2044-230. (trail for ~.1 mi.) ----- 50 feet southwesterly of and parallel with the centerline of USFS road 2044-230. ----- |

THREE CREEK RESEARCH NATURAL AREA

| QUAD NAME | ANGLE POINT | BEARING | DISTANCE FEET | DESCRIPTION |
|-------------------|----------------|---------|------------------|--|
| Carpenter Mtn. | I | | | A point 50 ft. southwesterly from and perpendicular to the centerline of USFS road 2044-230 and in the centerline of Three Creek. |
| | | | | ----- Ascend hillside. |
| | J | | | A monument: 5/8" rebar with an aluminum cap marked "3 CREEK RNA LS 2519" Scribed trees: 40" Western Hemlock bears S52°W, 14.2 feet 32" Western Hemlock bears N40°W, 26.3 feet. Trees scribed: "RNA". |
| | | | | ----- Along sidehill. |
| | K | | | A monument: 5/8" rebar with an aluminum cap marked "3 CREEK RNA LS 2519" Scribed trees: 8" Douglas Fir bears N23°W, 9.9 feet 8" Douglas Fir bears S74°E, 11.0 feet. Trees scribed: "RNA" |
| | | | | ----- Ascend hillside. |
| | L | | | A monument: 5/8" rebar with an aluminum cap marked "3 CREEK RNA LS 2519" Scribed trees: 7" Grand Fir bears N18°E, 17.0 feet 21" Grand Fir bears S14° W, 14.7 feet. Trees scribed: "RNA" |
| | | | | ----- Along sidehill and ascend a ridge. |
| | M | | | A monument: 5/8" rebar with an aluminum cap marked "3 CREEK RNA LS 2519" Scribed trees: 6" Grand Fir bears N48° W, 19.3 feet 5" Grand Fir bears N47° E, 20.4 feet Trees scribed: "RNA" (South side of a 3' x 4' stone on top of ridge) |
| | | | | ----- Descend from ridge along sidehill. |
| | | | | ----- |
| | | | | |

THREE CREEK RESEARCH NATURAL AREA

| QUAD NAME | ANGLE POINT | BEARING | DISTANCE FEET | DESCRIPTION |
|--------------|----------------|-------------|------------------|--|
| | N | | | A monument: 5/8" rebar with an aluminum cap marked "3 CREEK RNA LS 2519" Scribed trees: 10" Grand Fir bears N50°E, 20.6 feet 11" Grand Fir bears N48°W, 15.4 feet Trees scribed: "RNA" |
| | | N40.00'00"E | | Descend hillside. |
| | O | | | A point which is 50 feet southerly of and perpendicular to the centerline of USFS road 2044. 50 feet southerly of and parallel with the centerline of USFS road 2044. |
| | P | | | A point on the section line between Sec. 20 and Sec.21 T14S, R4E, WM and 50 feet southerly of and perpendicular to the centerline of USFS road 2044. Ascend southerly along the section line between Sec. 20 and Sec. 21. |
| | Q | | | A point of top of the main ridge. Ascend along the top of the main ridge. |
| | R | | | A point on top of the eastern summit of Twin Buttes. Descend along the top of the ridge. |
| | S | | | A low point in a saddle along the top of the ridge. Ascend along top of the ridge. |
| Tidbits Mtn. | POB - A | | | Point of beginnning. |

The environmental consequences of Alternative A, are described in the EIS for WNF Plan (Chp. IV, pages 166-169). These consequences include short-term losses of opportunities to change vegetation conditions through management, (WNF Plan EIS, Chp. IV., p. 168). There are no significant cumulative effects of establishing the RNA.

The direction in the Forest Plan for established RNA's also includes reasonably foreseeable actions such as withdrawal of the area from mineral entry. The general consequences of withdrawal are discussed in the WNF Plan EIS (Chp. IV., p. 168). Site-specific consequences will be disclosed in more detail when mineral entry is proposed for withdrawal.

Alternative B, No Action

This alternative continues management according to direction in the WNF Plan (Chp. IV., pages 134-137), for a "proposed" RNA. This management would discourage recreation use to non-motorized use of existing trails and prohibit timber harvest. There are no significant cumulative effects of this alternative.

The environmental consequences of Alternative B, the "No Action" alternative, are as described in EIS for WNF Plan (Chp. IV., pages 166-169). These consequences include short-term losses of opportunities to change vegetation conditions through management, and the possible loss of research potential.

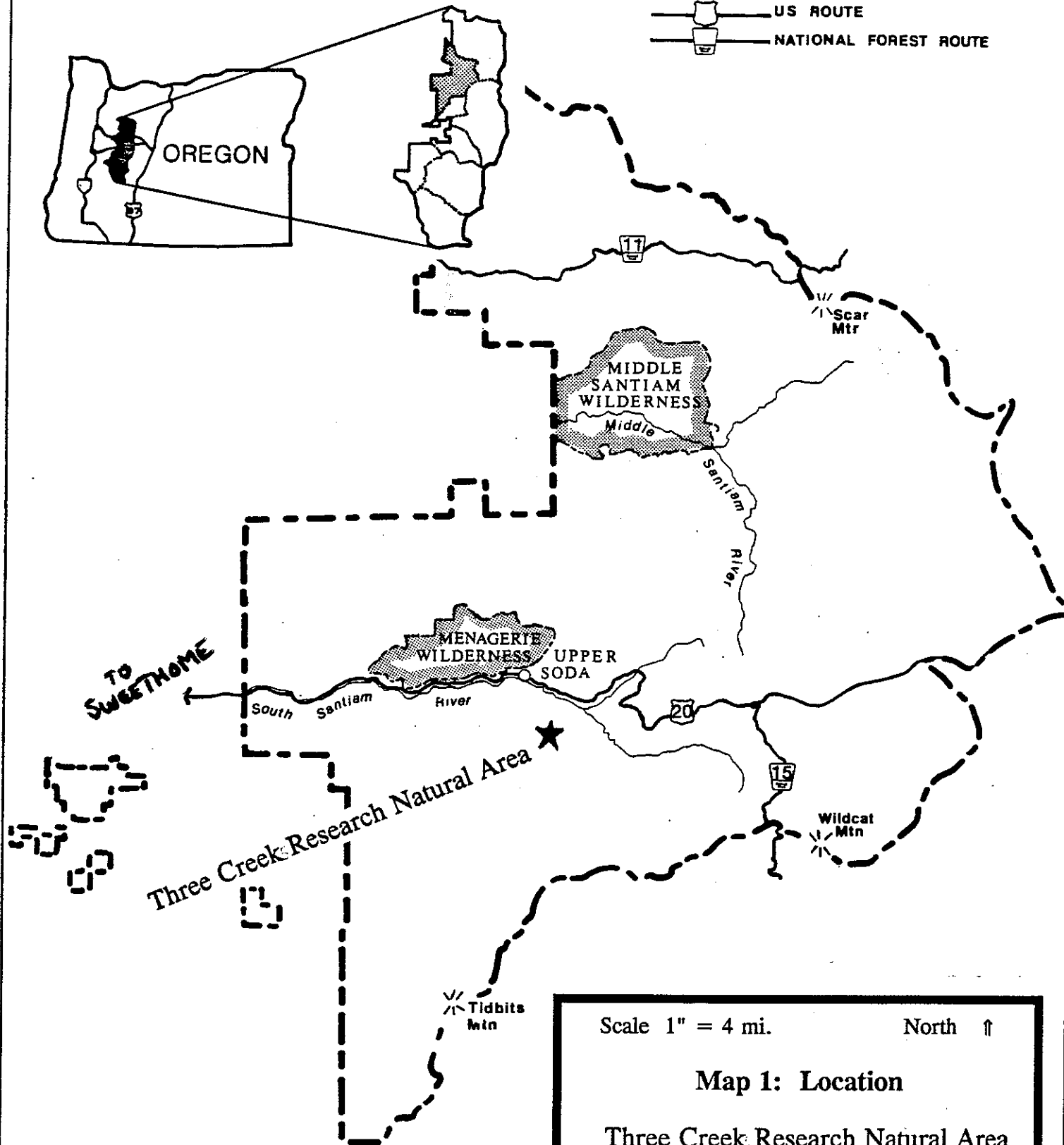
Public Comment

Of the public comment received for the DEIS, (1990), fifty comments identified were related to Research Natural Areas and management areas 4A/4B. The comments received were, in general, positive. One substantive comment was made, and there were no negative comments (Content Analysis Report No. 1652, Planning Record 1990).

SWEET HOME RANGER DISTRICT

WILLAMETTE NATIONAL FOREST

--- RANGER DISTRICT BOUNDARY
— US ROUTE
— NATIONAL FOREST ROUTE

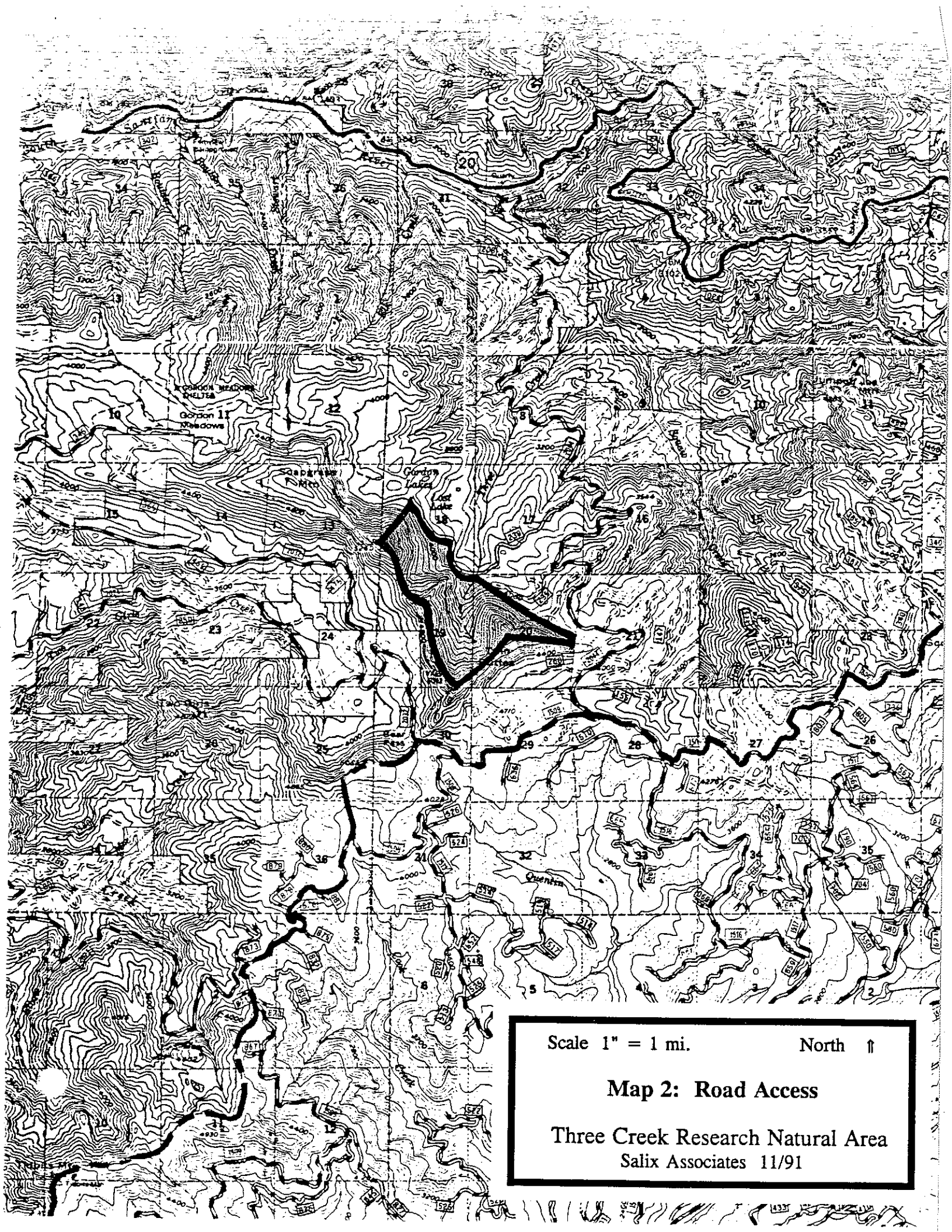


Scale 1" = 4 mi.

North ↑

Map 1: Location

Three Creek Research Natural Area
Salix Associates 11/91

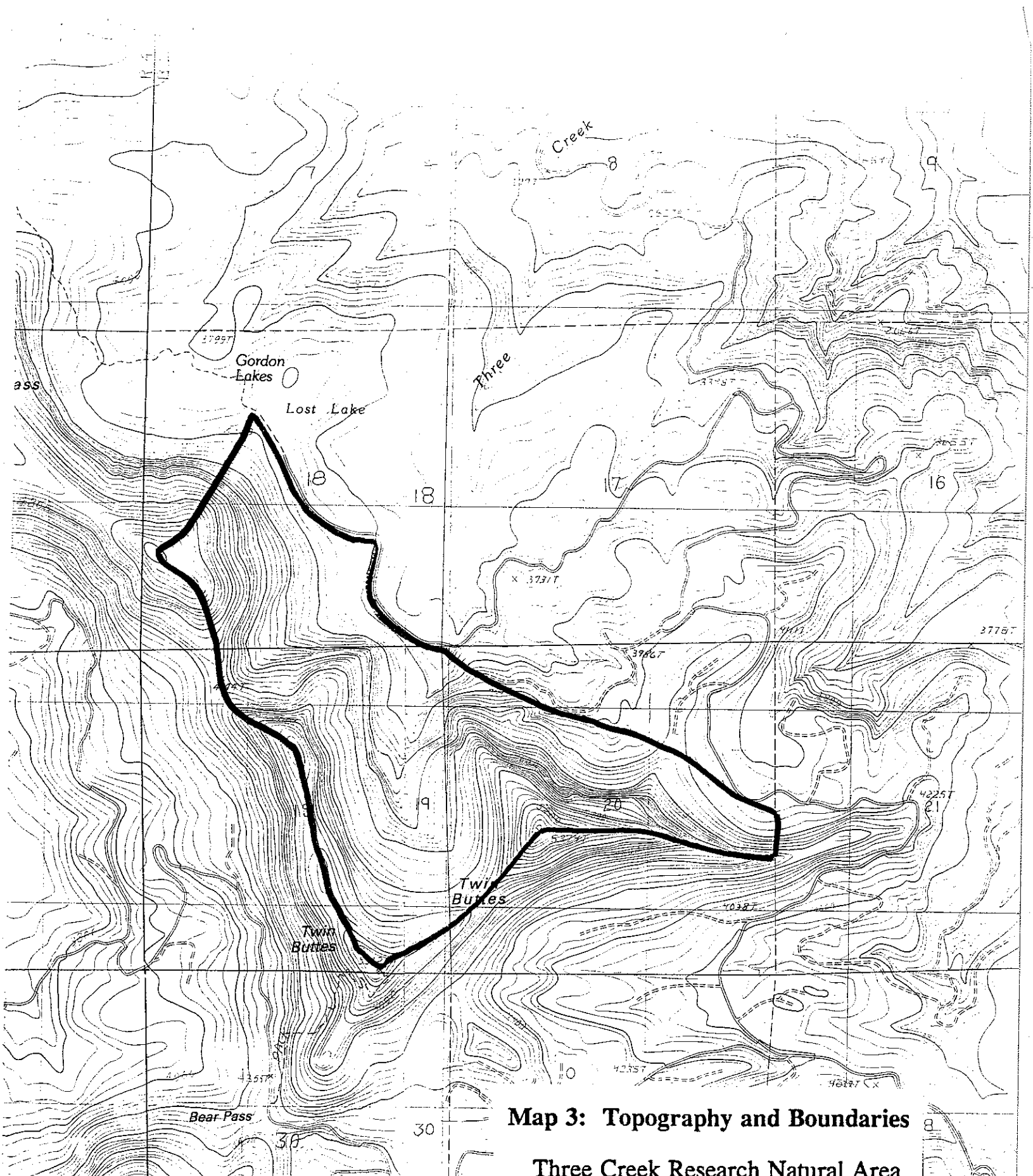


Scale 1" = 1 mi.

North ↑

Map 2: Road Access

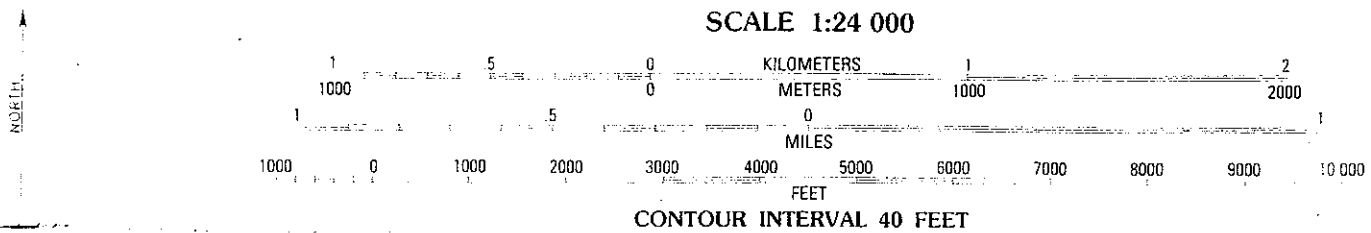
Three Creek Research Natural Area
Salix Associates 11/91



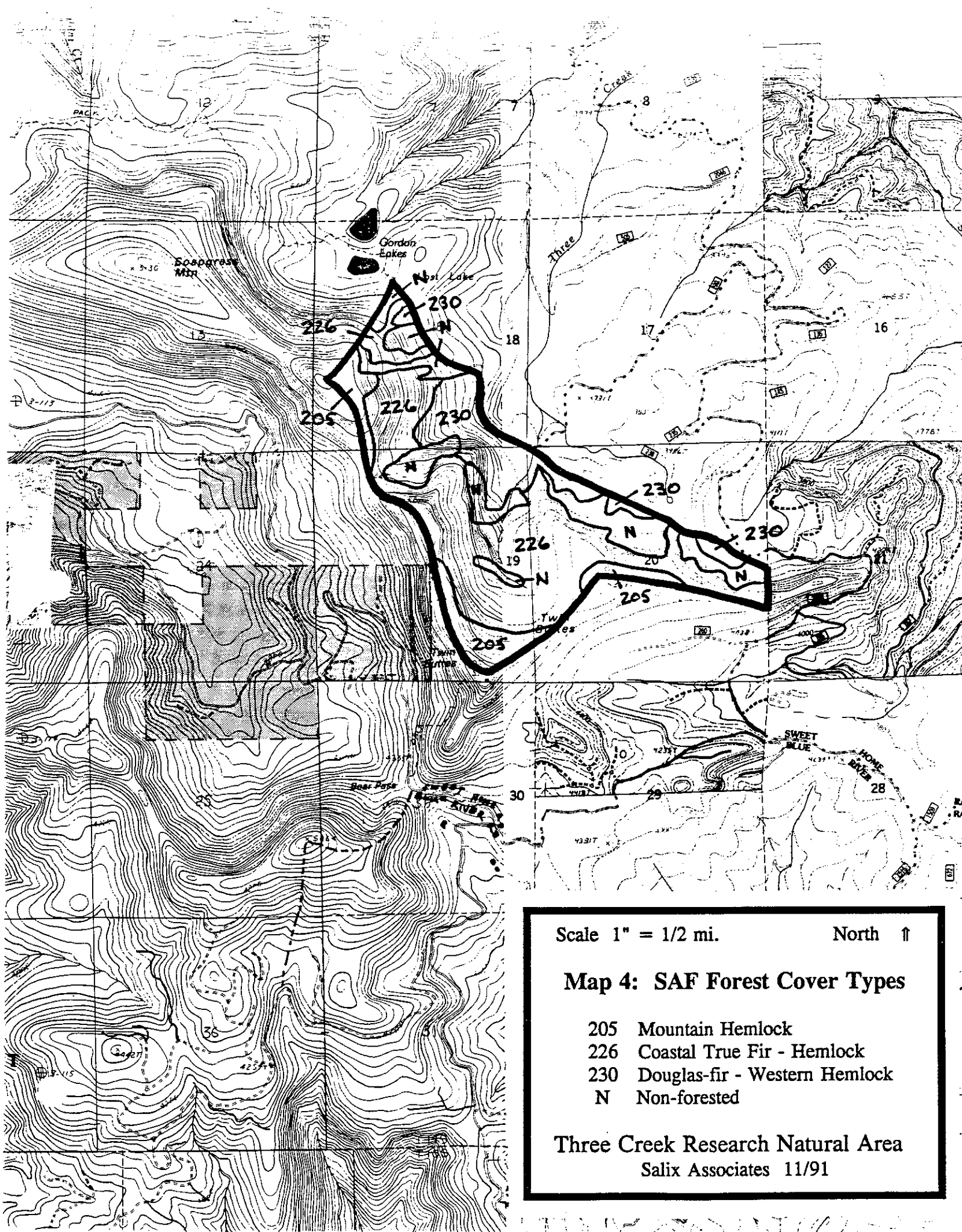
Map 3: Topography and Boundaries

Three Creek Research Natural Area

SCALE 1:24 000



CONTOUR INTERVAL 40 FEET



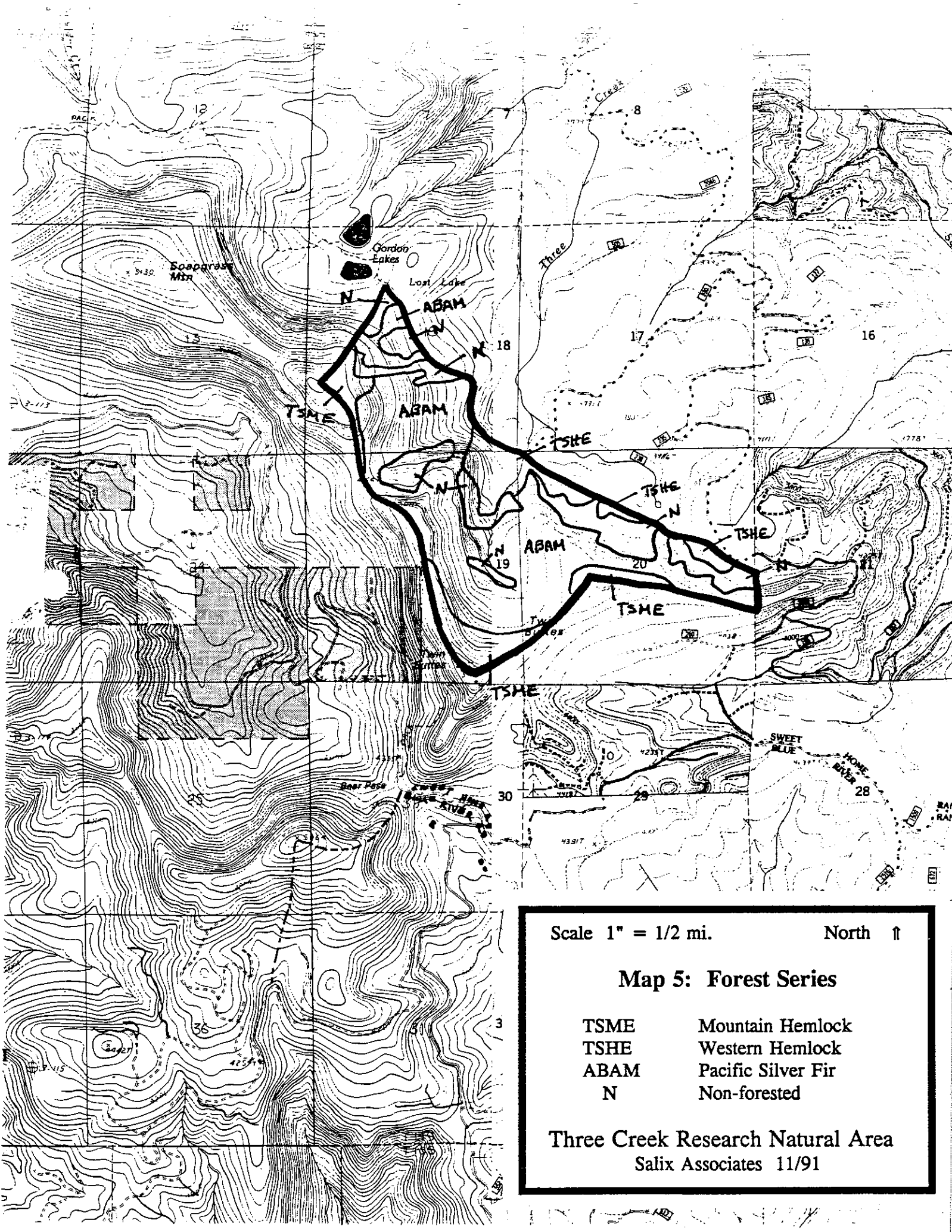
Scale 1" = 1/2 mi.

North ↑

Map 4: SAF Forest Cover Types

- 205 Mountain Hemlock
- 226 Coastal True Fir - Hemlock
- 230 Douglas-fir - Western Hemlock
- N Non-forested

Three Creek Research Natural Area
Salix Associates 11/91



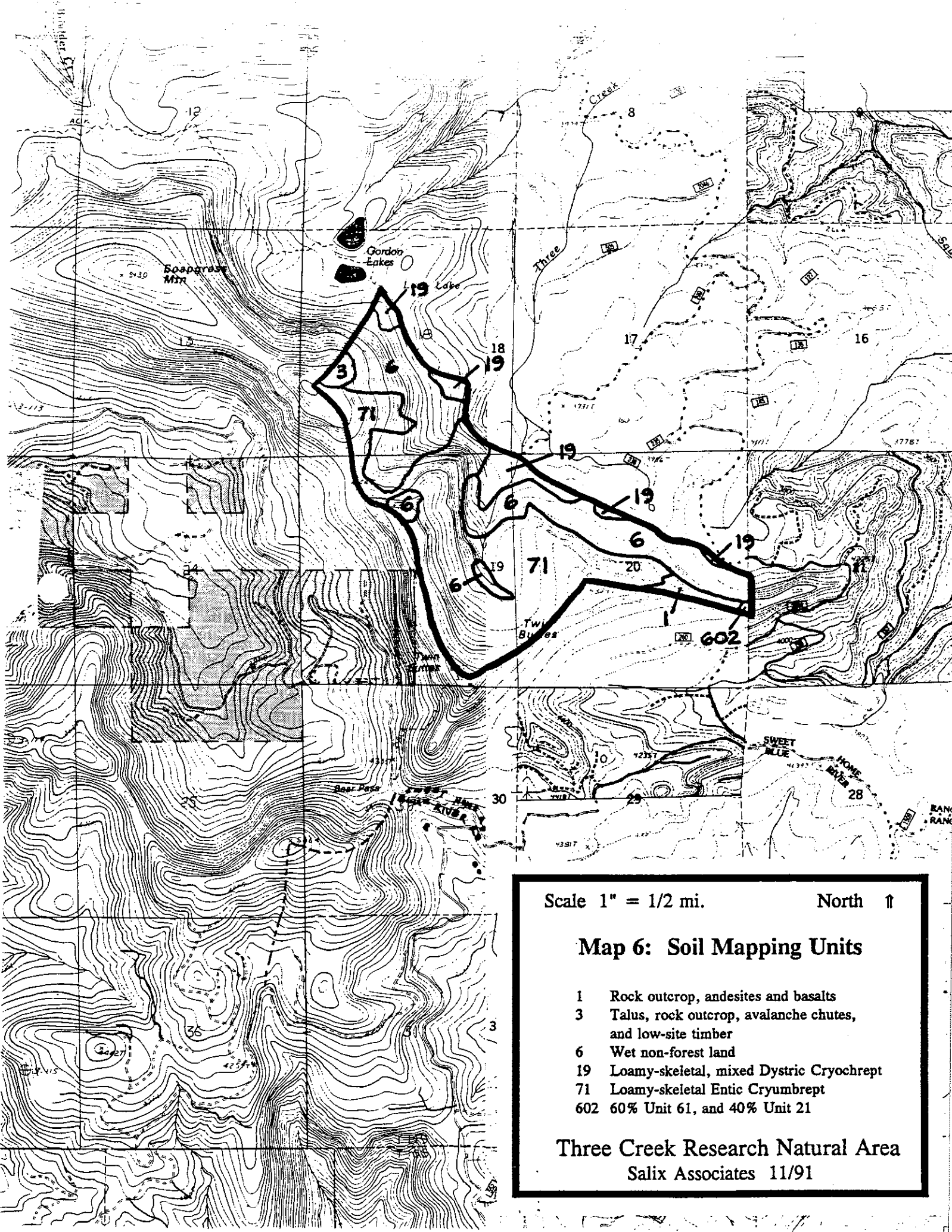
Scale 1" = 1/2 mi.

North ↑

Map 5: Forest Series

| | |
|------|--------------------|
| TSME | Mountain Hemlock |
| TSHE | Western Hemlock |
| ABAM | Pacific Silver Fir |
| N | Non-forested |

Three Creek Research Natural Area
Salix Associates 11/91



Scale 1" = 1/2 mi.

North ↑

Map 6: Soil Mapping Units

- 1 Rock outcrop, andesites and basalts
- 3 Talus, rock outcrop, avalanche chutes, and low-site timber
- 6 Wet non-forest land
- 19 Loamy-skeletal, mixed Dystric Cryochrept
- 71 Loamy-skeletal Entic Cryumbrept
- 602 60% Unit 61, and 40% Unit 21

Three Creek Research Natural Area
Salix Associates 11/91

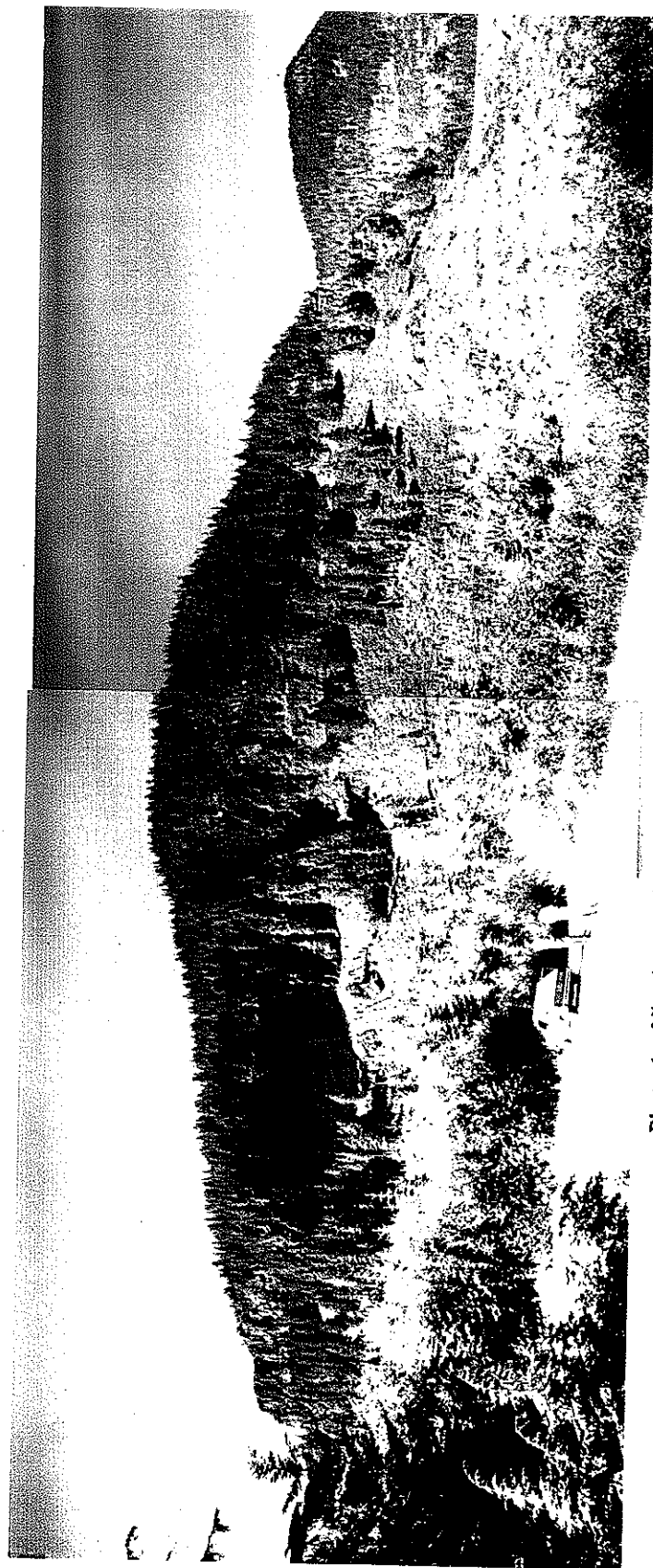


Photo 1: Viewing south at cliffs on ridge at eastern end of RNA.



Photo 2: Viewing southeast from Road 230 near northwest border of RNA. Butte is approx. 1/4 mile north of center of Section 19.

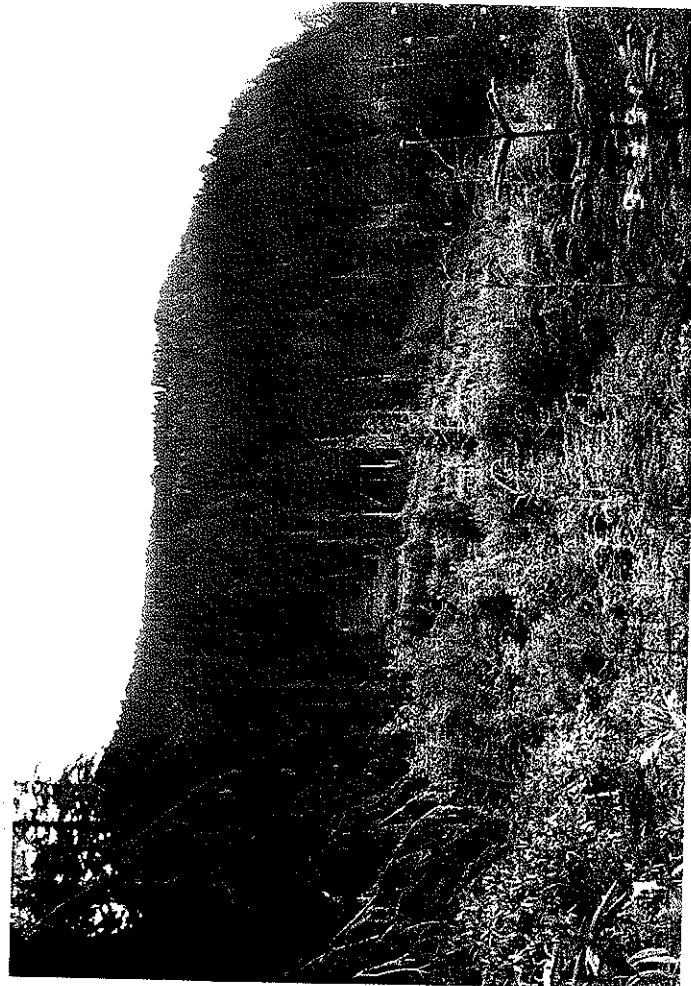


Photo 3: Viewing west at east-facing talus/*Acer circinatum* slope in mid-ground. *Abies/Tsuga* regeneration in foreground.



Photo 5: Viewing southeast. Butte is approx. 1/4 mile north of intersection of RNA boundary and section line between sections 18 and 19.



Photo 4: Dense *Abies amabilis* stand near intersection of RNA west border and section line between sections 18 and 19.



Photo 6: Wet meadow on north-facing slope near southern end of RNA.



Photo 7: Large *Chamaecyparis nootkatensis* on northwest slope near center of RNA. Primarily *Abies* and *Tsuga* regeneration.

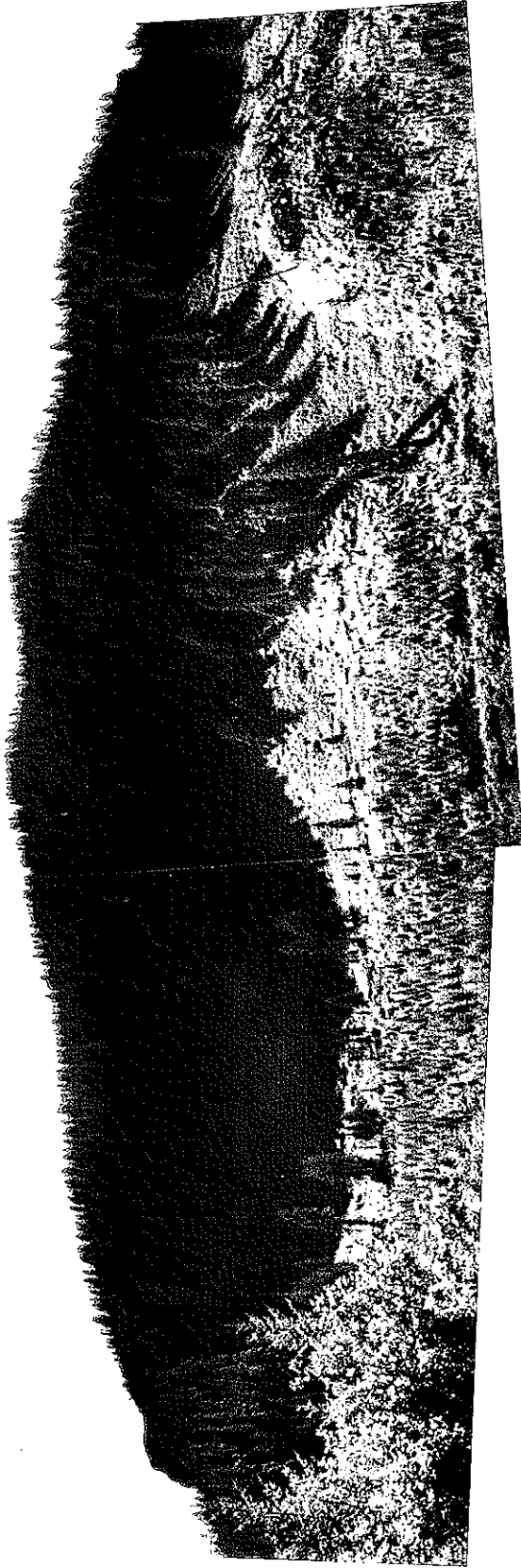


Photo 8 (connects to left edge of Photo 9): Panorama viewing south into RNA - similar view as Photo 1. *Acer/Alnus* slopes in mid-ground.

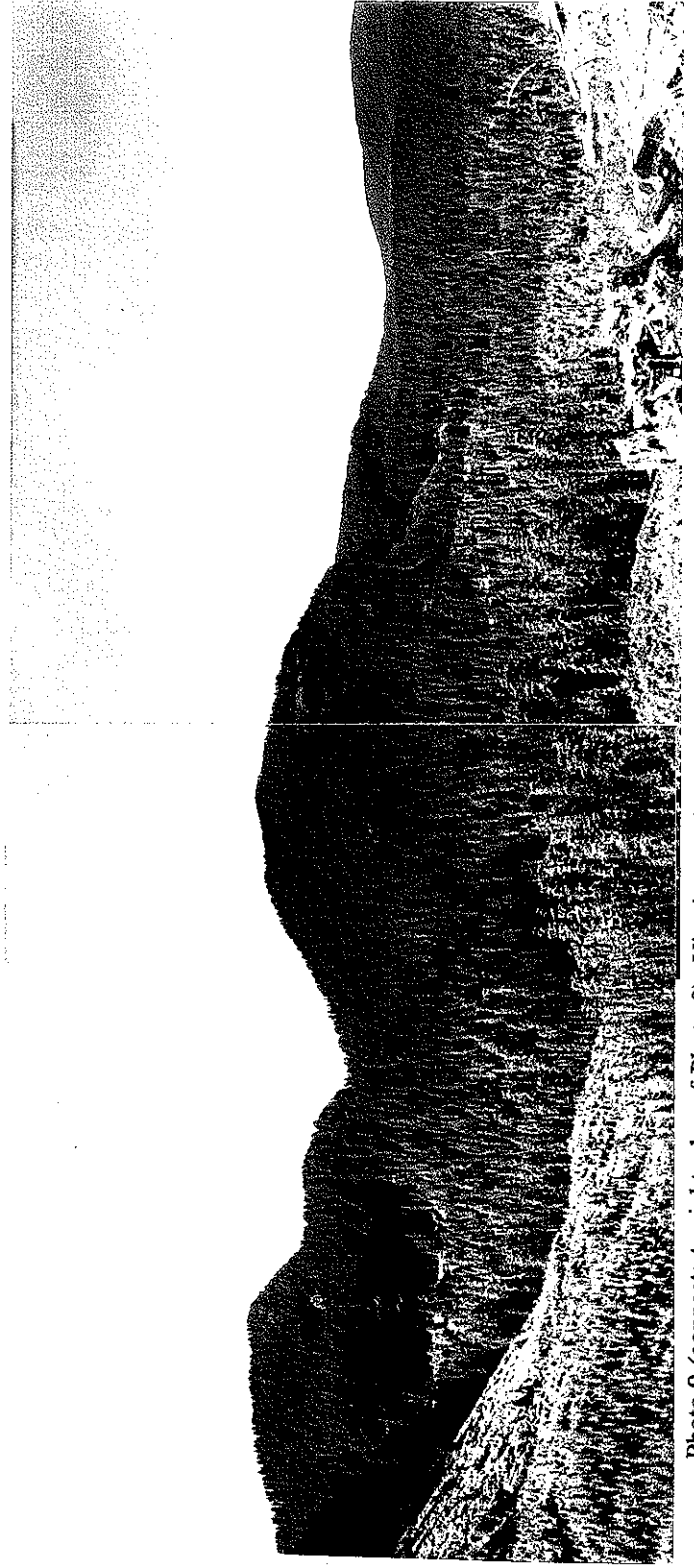


Photo 9 (connects to right edge of Photo 8): Viewing southeast. Butte in center is western tip of RNA.



Photo 10 (connects to left edge of Photo 11): Panorama viewing southeast into RNA - similar view as Photo 8. Road 230 at lower left.

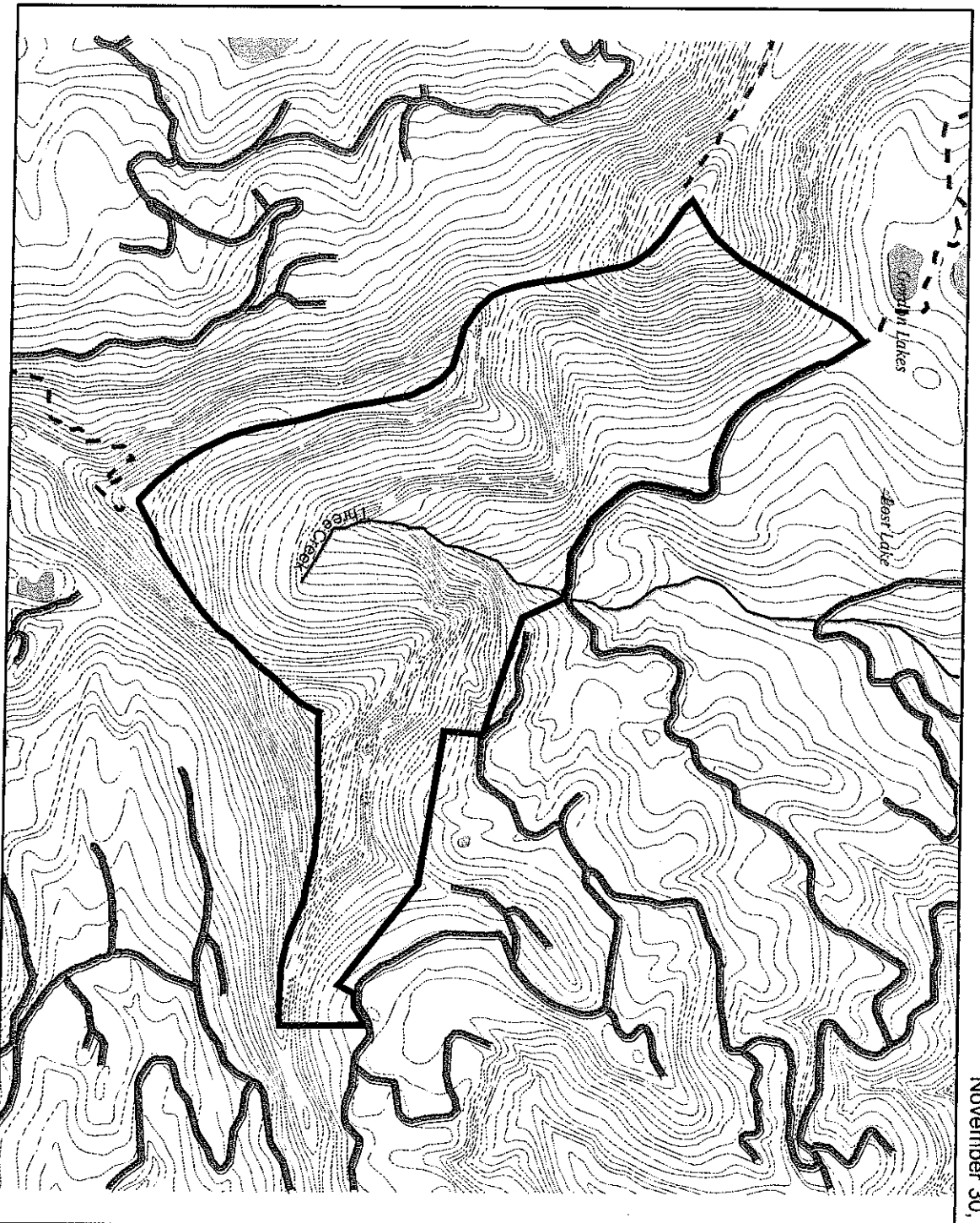


Photo 11 (connects to right edge of Photo 10): Viewing east. Butte in center is western tip of RNA.

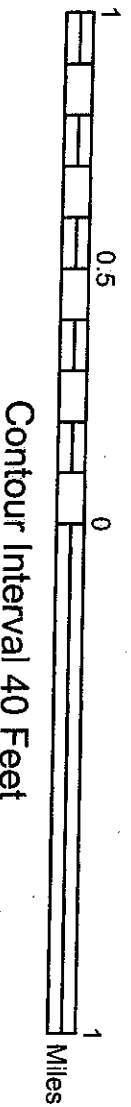
Map 3: Topography and Boundaries

Three Creek Research Natural Area

Boundary corrected
November 30, 2001



Scale: 1 : 24,000



Legend

- Roads
- Trails
- Streams
- Water
- Three Creek RNA

Area

The total area of the Three Creek RNA is 691 acres (280 ha).

Elevation

Elevations within the RNA range from 3680 feet (1122 m) near the point where Three Creek crosses the northern boundary, to 5374 feet (1638 m) at the summit of the northeastern peak of Twin Buttes. Vertical relief within the RNA is approximately 1694 feet (516 m).

Access

The Three Creek RNA is located in the central Cascades of western Oregon approximately 21 air miles (34 km) east of Sweet Home. From the Sweet Home Ranger Station, take U.S. Highway 20 east 25.2 miles (40.6 km) and turn south at the House Rock Campground sign onto Forest Service Road 2044. Continue 5.5 miles (8.9 km) on Road 2044 and turn west onto Road 2044-230 for 1.5 miles (2.4 km) to the point where it crosses Three Creek and intersects the boundary of the RNA. From this point, Road 2044-230 forms the north boundary of the RNA running west 1.1 miles (1.8 km) to the Gordon Lakes parking area. The upper elevations of the RNA are best approached from south of the ridgeline formed by Twin Buttes and Soapgrass Mountain. Several spur roads approach this ridgeline from Road 2044 and Road 1509 which runs in a westerly direction to the south of the RNA. These spur roads may not be maintained and/or may be blocked by berms in the future, limiting automobile access from the south side of the RNA.

The RNA is accessible by automobile during the snow-free months. U.S. Highway 20 is paved and kept open year round. Roads 2044 and 2044-230 are gravel roads with steep, narrow stretches, and are not kept open in winter. Winter access may be possible by snow machine or skis.

Maps

The Willamette National Forest Visitor Map (1990) illustrates the described access routes to the RNA. This map is available at the WNF Supervisor's Office in Eugene, Oregon and at all WNF Ranger District offices.

The USGS 7 1/2 minute quad maps of Tidbits Mtn. and Carpenter Mtn., Oreg. cover the western and eastern halves, respectively, of the RNA. These maps show topographic features at a scale of 1:24,000, with contour intervals of 40 feet (12.2 m). They are available from the USGS and at many bookstores.

The Sweet Home Ranger District map is available at the Sweet Home Ranger Station in Sweet Home, Oregon, and has the most current road information.

AREA BY COVER TYPE

The SAF forest cover types that occur in the RNA are illustrated in Map 4. Forest series are shown on Map 5. Approximate acreages of each Kuchler cover type, SAF forest cover type, and forest series are given in the following tables:

Kuchler Cover Types (Kuchler 1966) Acres/Hectares

| | | | |
|---|---|-----|-----|
| 3 | Fir - hemlock forest (Abies - Tsuga) | 578 | 234 |
| N | Non-forested | 113 | 46 |
| | Total | 691 | 280 |

SAF Cover Types (Eyre 1980) Acres/Hectares

| | | | |
|-----|-------------------------------|-----|-----|
| 205 | Mountain hemlock | 62 | 25 |
| 226 | Coastal true fir - hemlock | 418 | 169 |
| 230 | Douglas-fir - western hemlock | 98 | 40 |
| N | Non-forested | 113 | 46 |
| | Total | 691 | 280 |

Forest Series (Hemstrom, et. al. 1987)

| | Acres/Hectares | |
|------------------------|----------------|-----|
| Mountain hemlock | 62 | 25 |
| Pacific silver fir | 459 | 186 |
| Western hemlock | 57 | 23 |
| Non-forest communities | 113 | 46 |
| Total | 691 | 280 |

PHYSICAL AND CLIMATIC CONDITIONS

The Three Creek RNA lies at the head of the Three Creek drainage. The area is bounded to the east, south, and west by a sharp, rocky ridgeline defined by the peaks of Twin Buttes and Soapgrass Mountain. Below the ridgeline, the RNA is divided into two main drainages that form the headwaters of Three Creek. Most slopes in the RNA are steep except for areas at the head of the east drainage, where gently sloping benches have formed. High cliffs, formed by glacial action and massive slumping, run east-west through the middle elevations of the RNA. Beneath them, steep talus and forested slopes descend to the north boundary of the RNA.

The climate of the western Cascades is maritime (Franklin and Dyrness 1973) with dry summers and cool, wet winters. According to Bierlmaier and McKee (1989) precipitation from cyclonic winter storms is directed at the region by the polar jet stream. In summer, the jet stream shifts to the north and high pressure builds over the region. Approximately 70 percent of the annual precipitation falls between November 1 and March 31 - mostly as snow. Mountainous topography causes the amount of precipitation to vary greatly over short distances, thus nearby weather stations may not accurately represent the climatic conditions of the RNA.

The following tables present data from the Santiam Junction weather station. The station is located 16.0 air miles (25.8 km) east of the RNA at an elevation of 4748 feet (1447 m). Weather data for 1961-1990 were provided by the Oregon Climate Service at Oregon State University. Record length varies between months and between the precipitation data and the temperature data because of missing values in some years for some months.

CLIMATE DATA FOR SANTIAM PASS, OREGON

Elevation: 4748 feet (1447 m)

PRECIPITATION Average annual total = 86.15 inches (2188 mm)

| onth | Mean | | Maximum Total | | Minimum Total | | Record Length |
|-----------|-------|-----|---------------|-----|---------------|----|---------------|
| | in | mm | in | mm | in | mm | years |
| January | 14.15 | 359 | 24.55 | 624 | 0.36 | 9 | 22 |
| February | 9.62 | 244 | 17.25 | 438 | 3.20 | 81 | 22 |
| March | 8.95 | 227 | 15.00 | 381 | 2.32 | 59 | 22 |
| April | 5.65 | 144 | 10.53 | 267 | 0.78 | 20 | 24 |
| May | 3.73 | 95 | 7.01 | 178 | 0.99 | 25 | 24 |
| June | 3.33 | 85 | 9.41 | 239 | 0.98 | 25 | 23 |
| July | 1.12 | 28 | 5.90 | 150 | 0.00 | 02 | 05 |
| August | 1.79 | 45 | 6.05 | 154 | 0.00 | 02 | 05 |
| September | 3.61 | 92 | 7.42 | 188 | 0.00 | 02 | 04 |
| October | 6.18 | 157 | 12.67 | 322 | 1.34 | 34 | 24 |
| November | 12.28 | 312 | 28.01 | 711 | 3.54 | 90 | 24 |
| December | 15.74 | 400 | 34.72 | 882 | 2.40 | 61 | 22 |

TEMPERATURE

| Month | Mean | | Maximum Mean | | Minimum Mean | | Record Length |
|-----------|------|------|--------------|------|--------------|------|---------------|
| | *F | *C | *F | *C | *F | *C | years |
| January | 26.6 | -3.0 | 34.3 | 1.3 | 14.4 | -9.8 | 30 |
| February | 29.8 | -1.2 | 39.1 | 3.9 | 25.0 | -3.9 | 30 |
| March | 31.5 | -0.3 | 36.3 | 2.4 | 27.4 | -2.6 | 28 |
| April | 35.6 | 2.0 | 41.5 | 5.3 | 31.0 | -0.6 | 29 |
| May | 42.5 | 5.9 | 47.9 | 8.8 | 38.5 | 3.6 | 26 |
| June | 49.9 | 10.0 | 55.0 | 12.8 | 45.7 | 7.6 | 18 |
| July | 58.0 | 14.5 | 63.2 | 17.3 | 51.6 | 10.9 | 23 |
| August | 57.2 | 14.0 | 63.8 | 17.7 | 53.1 | 11.7 | 24 |
| September | 50.4 | 10.2 | 57.1 | 13.9 | 45.0 | 7.2 | 25 |
| October | 41.9 | 5.5 | 46.8 | 8.2 | 36.7 | 2.6 | 26 |
| November | 33.3 | 0.7 | 39.2 | 4.0 | 27.7 | -2.4 | 27 |
| December | 27.9 | -2.3 | 35.3 | 1.8 | 20.5 | -6.4 | 27 |

DESCRIPTION OF VALUES

Flora

The flora of the Three Creek RNA is characterized by a variety of forest and non-forest plant communities. Most of the forests of the RNA are old-growth forests in mid- to late-successional stages with a large proportion of shade-tolerant overstory species present in most stands. They are comprised of plant associations in the mountain hemlock, Pacific silver fir, and western hemlock series (Map 5) (Hemstrom, et al. 1987). Associations in the Pacific silver fir series make up the bulk of the forest stands in the RNA. Associations in the mountain hemlock series are limited to stands along the upper ridges of the RNA, while western hemlock associations occur at lower elevations along the northern boundary of the RNA. Included in the western hemlock series are 20 acres (8 ha) of clearcut that are now regenerating with Douglas-fir, noble fir, and western hemlock. Dominant tree species grade from western hemlock, Douglas-fir, and noble fir at the lowest elevations in the RNA; to western hemlock, Pacific silver fir, Douglas-fir, and noble fir; to nearly pure Pacific silver fir; and finally, to mountain hemlock along the highest ridgetops.

Glacial cirques at the heads of the two main drainages contain 800+ year-old (McCain, pers. comm.) mixed stands of Alaska-cedar, Pacific silver fir, and Douglas-fir. The forests of these moist, north-facing cirques apparently have been protected from periodic forest fires that burned through much of the western Cascades (Franklin and Dyrness 1973), and from strong southwesterly winds associated with fall and winter storms, and easterly winds that blow in the late summer and early fall.

The understory forest vegetation reflects the moist, cool conditions characteristic of most of the RNA. At lower elevations, western hemlock, Pacific silver fir, and Pacific yew (Taxus brevifolia) are common regenerating and intermediate canopy species. The shrub layer is dominated by vine maple (Acer circinatum) and thin-leaved blueberry (Vaccinium membranaceum). Pacific rhododendron (Rhododendron macrophyllum) and dull Oregongrape (Berberis nervosa) are more common on drier sites, and devil's club (Oplopanax horridum) and salmonberry (Rubus spectabilis) dominate in the moist riparian areas. The most common lower elevation herbs are starry solomon-plume (Smilacina stellata), coolwort foamflower (Tiarella trifoliata var. unifoliata), vanillaleaf (Achlys triphylla), dogwood bunchberry (Cornus canadensis), and queen's cup (Clintonia uniflora). On moister sites, Oregon oxalis (Oxalis oregana) forms dense patches.

At middle to high elevations, in the Pacific silver fir series, regeneration is dominated by Pacific silver fir with a smaller component of western hemlock. Alaska blueberry (Vaccinium

alaskense)/oval-leaf huckleberry (Vaccinium ovalifolium) (species not distinguished in this report) and thin-leaved blueberry dominate the shrub layer. Herb species commonly present are starry solomon-plume, dogwood bunchberry, queen's cup, vanillaleaf, and false bugbane (Trautvetteria caroliniensis var. occidentalis).

In the mountain hemlock stands at the highest elevations in the RNA, understory vegetation is generally sparse and tree regeneration is uncommon. Dominant shrubs are Alaska blueberry/oval-leaf huckleberry and thin-leaved blueberry. White rhododendron (Rhododendron albiflorum) and fool's huckleberry (Menziesia ferruginea var. ferruginea) may be locally dominant in these stands. The depauperate herb layer contains scattered clumps of beargrass (Xerophyllum tenax).

Extensive non-forested shrub communities are prominent on the steep talus slopes below the large north-facing cliffs that run generally east-west through the RNA, and on the slope below the ridge forming the west boundary. Many seeps and small streams originate in these areas. Drier sites are dominated by vine maple or may be nearly unvegetated, while moister sites may be dominated by vine maple, Sitka alder (Alnus sinuata), devil's club and stink currant (Ribes bracteosum). The understories contain Anderson's sword-fern (Polystichum andersonii), western springbeauty (Montia siberica), youth-on-age (Tolmiea menziesii), false bugbane, and mosses.

Two wet meadows containing the source of the eastern fork of Three Creek are located in the cirque in the southern part of the RNA. The vegetation of the meadows is dominated by sedges and wet site forbs such as white marshmarigold (Caltha biflora), Jeffrey's shooting star (Dodecatheon jeffreyi), and pink elephants (Pedicularis groenlandica). Near the meadows, a variety of rock outcrops provides habitats for several interesting plant species including Sitka mistmaiden (Romanzoffia sitchensis) and threeleaf lewisia (Lewisia triphylla). The rocky ridgeline also provides important habitat for plant species of rock garden communities.

Two recent mapping projects have identified old growth forests on the Willamette National Forest. The "Old Growth Forests Within the Douglas-Fir Region" map produced by the Willamette National Forest identifies nearly all of the Three Creek RNA area as "old growth." The "Ancient Forest Existing in 1990" map produced by The Wilderness Society shows portions of the RNA as "Ancient Forest" and portions as "High Elevation Ancient Forest" (above 4700 feet, 1433 m).

No federally listed candidate or endangered plant species have been found in the Three Creek RNA. Habitats for several plants on the Region 6 Sensitive, Review, and Watch lists are present within the RNA. These lists should be consulted before undertaking any research or management activity in the area.

The following table lists plants documented within the RNA in the summers of 1991-1993.

Plant List for Three Creek RNA¹

| SCIENTIFIC NAME | COMMON NAME |
|--|-----------------------|
| TREES | |
| <i>Abies amabilis</i> ✓ | Pacific silver fir |
| <i>Abies procera</i> | noble fir |
| <i>Acer circinatum</i> | vine maple |
| <i>Acer glabrum</i> | Rocky Mountain maple |
| <i>Acer macrophyllum</i> | bigleaf maple |
| <i>Alnus sinuata</i> | Sitka alder |
| <i>Amelanchier alnifolia</i> | western serviceberry |
| <i>Castanopsis chrysophylla</i> | giant chinkapin |
| <i>Chamaecyparis nootkatensis</i> ✓ | Alaska-cedar |
| <i>Corylus cornuta</i> var. <i>californica</i> | California hazel |
| <i>Picea engelmannii</i> | Engelmann spruce |
| <i>Prunus emarginata</i> | bitter cherry |
| <i>Pseudotsuga menziesii</i> ✓ | Douglas-fir |
| <i>Rhamnus purshiana</i> | cascara buckthorn |
| <i>Rhododendron macrophyllum</i> | Pacific rhododendron |
| <i>Salix lasiandra</i> | Pacific willow |
| <i>Salix sitchensis</i> | Sitka willow |
| <i>Sambucus callicarpa</i> | Pacific red elder |
| <i>Sorbus sitchensis</i> | Sitka mountain-ash |
| <i>Sorbus scopulina</i> | Greene mountain-ash |
| <i>Taxus brevifolia</i> | Pacific yew |
| <i>Thuja plicata</i> | western redcedar |
| <i>Tsuga heterophylla</i> ✓ | western hemlock |
| <i>Tsuga mertensiana</i> | mountain hemlock |
| SHRUBS | |
| <i>Arctostaphylos nevadensis</i> | pinemat manzanita |
| <i>Berberis nervosa</i> | dull Oregongrape |
| <i>Chimaphila menziesii</i> | little pipsissewa |
| <i>Chimaphila umbellata</i> var. <i>occidentalis</i> | prince's-pine |
| <i>Gaultheria ovatifolia</i> | slender wintergreen |
| <i>Holodiscus discolor</i> | creambush ocean-spray |
| <i>Menziesia ferruginea</i> var. <i>ferruginea</i> | fool's huckleberry |
| <i>Nothochelone nemorosa</i> | woodland beard-tongue |
| <i>Oplopanax horridum</i> | devil's club |
| <i>Pachistima myrsinites</i> | mountain-boxwood |
| <i>Rhododendron albiflorum</i> | white rhododendron |
| <i>Ribes bracteosum</i> | stink currant |
| <i>Ribes lacustre</i> | swamp gooseberry |
| <i>Ribes sanguineum</i> | red currant |

| | |
|---|----------------------------|
| <i>Ribes viscosissimum</i> var. <i>hallii</i> | sticky currant |
| <i>Rosa gymnocarpa</i> | baldhip rose |
| <i>Rubus lasiococcus</i> | dwarf bramble |
| <i>Rubus leucodermis</i> | black raspberry |
| <i>Rubus nivalis</i> | snow bramble |
| <i>Rubus parviflorus</i> | thimbleberry |
| <i>Rubus spectabilis</i> | salmonberry |
| <i>Rubus ursinus</i> | Douglasberry |
| <i>Vaccinium alaskense/ovalifolium</i> | Alaska blueberry/oval-leaf |
| <i>Vaccinium ovalifolium</i> | huckleberry |
| <i>Vaccinium membranaceum</i> | thin-leaved blueberry |
| <i>Vaccinium parvifolium</i> | red huckleberry |

FORBS

| | |
|---|---------------------------|
| <i>Achillea millefolium</i> | yarrow |
| <i>Achlys triphylla</i> | vanillaleaf |
| <i>Aconitum columbianum</i> var. <i>howellii</i> ² | monkshood |
| <i>Actaea rubra</i> | western red baneberry |
| <i>Adenocaulon bicolor</i> | trail-plant |
| <i>Allium crenulatum</i> | scalloped onion |
| <i>Anaphalis margaritacea</i> | common pearly-everlasting |
| <i>Anemone deltoidea</i> | threeleaf anemone |
| <i>Antennaria racemosa</i> | raceme pussy-toes |
| <i>Aquilegia formosa</i> | red columbine |
| <i>Arenaria macrophylla</i> | bigleaf sandwort |
| <i>Arnica amplexicaulis</i> var. <i>amplexicaulis</i> | clasping arnica |
| <i>Arnica latifolia</i> | mountain arnica |
| <i>Aruncus sylvestris</i> | sylvan goatsbeard |
| <i>Asarum caudatum</i> | wild ginger |
| <i>Caltha biflora</i> | white marshmarigold |
| <i>Calypso bulbosa</i> | fairy-slipper |
| <i>Campanula scouleri</i> | Scouler's harebell |
| <i>Castilleja rupicola</i> ✓ | cliff paintbrush |
| <i>Chrysanthemum leucanthemum</i> ² | marguerite |
| <i>Circaea alpina</i> | enchanter's nightshade |
| <i>Cirsium vulgare</i> | common thistle |
| <i>Clintonia uniflora</i> | queen's cup |
| <i>Collinsia parviflora</i> | small-flowered |
| blue-eyed | Mary |
| <i>Coptis laciniata</i> | cutleaf goldthread |
| <i>Corallorhiza maculata</i> | spotted coral-root |
| <i>Corallorhiza mertensiana</i> | western coral-root |
| <i>Cornus canadensis</i> | bunchberry |
| <i>Delphinium glareosum</i> | rockslide larkspur |
| <i>Dicentra formosa</i> | Pacific bleedingheart |
| <i>Disporum hookeri</i> | Hooker fairy-bell |
| <i>Dodecathion jeffreyi</i> | Jeffrey's shooting star |
| <i>Douglasia laevigata</i> ✓ | smooth douglasia |
| <i>Epilobium alpinum</i> var. <i>lactiflorum</i> | alpine willow-herb |
| <i>Epilobium angustifolium</i> | fireweed |
| <i>Epilobium luteum</i> ✓ | yellow willow-herb |
| <i>Epilobium paniculatum</i> | autumn willow-herb |

*Epilobium watsonii*²
Erigeron cascadiensis
Erigeron sp.
Eriophyllum lanatum
Erythronium grandiflorum
Galium aparine
Galium oreganum
Galium triflorum
Goodyera oblongifolia
 rattlesnake-plantain
Habenaria saccata
Heracleum lanatum
Heuchera glabra
Heuchera micrantha
Hieracium albiflorum
Hydrophyllum tenuipes
*Hypericum formosum*²
*Hypericum perforatum*²
*Hypochaeris radicata*²
Lactuca muralis
Lewisia triphylla
Lilium washingtonianum
Linnaea borealis
Listera caurina
Listera cordata
Lomatium martindalei
Lupinus latifolius var. *latifolius*
Lysichitum americanum
Mertensia bella
Mertensia paniculata
Microsteris gracilis var. *gracilis*²
*Mimulus guttatus*²
Mitella breweri
Mitella ovalis
Montia parvifolia
Montia siberica
Orobanche uniflora
Orthocarpus imbricatus
Osmorhiza purpurea
Oxalis oregana
Parnassia fimbriata var. *fimbriata*
Pedicularis bracteosa var. *flavida*
Pedicularis groenlandica
Pedicularis racemosa var. *racemosa*
Penstemon rupicola
*Penstemon serrulatus*²
*Petasites frigidus*²
Polygonum bistortoides
Prunella vulgaris var. *vulgaris*²
Pyrola asarifolia
Pyrola picta
Pyrola secunda var. *secunda*
Ranunculus populago
Romanzoffia sitchensis

Watson's willow-herb
 daisy
 Cascade daisy
 eriophyllum
 pale fawn-lily
 cleavers
 Oregon bedstraw
 sweetscented bedstraw
 western

 slender bog-orchid
 cow-parsnip
 smooth alumroot
 smallflowered alumroot
 white-flowered hawkweed
 Pacific waterleaf
 western St. John's wort
 Klamath weed
 spotted cats-ear
 wall lettuce
 threeleaf lewisia
 Washington lily
 twinflower
 western twayblade
 heart-leaf listera
 Martindale's lomatium
 broadleaf lupine
 skunk cabbage
 Oregon lungwort
 tall lungwort
 microsteris
 monkey-flower
 Brewer's mitrewort
 oval-leaved mitrewort
 littleleaf montia
 western springbeauty
 naked broom-rape
 mountain owl-clover
 purple sweet-root
 Oregon oxalis
 Grass of Parnassus
 bracted lousewort
 pink elephants
 leafy lousewort
 rock penstemon
 coast penstemon
 sweet coltsfoot
 American bistort
 self-heal
 alpine pyrola
 white vein pyrola
 one-sided wintergreen
 mountain buttercup
 Sitka mistmaiden

*Rumex acetosella*²
Saxifraga bronchialis
Saxifraga caespitosa
Saxifraga ferruginea var. *macounii*
Saxifraga mertensiana
Sedum divergens
Sedum oregonense
Sedum spathulifolium
Senecio bolanderi var. *harfordii*
*Senecio jacobaea*²
Senecio sylvaticus
Senecio triangularis
Smilacina racemosa
Smilacina stellata
Stachys cooleyae
Stellaria simcoeii
Stenanthium occidentale
Streptopus roseus var. *curvipes*
*Taraxacum officinale*²
Tiarella trifoliata var. *unifoliata*
Tofieldia glutinosa
Tolmiea menziesii
Trautvetteria caroliniensis
 var. *occidentalis*
Trientalis latifolia
*Trifolium repens*²
Trillium ovatum
Valeriana sitchensis
Vancouveria hexandra
Veratrum sp.
Veronica serpyllifolia var. *humifusa*
Viola glabella
Viola sempervirens
Xerophyllum tenax

sheep sorrel
 matted saxifrage
 tufted saxifrage
 rusty saxifrage
 wood saxifrage
 spreading sedum
 creamy stonecrop
 spatula-leaf stonecrop
 Bolander's groundsel
 tansy ragwort
 wood groundsel
 arrowleaf groundsel
 false spikenard
 starry solomon-plume
 Cooley's hedge-nettle
 Simcoe Mountain starwort
 stenanthium
 rosy twisted-stalk
 common dandelion
 coolwort foamflower
 sticky tofieldia
 youth-on-age

false bugbane
 western starflower
 white clover
 white trillium
 mountain heliotrope
 white inside-out-flower
 false hellebore
 thyme-leaved speedwell
 stream violet
 redwoods violet
 beargrass

SEDGES AND RUSHES

Carex deweyana
Carex lenticularis var. *lenticularis*
*Carex luzulina*²
*Carex mertensii*²
Carex microptera
Carex muricata
*Carex rossii*²
*Juncus effusus*²
*Juncus ensifolius*²
Luzula campestris
Luzula divaricata
Luzula parviflora

Dewey's sedge
 (none)
 woodrush sedge
 Merten's sedge
 small-winged sedge
 muricate sedge
 Ross sedge
 soft rush
 dagger-leaf rush
 field woodrush
 spreading woodrush
 smallflowered woodrush

GRASSES

Agrostis tenuis

colonial bentgrass

Bromus vulgaris
Calamagrostis canadensis
*Cinna latifolia*²
*Dactylis glomerata*²
*Festuca arundinacea*²
Festuca rubra
*Festuca subulata*²
Glyceria sp.²
*Koeleria cristata*²
Poa sandbergii

Columbia brome
 bluejoint reedgrass
 woodreed
 orchard-grass
 tall fescue
 red fescue
 bearded fescue
 mannagrass
 koeleria
 Sandberg's bluegrass

FERNS and ALLIES

Adiantum pedatum
Athyrium filix-femina
Blechnum spicant
Cryptogramma crista
Cystopteris fragilis
Dryopteris austriaca
Equisetum arvense
Gymnocarpium dryopteris
Lycopodium clavatum
Polypodium glycyrrhiza
Polystichum andersonii✓
Polystichum lonchitis✓
Polystichum munitum✓
Pteridium aquilinum
Selaginella wallacei

northern maidenhair fern
 lady fern
 deer-fern
 rock-brake
 brittle bladder-fern
 mountain wood-fern
 common horsetail
 oak-fern
 elk-moss
 licorice-fern
 Anderson's sword-fern
 holly-fern
 sword-fern
 bracken
 Wallace's selaginella

MOSSES and LIVERWORTS

Marchantia sp.²
Philonotis sp.
Rhizomnium glabrescens
Rhytidiadelphus loreus
Rhytidiadelphus triquetrus

¹ Nomenclature for trees follows Little (1979). Other tracheophyte nomenclature follows Hitchcock and Cronquist (1973). Tracheophyte groupings generally follow Garrison and Skovlin (1976). Bracheophyte nomenclature follows Vitt, et al. (1988).
 Inventory dates: 19 July; 2-4 September 1991.

² Found along road at north edge of RNA.

Fauna

Three federally listed animal species are known to be present in the WNF. The peregrine falcon (*Falco peregrinus*) is federally listed as endangered, and several nest sites are known in the WNF. The extensive cliffs in the Three Creek RNA may be suitable nesting habitat for the peregrine falcon although none have been

sighted in the RNA (Morris, pers. comm.). The bald eagle (Haliaeetus leucocephalus) is federally listed as a threatened species, but there are no documented sightings or nest occurrences within the RNA. On the WNF, bald eagles almost always nest near major water bodies.

The northern spotted owl is listed as a threatened species, and utilizes mature and old growth forests for nesting and foraging. Spotted owls have been sighted in the RNA, but nesting has not been confirmed (Morris, pers. comm.). Nesting pairs have been confirmed in an adjacent area along Three Creek to the north of the RNA. The RNA is not in a SOHA or HCA but is identified by the U.S. Fish and Wildlife Service as a Critical Habitat Area (USDA Forest Service 1991). The old growth forests within the RNA provide habitat suitable for both foraging and nesting for the owl.

The area of the RNA is mapped on the "Big Game Emphasis Area" map (WNF 1990) as an area of "high emphasis." This category includes lands that are mostly unroaded and have forage that is of good quality and even distribution. Lands in this category are identified as possibly needing "intense management practices for elk" (Cervus elaphus). The wet meadows at higher elevations in the RNA are used by elk as summer habitat and during rutting (Morris, pers. comm.). The Forest Service is working with the Oregon Department of Fish and Wildlife to improve winter forage at lower elevations in surrounding areas, with the expectation that elk populations can be increased. Thus, there is potential for heavier use of the RNA by elk in the future (Morris, pers. comm.). The WNF has developed a list of habitat types and animal species using them for reproduction (Appendix C). The following habitat types from that list occur on the Three Creek RNA:

1. temperate conifer forest (Douglas-fir/western hemlock; Douglas-fir/true fir)
2. high temperate conifer forest (true fir associations)
3. subalpine forest (mountain hemlock)
4. riparian - coniferous (small creeks)

The following unique or threatened species potentially use the above habitat types within the RNA for reproduction:

1. northern spotted owl - old growth component
2. Oregon slender salamander (Batrachoseps wrighti)- several habitat components
3. fisher (Martes pennanti)- mature forest and old growth components
4. wolverine (Gulo gulo)- high elevation; mature forest and old growth habitat components

The WNF has also identified unique habitat types occurring on the Forest, and the animals that use them for breeding, feeding,

resting, and roosting (Appendix C). The following unique habitat types occur within the Three Creek RNA:

1. Edges--Grass-Shrub
2. Edges--Grass-Forest
3. Edges--Shrub-Forest
4. Snags
5. Logs and Down Material
6. Burrows and Bank Cavities
7. Cliffs
8. Talus
9. Caves and Crevices

The following unique, threatened, and endangered animals potentially utilize the above unique habitats within the RNA:

1. northern spotted owl - breeds in snags; feeds on shrub-forest edge
2. Oregon slender salamander - breeds in snags, logs and down material, in talus, and in shrub-forest edges; feeds in burrows and bank cavities
3. tailed frog (Ascaphus truei)- feeds and rests in logs and down material, and in talus
4. Townsend's big-eared bat (Plecotus townsendii) - breeds in caves (a possible, but undocumented feature within the RNA) and crevices
5. fisher - breeds in talus, snags, logs and downed material; forages on cliffs
6. wolverine - breeds in caves and crevices, in talus, and in logs and down material
7. peregrine falcon - breeds on cliffs and in crevices, rests on snags, and feeds and rests on shrub-forest edges and on talus

Wildlife species have not been systematically inventoried or studied within the RNA. The following fauna were observed in the Three Creek RNA in the summer of 1991 by the authors of this report:

AMPHIBIANS and REPTILES

northwestern garter snake
unidentified frogs

Thamnophis ordinoides

BIRDS

turkey vulture
red-tailed hawk
blue grouse
ruffed grouse
downy woodpecker
western wood peewee
✓ Steller's jay
common raven

Cathartes aura
Buteo jamaicensis
Dendragapus obscurus
Bonasa umbellus
Picoides pubescens
Contopus sordidulus
Cyanocitta stelleri
Corvus corax

red-breasted nuthatch
 ✓brown creeper
 winter wren
 golden-crowned kinglet
 hermit thrush
 ✓varied thrush
 hermit warbler
 dark-eyed junco
 purple finch
 evening grosbeak

Sitta canadensis
Certhia americana
Troglodytes troglodytes
Regulus satrapa
Catharus guttatus
Ixoreus naevius
Dendroica occidentalis
Junco hyemalis oregonus
Carpodacus purpureus
Coccothraustes vespertina

¹ Nomenclature follows Nussbaum, et al. (1983) for amphibians and reptiles, Scott (1983) for birds, and Ingles (1965) for mammals.

² Not sighted; presence confirmed by tracks.

MAMMALS

✓pika
 snowshoe hare
 mountain beaver
 Townsend's chipmunk
 ✓Roosevelt elk²
 ✓black-tailed deer

Ochotona princeps
Lepus americanus
Apodonta rufus
Eutamias townsendii
Cervus canadensis roosevelti
Odocoileus hemionus columbianus

Included with this report as Appendix D are fauna species lists from the Wildcat Mountain and Middle Santiam RNA reports published by the USDA Forest Service. The fauna of these two areas is expected to be similar to that of the Three Creek RNA, except that the Middle Santiam RNA is at lower elevation and has more significant riparian habitat. The Middle Santiam RNA is 12 aerial miles (19 km) north of the Three Creek RNA, and the Wildcat Mountain RNA is 5 miles (8 km) east of the Three Creek RNA.

GEOLOGY

The RNA is located in the Western Cascades geological province (Sherrod 1986), which is generally comprised of rock much older than the High Cascades province to the east. The RNA, however, lies within an "island" of an overlying formation much more recent and typical of the High Cascades province. Extensive glacial activity during the Pleistocene resulted in the formation of the cliffs and cirques in the RNA. The cliffs have since been modified by slumping.

This area was mapped by Peck (1964) as Quaternary-Tertiary volcanic rocks of the High Cascade Range and Boring Lava, undivided. The USGS (1967) mapped the area as Quaternary-Tertiary basalt, andesite, and pyroclastic rocks. Walker and Duncan (1989) mapped the area as Tertiary basaltic and basaltic andesitic

rocks. They also mapped the upper slope of the RNA as ridge-capping basalt and basaltic andesite (Pliocene and Miocene), and the lower slopes as andesitic and basaltic rocks (Miocene).

SOILS

The Willamette National Forest Soil Resource Inventory was completed in 1973 (Legard and Meyer) and updated in 1990. Six soil mapping units occur within the Three Creek RNA (Map 6), representing the seven landtypes described below. Mapping unit 602 is composed of 60% landtype 61 and 40% landtype 21.

Landtype Descriptions

Landtype 1 Rock outcrop, andesites and basalts.

Hard, fresh andesite and basalt rock outcrops commonly forming cliffs and "rock knobs." This mapping unit is usually associated with volcanic dikes, vents, and plugs. Minor amounts of various volcanic materials or sediments may be present.

Landtype 3 Talus, rock outcrop, avalanche chutes, and low-site timber.

A complex of various kinds of rock outcrop, talus, and soils highly variable in depth, rock content, and moisture status. This mapping unit is generally found along upper sideslopes, ridgetops, and in areas of cirque topography.

Landtype 6 Wet non-forest land.

Areas that have high water tables or become seasonally ponded. This mapping unit is highly variable in topographic position and is found in depressions, along streamside areas, and steep sideslopes. Boulder fields are often found within this unit on steep slopes. Vegetation consists of sedges (Carex species), rushes (Juncus species), grasses, Sitka alder, devil's club, and willow (Salix species).

Landtype 19 Loamy-skeletal, mixed Dystric Cryochrept.

Deep, nonplastic soils derived from glacial till and volcanic breccias. Surface soils are thin gravelly loams. Subsoils are thick gravelly cobbly loams. Bedrock is composed of moderately competent volcanic breccias, that may locally be weathered and soft. Depth to bedrock is usually greater than 10 feet (3.0 m). This landtype occurs on uneven to hummocky glacial benches and basins with slopes ranging up to 45 percent. Elevation ranges from 4000 feet (1219 m) to 4700 feet (1433 m). Soils are generally well drained but may be locally poorly drained causing ponding. Permeability is rapid to very rapid in the surface soils and rapid to slow in the subsoils.

Landtype 21 Loamy-skeletal, mixed Dystric Cryochrept.

Shallow, nonplastic to slightly plastic soils derived from residuum and colluvium. Surface soils are thin gravelly loams. Subsoils are thin gravelly loams and clay loams. Bedrock is moderately hard, competent to moderately competent, reddish volcanic breccias and tuffs. Depth to bedrock is usually less than 3 feet. This landtype occurs on steep, smooth to moderately dissected upper sideslopes and ridges with slopes ranging from 60 to greater than 90 percent. Elevation ranges from 3000 feet (914 m) to 5000 feet (1524 m). Soils are well to excessively drained. Permeability is rapid in the surface soils and rapid to very rapid in the subsoils.

Landtype 61 Loamy-skeletal Entic Cryumbrept. Shallow, nonplastic soils derived from residuum and colluvium. Surface soils are thin gravelly to very gravelly loams. Subsurface soils are thin gravelly or cobbly loams. Bedrock is composed of competent, hard, highly to moderately fractured andesites and basalts. Depth to bedrock is usually less than 3 feet (0.9 m). This landtype occurs on steep, smooth to moderately dissected sideslopes and ridges with slopes ranging from 60 to greater than 90 percent. Elevation ranges from 1000 feet (305 m) to 5000 feet (1524 m). Soils are well to excessively drained. Permeability is very rapid in the surface soils and rapid in the subsoils.

Landtype 71 Loamy-skeletal Entic Cryumbrept. Shallow, nonplastic landtype derived from residuum and colluvium. Surface soils are thin sandy loams and loams. Subsoils are thin gravelly loams, fine sandy loams, and loams. Bedrock is composed of competent, hard andesites and basalts. Depth to bedrock is usually less than 3 feet (0.9 m). This landtype occurs on steep, smooth to uneven upper sideslopes and ridges with slopes ranging from 45 to 90 percent. Elevation ranges from 4400 feet (1341 m) to 6000 feet (1829 m). Soils are well drained. Permeability is rapid in the surface soils and rapid in the subsurface soils.

LANDS

All lands within the RNA boundary are reserved National Forest lands. There are no outstanding rights to any lands within the RNA (Watson, pers. comm.).

CULTURAL

No cultural studies have been done for lands within the RNA, although a cultural resources overview for the WNF was completed

in 1977 (Minor and Pecor) and updated in 1987 (Minor). No cultural sites have been identified within the RNA, and most of the RNA has a low probability of having such sites because of the low use associated with northerly aspects (Farque pers. comm.). The ridgeline forming the west, south and east boundary was probably used as a travel route by Warm Springs Indians from east of the Cascades, and by the Calapooya Indians from the Willamette Valley to the west. The Warm Springs Indians summered their horses at Squaw Mountain to the east of the RNA, where they were seen as recently as 1910, and travelled along this ridge on their way south to the Gold Hill huckleberry fields to trade with the Calapooya people. The Calapooya used the same route to reach other huckleberry fields near the RNA, until the tribe was decimated by disease in the 1830's.

Use of the RNA during this century has also been mostly limited to the ridgeline (Farque, pers. comm.), where two fire lookout points were used on the south and west boundaries of the RNA. A cabin-style lookout was built in 1932 on the southern peak of Twin Buttes. It was abandoned in 1965 and destroyed by the Forest Service in 1986. A 1/8th scale model of this lookout is housed at the Sweet Home Ranger Station. The eastern peak of Soapgrass Mountain was also used as a fire lookout point, although a lookout building was never constructed there.

In general, there appear to be few potential conflicts between the establishment of the Three Creek RNA and cultural resources. Nevertheless, care should be taken to identify and avoid cultural sites if any ground disturbing research is undertaken within the area, particularly along the ridgetops. Information on known cultural sites in the area is on file at the Sweet Home Ranger District Office.

IMPACTS AND POSSIBLE CONFLICTS

Mineral Resources

There are no unpatented mining claims within the RNA on file with the U.S. Bureau of Land Management, and no known mineral resources are in or adjacent to the RNA (Clayton, pers. comm.). The area will be withdrawn from mineral entry and have no surface occupancy for oil and gas leasing when possible and/or when considered necessary to protect the features for which the RNA was established.

Grazing

No grazing occurs in the RNA. There is a grazing allotment in the Gordon Meadows area approximately 2.5 miles (4.0 km) northeast of the RNA. The rugged terrain between the allotment and the RNA make it extremely unlikely that cattle will wander into the RNA (Morris, pers. comm.). No conflicts with the grazing resource will arise with the designation of the RNA.

Timber

Potential annual timber production from suited acres in the RNA is 47,000 cubic feet (1331 cu m) per year (Mayo, pers. comm.). Timber volume production was calculated using the WNF forest-wide average of 112 cubic feet/acre/year (7.8 cu m/ha/yr), and may underestimate productivity of forested lands in the RNA. The RNA contains 578 acres (234 ha) of forested land, of which 417 acres (169 ha) meet the productivity requirements of commercial forest land (Ragan, pers. comm.). The timber within the RNA was not included in the timber producing base specified in the LRMP (WNF 1990).

Watershed Values

The Three Creek RNA contains the headwaters of Three Creek, one of the major upper basin tributaries of the South Santiam River. The National Wetland Inventory draft maps (U. S. Fish and Wildlife Service 1989a and 1989b) for the RNA show Three Creek as "Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded." Also mapped as wetlands are the areas adjacent to Three Creek near the bases of the cliffs. These areas are mapped as "Palustrine, Scrub-Shrub, Seasonally Flooded."

Headwater areas in the RNA are vegetated and undisturbed, and contribute to water quality by controlling erosion and prolonging summer water release. Establishment of the RNA will preserve these beneficial watershed values.

Recreation Values

No maintained trails exist within the RNA. Recreational use is light and probably limited to hikers and hunters entering the area from Road 2044-230 to the north. Camping and hiking occur along Trail no. 3386.0 to Gordon Lakes and Gordon Meadows, and dispersed camping occurs adjacent to the RNA along Road 2044-230 (Carlson, pers. comm.). None of these uses impacts the RNA significantly nor will the establishment of the RNA conflict with current recreational activities (Carlson, pers. comm.).

There has been interest in reopening two currently unmaintained, historical trails that approach the RNA from the west and from the south -- the Soapgrass Mountain Trail (no. 3390.0) and the trail (no. 3404.0) to the former lookout on Twin Buttes (Carlson, pers. comm.). The LRMP shows an extension of the Soapgrass Mountain Trail, numbered 3390.1, along the ridge forming the southwest boundary of the RNA, connecting the Soapgrass Mountain Trail with the Twin Buttes Lookout Trail. This proposed trail numbered 3390.1, was considered and dropped because the potential of impacting fragile rock garden communities along the upper ridgeline areas. Ending the reopened trail at the summit of Soapgrass Mountain, approximately one mile (1.6 km) northwest of

the RNA, would not reduce the scenic value of the trail, and impacts on RNA values would be avoided.

The proposed reopening of the trail to the old Twin Buttes lookout would provide access to potential rock climbing areas along the ridgeline forming the southern boundary of the RNA. The Sweet Home Ranger District included the trail and climbing area as one of several proposed climbing areas in a challenge grant application made to the Regional Forester (Carlson, pers. comm.). A trail and climbing activities also could seriously impact the rock garden communities and the upper basins where the oldest forest stands occur. According to Sweet Home Ranger District personnel, the proposal to develop the Twin Buttes Trail and climbing area is not encouraged and the district would defer to the RNA if a conflict over uses occurred. We recommend that the trail to Twin Buttes lookout not be reopened and that no rock climbing areas be developed in or near the RNA. Since the district has several other proposed climbing sites, overall impacts of the establishment of the RNA on future recreation values are slight.

Wildlife and Plant Values

Designation of the RNA will preserve habitat for the spotted owl and other threatened, endangered, and unique species. The designation also would preserve a number of habitat types unique on the Willamette National Forest (see Fauna section).

Potential habitats for several rare plant species identified by the Oregon Natural Heritage Program (1991) are contained in the RNA, and will be preserved by the RNA designation.

Special Management Area Values

The proposed RNA does not lie within any congressionally-designated special management area such as wilderness, wild and scenic river, or national recreation area.

Transportation Plans

No road construction is planned within or adjacent to the RNA (Hatcher, pers. comm.). Current transportation plans will have no adverse impacts on the RNA. Establishment of the RNA will not impact the forest transportation system. Some spur roads off Roads 2044 and 1509 may not be maintained and/or may be blocked with berms in the future, limiting automobile access from the south side of the RNA (Hatcher, pers. comm.).

MANAGEMENT PRESCRIPTION

The Three Creek RNA will be managed according to the goals, desired future condition, and standards and guidelines set forth

for RNAs in Management Area 4 of the LRMP for the WNF (1990) (Appendix B). According to the LRMP, RNAs "will be managed to provide for naturally occurring physical and biological processes without undo human intervention." Among the standards and guidelines listed in the LRMP are the following:

- an RNA management plan and implementation schedule for baseline data collection and periodic remeasurement shall be prepared;
- recreational activities within the RNA including camping, hunting and trapping will be discouraged;
- recreational off-road vehicle use will be prohibited;
- new trail or road construction will not occur unless it enhances RNA values;
- existing trails will be allowed to remain if they do not compromise RNA values;
- introduction of exotic plant and animal species will be prohibited;
- no programmed timber harvest will be scheduled;
- managed or naturally occurring fire may be used to perpetuate a sere provided prudent measures are taken to avoid catastrophe;
- no action will be taken against insects or diseases unless the outbreak threatens to drastically alter the natural ecological processes within the RNA or is an immediate threat to adjacent land;
- the RNA will be recommended for withdrawal from locatable mineral exploration.

Vegetation Management

The RNA will be managed to maintain late successional forest communities. Human activities that will disturb or modify ecological processes will be minimized. Fires are unlikely on the cool, moist, north-facing slopes of the RNA, and should a fire occur, it probably would not burn a large area. Nevertheless, fire suppression is deemed necessary to protect the rare near-climax forest stands contained in the RNA. Prescribed burning to maintain particular seral stages is not anticipated. Fire management plan will emphasize late successional communities.

Exotic plant species are nearly non-existent in the RNA at this time; they are generally found only along the roadsides. If

monitoring detects increased occurrences of exotic plant species,
IPM strategies will be implemented.

Elk Management

As mentioned in the Fauna section of this report, the Forest Service is working with the Oregon Department of Fish and Wildlife to enhance elk habitat in the area of the RNA with the expectation that elk populations can be increased. Elk use the wet meadows in the RNA, as well as travel routes above and below them. The relatively scarce meadow communities add to the diversity of habitats occurring in the RNA, and contain a distinctive assemblage of plant and animal species. They are an important source of water for wildlife and hydrophytic plants. Evidence of trampling of the meadows, especially near springs and rivulets, was observed during field visits in the summer of 1991. Greater use of the meadows and associated travel routes by elk could further impact the vegetation and the smaller animal species. The condition of meadow flora and fauna, water quality, and erosion along the small waterways should be monitored closely. Alternatives for the prevention or amelioration of damage by elk herds should be examined before it becomes severe.

ADMINISTRATION RECORDS AND PROTECTION

The following principal contacts are responsible for the administration and protection of the Three Creek RNA.

1. For administration and protection of the physical area:

District Ranger
Sweet Home Ranger District
3225 Highway 20
Sweet Home, Oregon 97386

2. For approval and coordination of research within the RNA, maintenance of the RNA databases and of lists of herbarium and animal species samples collected in the RNA:

Director
Pacific Northwest Research Station
333 S.W. First Avenue
P.O. Box 3890
Portland, Oregon 97208

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

Regional Forester
Pacific Northwest Region
333 S.W. First Avenue
P.O. Box 3623
Portland, Oregon 97208

Director
Pacific Northwest Research Station
333 S.W. First Avenue
P.O. Box 3890
Portland, Oregon 97208

Forest Supervisor
Willamette National Forest
211 East 7th Avenue
P.O. Box 10607
Eugene, Oregon 97440

District Ranger
Sweet Home Ranger District
3225 Highway 20
Sweet Home, Oregon 97386

USFS Region 6 RNA Database Coordinator
Forest Science Data Bank
Peavy Hall 154
Oregon State University
Corvallis, Oregon 97331

ARCHIVING

The Pacific Northwest Research Station Director will establish and maintain a system for archiving data and reports from the RNA that will facilitate the exchange of information among Research Stations and scientists. Data from the RNA will be archived in the FS R-6 RNA monitoring data base at the Forest Science Department, Oregon State University, Corvallis, Oregon under cooperative agreement between the FSDB and the Forest Service.

REFERENCES

VEGETATION

- Eyre, F. H. 1980. Forest Cover Types of the United States and Canada. Society of American Foresters, Washington, D.C.
- Fitz, H. 1981. A Checklist of the Vascular Plants of the River McKenzie Drainage.
- Franklin, J. F. and C. T. Dryness. 1973. Natural Vegetation of Oregon and Washington. USDA Forest Service General Technical Report PNW-8. Portland, Oregon.
- Garrison, G. A. and J. M. Skovlin. 1976. Northwest Plant Names and Symbols for Ecosystem Inventory and Analysis. USDA Forest Service General Technical Report PNW-46. Portland, Oregon.
- Hemstrom, M. A., S. E. Logan, and W. Pavlat. 1987. Plant Association and Management Guide: Willamette National Forest. USDA Forest Service, Pacific Northwest Region. Portland, Oregon.
- Hitchcock, C. L. and A. Cronquist. 1973. Flora of the Pacific Northwest. University of Washington Press. Seattle, Washington.
- Horn, E. 1972. Wildflowers 1: The Cascades. Touchstone Press. Beaverton, Oregon.
- Kuchler, A. W. 1966. Potential Natural Vegetation. USDI Geological Survey. 1969. Washington, D. C.
- Little, E. L., Jr. 1979. Checklist of United States Trees (Native and Naturalized). Agriculture Handbook No. 541. USDA Forest Service. Washington, D. C.
- Oregon Natural Heritage Program. 1991. Rare, Threatened and Endangered Plants and Animals of Oregon. Oregon Natural Heritage Program. Portland, Oregon.
- Peck, M. E. 1941. A Manual of the Higher Plants of Oregon. Binford and Mort. Portland, Oregon.
- Spellenberg, R. 1979. The Audubon Society Guide to North American Wildflowers: Western Region. Alfred A. Knopf, Inc. New York.

Vitt, D., J. E. Marsh, and R. B. Bovey. 1988. Mosses, Lichens & Ferns. Lone Pine Publishing. Edmonton, Alberta.

WILDLIFE

Eltzroth, M. S. 1987. Checklist of the Birds of Oregon. Audubon Society of Corvallis. Corvallis, Oregon.

Farrand, J., Jr. (editor). 1983. The Audubon Society Master Guide to Birding. Alfred A. Knopf. New York.

Ingles, L. G. 1965. Mammals of the Pacific States. Stanford University Press. Stanford, California.

Maser, C., B. R. Mate, J. F. Franklin, and C. T. Dyrness. 1984. Natural History of Oregon Coast Mammals. Museum of Natural History, University of Oregon. Eugene, Oregon.

Murie, O. J. 1974. A Field Guide to Animal Tracks. Houghton Mifflin Company. Boston.

Nussbaum, R. A., E. D. Brodie, and R. M. Storm. 1983. Amphibians and Mammals of the Pacific Northwest. University of Idaho Press. Moscow, Idaho.

Prigge, A. and L. Margenau. 1980. Birds of the Willamette Checklist. USDA Forest Service. Willamette National Forest. Eugene, Oregon.

Scott, S. L. (editor). 1983. Birds of North America. National Geographic Society. Washington, D. C.

Stebbins, R. C. 1966. A Field Guide to Western Reptiles and Amphibians. Houghton Mifflin Company. Boston.

Terres, J. K. 1980. The Audubon Society Encyclopedia of North American Birds. Alfred A. Knopf. New York.

USDA Forest Service. 1991. Draft Environmental Impact Statement on Management for the Northern Spotted Owl in the National Forests. USDA Forest Service. Portland, Oregon.

Verts, B. J. 1973. Keys to the Mammals of Oregon. OSU Book Stores, Corvallis, Oregon.

CLIMATE, SOILS, GEOLOGY, AND WATERSHED

Alt, D. D. and D. W. Hyndman. 1981. Roadside Geology of Oregon. Mountain Press Publishing Co. Missoula, Montana.

Beaulieu, J. D. 1971. Geologic Formations of Western Oregon. Oregon State Department of Geology and Mineral Industries, Bulletin 70. Salem, Oregon.

Bierlmeier, F. A. and A. McKee. 1989. Climatic Summaries and Documentation for the Primary Meteorological Station, H. J. Andrews Experimental Forest, 1972 to 1984. Gen. Tech. Rep. PNW-GTR-242. USDA Forest Service, Pacific Northwest Research Station. Portland, Oregon.

Harris, S. J. 1976. Fire and Ice. The Mountaineers and Pacific Search Press. Seattle, Washington.

Legard, H. and R. Meyer. 1973. Willamette National Forest Soil Resource Inventory. USDA Forest Service, Willamette National Forest. Eugene, Oregon.

Long, M. T. 1991. Geologic History, Origin, and Processes for the McKenzie Pass Highway; Clear Lake Highway; and Santiam Pass Highway. USDA Forest Service, Willamette National Forest. Eugene, Oregon.

Peck, D. L., A. B. Griggs., H. G. Schlicker, F. G. Wells, and H. M. Dole. 1964. Geology of the Central and Northern Parts of the Western Cascade Range in Oregon. U.S. Geological Survey Professional Paper 449.

Sherrod, D. R. 1986. Geology, Petrology, and Volcanic History of a Portion of the Cascade Range Between Latitudes 43° - 44° N, Central Oregon, U.S.A. Unpublished Ph.D. dissertation. University of California, Santa Barbara, California.

Sherrod, D. R. and J. G. Smith. 1989. Preliminary Map of Eocene to Holocene Volcanic and Related Rocks of the Cascade Range, Oregon. U.S. Department of the Interior, U.S. Geological Survey.

U. S. Fish and Wildlife Service. 1989a. Draft National Wetlands Inventory Map for Carpenter Mountain Quadrangle. U.S. Fish and Wildlife Service. Washington, D.C.

U. S. Fish and Wildlife Service. 1989b. Draft National Wetlands Inventory Map for Tidbits Mountain Quadrangle. U.S. Fish and Wildlife Service. Washington, D.C.

U. S. Geological Survey. 1967. Geological Map of Oregon West of the 121st Meridian. USDI Geological Survey.

Walker, G. W. and R. A. Duncan. 1989. Geologic Map of the Salem 1° by 2° Quadrangle, Western Oregon. USGS Miscellaneous Investigations Series Map I-1893. U. S. Geological Survey. Reston, Virginia.

CULTURAL RESOURCES

Baxter, P. W. 1986. Upland Adaptation in the Central Oregon Cascades. Unpublished Ph.D. Dissertation, University of Oregon. Eugene, Oregon.

Baxter, P. W., R. D. Cheatham, T. J. Connolly, and J. A. Willig. 1983. Rigdon's Horsepasture Cave: An Upland Hunting Camp in the Western Cascades. University of Oregon Anthropological Paper No. 28. University of Oregon. Eugene, Oregon.

Davis, C. M. 1988. Willamette National Forest Cultural Resource Inventory Plan. USDA Forest Service, Willamette National Forest. Eugene, Oregon.

MacArthur, L. 1982. Oregon Geographical Names. Western Imprints, The Press of the Oregon Historical Society. Portland, Oregon.

Minor, R. 1987. Cultural Resource Overview of the Willamette National Forest: A 10-Year Update. Heritage Research Associates. Eugene, Oregon.

Minor, R. and A. F. Pecor. 1977. Cultural Resource Overview of the Willamette National Forest, Western Oregon. University of Oregon Anthropological Paper No. 12. University of Oregon. Eugene, Oregon.

Oregon Writers Project. 1940. Oregon: End of the Trail. Binfords and Mort. Portland, Oregon.

USDA Forest Service. 1947. Improved Forest Camps of the National Forests, Oregon, 1947. USDA Forest Service, Pacific Northwest Region. Portland, Oregon.

Williams, J. 1982. Calapooya Trails. Calapooya Books, Eugene, Oregon.

GENERAL

Cascade, Santiam, and Willamette National Forests. 1921 - 1989. Forest Maps. On file at the University of Oregon Map Library. Eugene, Oregon.

Natural Heritage Advisory Council to the State Land Board. 1988. Oregon Natural Heritage Plan. State Land Board. Salem, Oregon.

Willamette National Forest. 1990. Land and Resource Management Plan. USDA Forest Service, Willamette National Forest. Eugene, Oregon.

Willamette National Forest. No date. Proposed Research
Natural Areas - Willamette National Forest. USDA Forest Service,
Willamette National Forest. Eugene, Oregon.

PERSONAL COMMUNICATIONS

Sweet Home Ranger District

Tom Carlson, Recreation Technician
Tony Farque, Archaeologist
Jeannette Hatcher, Transportation Planner
Virgil Morris, Wildlife Biologist
Doug Shank, Geologist

WNF Supervisor's Office

Jim Mayo, Timber Planner
Cindy McCain, Ecologist
Mike Ragan, Cartographic Technician
Bruce Watson, Lands

Siuslaw National Forest Supervisor's Office

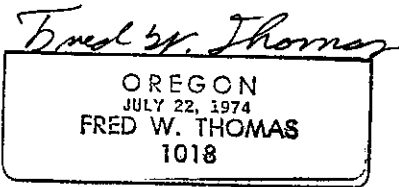
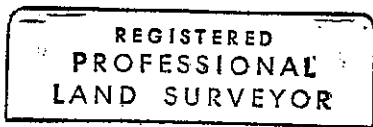
Janine Clayton, Zone Mining Geologist

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

Seal

Fred W. Thomas
Forest Land Surveyor

1-3-93
Date



APPENDIX

A - Excerpt from Oregon Natural Heritage Plan (Natural Heritage Advisory Council to the State Land Board 1988).

B - Excerpt from Land and Resource Management Plan (Willamette National Forest 1990)

C - Willamette National Forest wildlife habitats and species lists (Willamette National Forest - date unknown, and 1991)

D - Wildlife species lists from Middle Santiam RNA (Supplement No. 24) and Wildcat Mountain RNA: USDA Forest Service. 1972. Federal Research Natural Areas in Oregon and Washington: A Guidebook for Scientists and Educators. PNW Forest and Range Experiment Station. Corvallis, Oregon.

TERRESTRIAL ECOSYSTEMS - West Slopes and Crest, Oregon Cascades

| Agency | Priority | Element Name | Present Representation |
|--------------------------------|----------|--|--|
| Pacific Silver Fir Zone | | | |
| FS | H | 15. Silver fir/salal-Oregon grape community in northern or central Cascades. | |
| | + | 16. Silver fir/rhododendron/beargrass community in northern or central Cascades. | Big Bend Mountain PRNA |
| FS | H | 17. Silver fir forest with huckleberry, vine maple and vanillaleaf in southern Cascades. | |
| | + | 18. Silver fir/big huckleberry/beadlily on dry sites in northern or central Cascades. | Big Bend Mountain PRNA |
| | + | 19. Silver fir/rhododendron community. | Big Bend Mountain PRNA Bull Run RNA |
| | + | 20. Silver fir/big huckleberry/beargrass community. | Big Bend Mountain PRNA Bull Run RNA |
| | * | 21. Silver fir/Alaska huckleberry community. | Bull Run RNA Wildcat Mountain RNA |
| | * | 22. Silver fir/foamflower-Oregon oxalis community. | Bull Run RNA |
| | * | 23. Silver fir/azalea-fool's huckleberry community. | Bull Run RNA |
| | + | 24. Silver fir/Devil's club community. | Big Bend Mountain PRNA Bull Run RNA |
| | * | 25. Mountain meadow-Sitka alder thicket forest mosaic in the northern Cascades. | Olallie Ridge RNA |
| | * | 26. Mountain meadow-Sitka alder thicket forest mosaic in the south Cascades. | Upper Elk Meadows RNA |
| | * | 27. Mountain hemlock-silver fir/beargrass community. | Wildcat Mountain RNA |
| | * | 28. Engelmann spruce-subalpine fir forest. | Gold Lake Bog RNA |
| | + | 29. Alaska yellow cedar forest mosaic. | Three Creeks PRNA |

PVT = Private Land

ST = State Land

FS = U.S. Forest Service

NPS = National Park Service

ACE = Army Corps of Engineers

FWS = US Fish & Wildlife Service

BLM = Bureau of Land Management

P.. = Proposed.. RNA = Research Natural Area ACEC = Area of Critical Environmental Concern SLA = Special Interest Area
 TNC = Nature Conservancy Preserve NHCA = Natural Heritage Conservation Area RSNA = Registered State Natural Area

H = High Priority M = Medium Priority L = Low Priority + = Adequately represented on proposed but not established area
 * = Adequately represented in the area named ** = Partially protected due to designation, size, or quality at this site

MANAGEMENT AREA 4

MANAGEMENT AREA 4

Emphasis: Research Natural Areas

Management Goals

The goals of this management area are to preserve naturally occurring physical and biological units where natural conditions are maintained insofar as possible for the purposes of:

- Comparison with those lands influenced by man.
- Provision of educational and research areas for ecological and environmental studies.
- Preservation of gene pools for typical as well as rare and endangered plants and animals.

Desired Future Condition

Research Natural Areas (RNAs) will be managed to provide for naturally occurring physical and biological processes without undue human intervention. Plant and animal communities native to an area will be allowed to evolve unaltered, serving as a gene pool source and as a baseline for measuring long-term ecological change. RNAs will provide for nonmanipulative environmental research, observation and study. They will serve as control areas for comparing results from manipulative research, and for monitoring effects of resource management techniques and practices. Areas will preserve a wide spectrum of pristine values or natural settings that have unique educational and scientific interest. No programmed timber harvest will occur. Access will be limited to trails and roads that do not compromise the objectives of the RNA.

Description

This prescription applies to existing RNAs and areas recommended for inclusion during the life of this Plan. The sites designated as Research Natural Areas include:

| Area Name | Acres | District | Date Established |
|----------------------|-------|------------|------------------|
| Ollalie Ridge | 720 | McKenzie | 1963 |
| Gold Lake Bog | 463 | Oakridge | 1965 |
| Wildcat Mountain | 1,000 | Sweet Home | 1968 |
| Middle Santiam | 1,145 | Sweet Home | 1979 |
| Hagan Block | 1,280 | Blue River | 1990 |
| McKenzie Pass | 1,195 | McKenzie | 1990 |
| Rigdon Point | 300 | Rigdon | 1990 |
| Three Creeks | 661 | Sweet Home | 1990 |
| Torrey-Charlton | 2,154 | Oakridge | 1990 |
| Wildcat Mtn Addition | 384 | Sweet Home | 1990 |

Site-specific resource values and management activities will be prescribed in individual Establishment Records. The Regional Forester and Pacific Northwest Station Director will prepare an Establishment Report for each recommended area; this document will describe features, objectives for establishment, and specific management direction.

Standards and Guidelines

PLANNING

- MA-4-01** A management plan shall be prepared for each RNA to fulfill objectives of the Establishment Report.
- MA-4-02** An implementation schedule for baseline data collection and periodic remeasurement shall be prepared for each RNA. The baseline data will serve as a benchmark for research needs as well as for long-term assessments of changes in the forest ecosystem.
- MA-4-03** Ecological responses to management activities or natural disturbances on or adjacent to RNAs should be measured when appropriate. Studies may be prioritized based on the significance of the potential impact.

RECREATION MANAGEMENT

- MA-4-04** Area management practices should result in a physical setting that meets or exceeds the ROS class of Roded Natural.
- MA-4-05** Recreation activities and uses within RNAs shall be discouraged. This includes overnight camping; recreation use within 200 feet of lakes, ponds and streams; and pack and saddle stock use.
- MA-4-06** All recreation ORV use shall be prohibited.
- MA-4-07** Hunting and trapping shall be discouraged.
- MA-4-08** If other recreation use threatens research or education values, closures or permits should be instituted.
- MA-4-09** Educational use of an RNA should generally be directed toward the graduate level, but may be approved for any educational level.
- MA-4-10** On-site interpretive or demonstrative facilities shall be prohibited.
- MA-4-11** Publicity that would attract the general public to the RNA shall be avoided.

FOREST TRAIL SYSTEM

- MA-4-12** New trails shall not be constructed unless they are needed for research purposes. Existing trails may be allowed to remain as long as the RNA objectives are not compromised.

MANAGEMENT AREA 4

WILDERNESS

- MA-4-13** If an RNA is established within wilderness, wilderness management direction shall take precedence.

SCENIC RESOURCES

- MA-4-14** All design and implementation practices should be modified as necessary to meet the VQO of Preservation.

WILDLIFE MANAGEMENT

- MA-4-15** Introduction of exotic plant and animal species shall not be permitted. Reintroduction of former native species, including fish stocking, may be permitted if the objectives of the RNA are met.

- MA-4-16** Control of excessive animal populations should be evaluated and control activities may be implemented where such populations threaten the RNA objectives.

Habitat improvement projects may be approved if they meet the objectives of the RNA.

TIMBER MANAGEMENT

- MA-4-17** No programmed harvest shall be scheduled.
- MA-4-18** Cutting and removal of all vegetation, including firewood, shall be prohibited, except as part of approved scientific investigation.
- MA-4-19** Felled trees shall remain in place, unless lying across trail or road. Trees shall not be removed. Hazard tree felling may be permitted along boundary trails or roads for safety.

FIRE MANAGEMENT

- MA-4-20** If fire is used to perpetuate a sere, it should mimic a natural fire, but with prudent measures to avoid catastrophe. Managed or naturally occurring fire may be used to perpetuate the sere and thus the cell that the RNA is meant to represent.
- MA-4-21** Suppression strategies, practices and activities shall be limited to those which have minimal impacts to RNA values.
- MA-4-22** Chemical fire retardants shall be avoided.
- MA-4-23** Fuels normally should be allowed to accumulate at natural rates unless they threaten the objectives of the RNA.

INTEGRATED PEST MANAGEMENT

- MA-4-24** No action shall be taken against insects or diseases unless the outbreak threatens to drastically alter the natural ecological processes within the RNA or is an immediate threat to adjacent lands.

LANDS

- MA-4-25** Rights-of-way easements, including utility corridors, existing before RNA establishment shall be honored. Upgrading that would compromise the objectives of the RNA should be discouraged.
- MA-4-26** FERC licenses or permits that compromise the objectives of the RNA shall not be recommended.
- MA-4-27** All lands shall be retained and private inholdings acquired.

MINERALS AND ENERGY

- MA-4-28** RNAs shall be recommended for withdrawal from locatable mineral exploration.
- MA-4-29** RNAs may be recommended for lease issuance with a no surface occupancy stipulation.

FACILITIES

- MA-4-30** New trail or road construction should not occur, except to enhance RNA values.
- MA-4-31** Construction of new facilities shall be prohibited. Existing facilities may be allowed to deteriorate without replacement. Temporary research facilities and installations may be approved under permit.

USE OF HABITAT WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Temperate Conifer Forest (Douglas-fir/Western hemlock)
(Douglas-fir/True fir)

| GRASS/FORB | SHRUB STAGE | SAPLING - POLE (OPEN) | SAPLING - POLE (CLOSED) | LARGE SANTIMBER OR MATURE FOREST | OLD GROWTH |
|-------------------------|--------------------------|-----------------------------|-----------------------------|-------------------------------------|-----------------------------|
| Birds | | | | | |
| 1 common nighthawk | 1 Allen's hummingbird | 1 Allen's hummingbird | 1 Swainson's thrush | 1 Barrow's goldeneye | 1 Barrow's goldeneye |
| 1 white-crowned sparrow | 1 Brewer's blackbird | 1 American robin | 1 evening grosbeak | 1 Cooper's hawk | 1 Cooper's hawk |
| 2 California quail | 1 Townsend's solitaire | 1 Swainson's thrush | 1 golden-crowned kinglet | 1 Hammond's flycatcher | 1 Hammond's flycatcher |
| 2 Townsend's solitaire | 1 Vaux's swift | 1 Townsend's solitaire | 1 harlequin duck | 1 Steller's jay | 1 Steller's jay |
| 2 Vaux's swift | 1 blue grouse | 1 black-throat gray warbler | 1 pine siskin | 1 Swainson's thrush | 1 Swainson's thrush |
| 2 ring-necked pheasant | 1 brown-headed cowbird | 1 blue grouse | 1 sharp-shinned hawk | 1 Townsend's solitaire | 1 Townsend's solitaire |
| 2 turkey vulture | 1 chipping sparrow | 1 brown-headed cowbird | 2 American crow | 1 barred owl | 1 Vaux's swift |
| | 1 common nighthawk | 1 chipping sparrow | 2 American robin | 1 brown creeper | 1 bald eagle |
| | 1 dark-eyed junco | 1 dark-eyed junco | 2 Cooper's hawk | 1 bufflehead | 1 barred owl |
| | 1 hermit thrush | 1 hermit thrush | 2 Hammond's flycatcher | 1 chestnut-backed chickadee | 1 brown creeper |
| | 1 rufous hummingbird | 1 mountain quail | 2 Steller's jay | 1 common raven | 1 bufflehead |
| | 1 rufous-sided towhee | 1 orange-crowned warbler | 2 Wilson's warbler | 1 dark-eyed junco | 1 chestnut-backed chickadee |
| | 1 white-crowned sparrow | 1 purple finch | 2 barred owl | 1 evening grosbeak | 1 common merganser |
| | 1 yellow-rumped warbler | 1 rufous hummingbird | 2 black-headed grosbeak | 1 golden-crowned kinglet | 1 common raven |
| | 2 American goldfinch | 1 rufous-sided towhee | 2 black-throat gray warbler | 1 gray jay | 1 dark-eyed junco |
| | 2 American robin | 1 yellow-rumped warbler | 2 brown creeper | 1 great blue heron | 1 golden eagle |
| | 2 California quail | 2 American crow | 2 brown-headed cowbird | 1 great horned owl | 1 golden-crowned kinglet |
| | 2 Hutton's vireo | 2 American goldfinch | 2 chestnut-backed chickadee | 1 harlequin duck | 1 gray jay |
| | 2 MacGillivray's warbler | 2 Brewer's blackbird | 2 dark-eyed junco | 1 hermit thrush | 1 hairy woodpecker |
| | 2 Nashville warbler | 2 Cooper's hawk | 2 gray jay | 1 hermit warbler | 1 harlequin duck |
| | 2 Swainson's thrush | 2 Hammond's flycatcher | 2 hairy woodpecker | 1 hooded merganser | 1 hermit thrush |
| | 2 Wilson's warbler | 2 Hutton's vireo | 2 hermit thrush | 1 northern flicker | 1 hermit warbler |
| | 2 black-headed grosbeak | 2 MacGillivray's warbler | 2 long-eared owl | 1 northern goshawk | 1 hooded merganser |
| | 2 fox sparrow | 2 Nashville warbler | 2 mourning dove | 1 northern pygmy-owl | 1 northern flicker |
| | 2 mourning dove | 2 Steller's jay | 2 northern pygmy-owl | 1 olive-sided flycatcher | 1 northern goshawk |
| | 2 orange-crowned warbler | 2 Wilson's warbler | 2 purple finch | 1 pine siskin | 1 northern pygmy-owl |
| | 2 ruffed grouse | 2 black-headed grosbeak | 2 red-breasted nuthatch | 1 red crossbill | 1 northern saw-whet owl |
| | 2 song sparrow | 2 fox sparrow | 2 red-breasted sapsucker | 1 red-breasted nuthatch | 1 olive-sided flycatcher |
| | 2 turkey vulture | 2 mourning dove | 2 ruby-crowned kinglet | 1 ruby-crowned kinglet | 1 pileated woodpecker |
| | | 2 pine siskin | 2 ruffed grouse | 1 rufous hummingbird | 1 pine siskin |
| | | 2 ruffed grouse | 2 solitary vireo | 1 sharp-shinned hawk | 1 purple finch |
| | | 2 sharp-shinned hawk | 2 varied thrush | 1 solitary vireo | 1 red crossbill |
| | | 2 solitary vireo | 2 western wood-pewee | 1 song sparrow | 1 red-breasted nuthatch |
| | | 2 song sparrow | 2 winter wren | 1 varied thrush | 1 red-tailed hawk |
| | | 2 warbling vireo | 2 yellow-rumped warbler | 1 western tanager | 1 ruby-crowned kinglet |
| | | 2 white-crowned sparrow | | 1 western wood-pewee | 1 sharp-shinned hawk |
| | | | | 1 winter wren | 1 solitary vireo |
| | | | | 1 wood duck | 1 spotted owl |
| | | | | 2 American crow | 1 tree swallow |
| | | | | 2 American kestrel | 1 varied thrush |
| | | | | 2 American robin | 1 western flycatcher |
| | | | | 2 European starling | 1 western tanager |
| | | | | 2 MacGillivray's warbler | 1 western wood-pewee |
| | | | | 2 Nashville warbler | 1 winter wren |
| | | | | 2 Townsend's warbler | 1 wood duck |
| | | | | 2 Vaux's swift | 2 Allen's hummingbird |

1 = Primary Habitat

2 = Secondary Habitat

USE OF HABITATS . WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Temperate Conifer Forest (Douglas-fir/Western hemlock)
(Douglas-fir/True fir)

| GRASS/FORB | SHRUB STAGE | SAPLING - POLE (OPEN) | SAPLING - POLE (CLOSED) | LARGE SANTIEMER OR MATURE FOREST | OLD GROWTH |
|--------------|-------------|--------------------------|----------------------------|-------------------------------------|---------------------------|
| <u>Birds</u> | | | | | |
| | | | | (Continued) | (Continued) |
| | | | | 2 Wilson's warbler | 2 American crow |
| | | | | 2 black-headed grosbeak | 2 American kestrel |
| | | | | 2 black-throat gray wrbtr | 2 American robin |
| | | | | 2 brown-headed cowbird | 2 European starling |
| | | | | 2 chipping sparrow | 2 Nashville warbler |
| | | | | 2 common barn-owl | 2 Townsend's warbler |
| | | | | 2 great egret | 2 Wilson's warbler |
| | | | | 2 long-eared owl | 2 black-headed grosbeak |
| | | | | 2 mourning dove | 2 black-throat gray wrbtr |
| | | | | 2 northern saw-whet owl | 2 brown-headed cowbird |
| | | | | 2 osprey | 2 chipping sparrow |
| | | | | 2 pileated woodpecker | 2 common barn-owl |
| | | | | 2 purple finch | 2 great blue heron |
| | | | | 2 red-breasted sapsucker | 2 long-eared owl |
| | | | | 2 red-tailed hawk | 2 mourning dove |
| | | | | 2 ruffed grouse | 2 orange-crowned warbler |
| | | | | 2 rufous-sided towhee | 2 osprey |
| | | | | 2 tree swallow | 2 red-breasted sapsucker |
| | | | | 2 violet-green swallow | 2 ruffed grouse |
| | | | | 2 western flycatcher | 2 rufous hummingbird |
| | | | | 2 western screech-owl | 2 rufous-sided towhee |
| | | | | | 2 turkey vulture |
| | | | | | 2 violet-green swallow |
| | | | | | 2 western screech-owl |

Amphibians and Reptiles

| | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 N.W. garter snake | 1 N.W. garter snake | 1 clouded salamander | 1 OR slender salamander | 1 OR slender salamander | 1 OR slender salamander |
| 1 clouded salamander | 1 clouded salamander | 1 ensatina | 1 clouded salamander | 1 west red-backed slmndr | 1 west red-backed slmndr |
| 1 north alligator lizard | 1 north alligator lizard | 1 north alligator lizard | 1 west red-backed slmndr | 2 clouded salamander | 2 clouded salamander |
| 1 racer | 1 racer | 1 rubber boa | 2 ensatina | 2 ensatina | 2 ensatina |
| 1 rubber boa | 1 ringneck snake | 1 west red-backed slmndr | 2 north alligator lizard | 2 north alligator lizard | 2 north alligator lizard |
| 1 western fence lizard | 1 rubber boa | 1 western fence lizard | 2 ringneck snake | 2 ringneck snake | 2 ringneck snake |
| 1 western pond turtle | 1 western fence lizard | 1 western pond turtle | 2 rubber boa | 2 rubber boa | 2 rubber boa |
| 1 western skink | 1 western pond turtle | 2 OR slender salamander | 2 sharptail snake | 2 sharptail snake | 2 sharptail snake |
| 2 OR slender salamander | 1 western skink | 2 common garter snake | 2 western fence lizard | | |
| 2 common garter snake | 2 OR slender salamander | 2 ringneck snake | | | |
| 2 gopher snake | 2 common garter snake | 2 sharptail snake | | | |
| 2 ringneck snake | 2 gopher snake | 2 western skink | | | |
| 2 sharptail snake | 2 sharptail snake | | | | |
| | 2 west red-backed slmndr | | | | |

1 = Primary Habitat
2 = Secondary Habitat

USE OF HABITATS -- WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Temperate Conifer Forest (Douglas-fir/Western hemlock)
(Douglas-fir/true fir)

| GRASS/FORB | SHRUB STAGE | SAPLING -- POLE (OPEN) | SAPLING -- POLE (CLOSED) | LARGE SANTIEMBER OR MATURE FOREST | OLD GROWTH |
|---------------------------|---------------------------|---------------------------|-----------------------------|--------------------------------------|---------------------------|
| Mammals | | | | | |
| 1 CA ground squirrel | 1 Pacific jumping mouse | 1 Douglas' squirrel | 1 Douglas' squirrel | 1 California myotis | 1 California myotis |
| 1 Pacific jumping mouse | 1 Roosevelt elk | 1 Roosevelt elk | 1 Townsend's chipmunk | 1 Townsend's chipmunk | 1 Douglas' squirrel |
| 1 Townsend's vole | 1 Townsend's vole | 1 Townsend's chipmunk | 1 Townsend's chipmunk | 1 Townsend's chipmunk | 1 Townsend's chipmunk |
| 1 coast mole | 1 bobcat | 1 bobcat | 1 black bear | 1 Trowbridge's shrew | 1 Trowbridge's shrew |
| 1 coyote | 1 coyote | 1 coast mole | 1 bushy-tailed woodrat | 1 Yuma myotis | 1 Yuma myotis |
| 1 creeping vole | 1 deer mouse | 1 coyote | 1 dusky-footed woodrat | 1 black bear | 1 big brown bat |
| 1 ermine (sht-tld weasel) | 1 deer mouse | 1 creeping vole | 1 ermine (sht-tld weasel) | 1 bushy-tailed woodrat | 1 black bear |
| 1 long-tailed vole | 1 dusky-footed woodrat | 1 deer mouse | 1 ermine (sht-tld weasel) | 1 dusky shrew | 1 bushy-tailed woodrat |
| 1 mule deer/blk-tld deer | 1 long-tailed vole | 1 dusky-footed woodrat | 1 ermine (sht-tld weasel) | 1 dusky-footed woodrat | 1 dusky shrew |
| 1 red fox | 1 long-tailed weasel | 1 long-tailed weasel | 1 porcupine | 1 ermine (sht-tld weasel) | 1 dusky-footed woodrat |
| 1 vagrant shrew | 1 mountain beaver | 1 mountain beaver | 1 raccoon | 1 fisher | 1 ermine (sht-tld weasel) |
| 1 Townsend's chipmunk | 1 mountain lion | 1 mule deer/blk-tld deer | 1 red tree vole | 1 hoary bat | 2 fisher |
| 2 Virginia opossum | 1 porcupine | 1 spotted skunk | 1 shrew-mole | 1 long-legged myotis | 1 hoary bat |
| 2 badger | 1 mule deer/blk-tld deer | 2 California myotis | 1 western red-backed vole | 1 long-legged myotis | 1 little brown myotis |
| 2 brush rabbit | 1 porcupine | 2 Pacific jumping mouse | 2 California myotis | 1 marten | 1 long-eared myotis |
| 2 deer mouse | 1 red fox | 2 Pacific jumping mouse | 2 Pacific jumping mouse | 1 mountain lion | 1 long-legged myotis |
| 2 dusky shrew | 1 snowshoe hare | 2 Townsend's vole | 2 Yuma myotis | 1 north flying squirrel | 2 marten |
| 2 glnd-mtld grnd squirrel | 1 spotted skunk | 2 Townsend's vole | 2 bobcat | 1 porcupine | 1 north flying squirrel |
| 2 mink | 2 Townsend's chipmunk | 2 Townsend's vole | 2 brush rabbit | 1 raccoon | 1 porcupine |
| 2 mountain beaver | 2 Townsend's mole | 2 Virginia opossum | 2 coast mole | 1 shrew-mole | 1 raccoon |
| 2 raccoon | 2 Virginia opossum | 2 brush rabbit | 2 coyote | 1 western red-backed vole | 1 red tree vole |
| 2 river otter | 2 brush rabbit | 2 bushy-tailed woodrat | 2 creeping vole | 2 Pacific jumping mouse | 1 western red-backed vole |
| 2 shrew-mole | 2 bushy-tailed woodrat | 2 dusky shrew | 2 deer mouse | 2 Virginia opossum | 2 bobcat |
| 2 striped skunk | 2 dusky shrew | 2 ermine (sht-tld weasel) | 2 glnd-mtld grnd squirrel | 2 big brown bat | 2 brush rabbit |
| 2 vagrant shrew | 2 ermine (sht-tld weasel) | 2 glnd-mtld grnd squirrel | 2 little brown myotis | 2 bobcat | 2 coast mole |
| 2 western pocket gopher | 2 glnd-mtld grnd squirrel | 2 gray fox | 2 long-eared myotis | 2 brush rabbit | 2 coyote |
| 2 yellow-pine chipmunk | 2 gray fox | 2 long-tailed vole | 2 long-legged myotis | 2 coast mole | 2 creeping vole |
| | 2 mink | 2 mink | 2 long-tailed weasel | 2 coyote | 2 deer mouse |
| | 2 raccoon | 2 raccoon | 2 mountain beaver | 2 creeping vole | 2 glnd-mtld grnd squirrel |
| | 2 river otter | 2 red fox | 2 mountain lion | 2 deer mouse | 2 long-tailed weasel |
| | 2 shrew-mole | 2 river otter | 2 mule deer/blk-tld deer | 2 glnd-mtld grnd squirrel | 2 mink |
| | 2 striped skunk | 2 shrew-mole | 2 north flying squirrel | 2 little brown myotis | 2 mountain beaver |
| | 2 vagrant shrew | 2 snowshoe hare | 2 red fox | 2 long-eared myotis | 2 mountain lion |
| | 2 western pocket gopher | 2 vagrant shrew | 2 river otter | 2 long-tailed weasel | 2 mule deer/blk-tld deer |
| | 2 yellow-pine chipmunk | 2 yellow-pine chipmunk | 2 snowshoe hare | 2 mink | 2 river otter |
| | | | 2 snowshoe hare | 2 mountain beaver | 2 shrew-mole |
| | | | 2 vagrant shrew | 2 mule deer/blk-tld deer | 2 silver-haired bat |
| | | | 2 western gray squirrel | 2 river otter | 2 snowshoe hare |
| | | | 2 yellow-pine chipmunk | 2 silver-haired bat | 2 vagrant shrew |
| | | | | 2 snowshoe hare | 2 western gray squirrel |
| | | | | 2 vagrant shrew | |
| | | | | 2 western gray squirrel | |

1 = Primary Habitat
2 = Secondary Habitat

USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: High Temperate Conifer Forest (True Fir Association)

| GRASS/FORB | SHRUB STAGE | SAPLING - POLE (OPEN) | SAPLING - POLE (CLOSED) | LARGE SAWTIMBER OR MATURE FOREST | OLD GROWTH |
|-------------------------|--------------------------|--------------------------|-----------------------------|-------------------------------------|-----------------------------|
| Birds | | | | | |
| 1 common nighthawk | 1 Townsend's solitaire | 1 American robin | 1 evening grosbeak | 1 Barrow's goldeneye | 1 Barrow's goldeneye |
| 2 Townsend's solitaire | 1 blue grouse | 1 Townsend's solitaire | 1 golden-crowned kinglet | 1 Cooper's hawk | 1 Cooper's hawk |
| 2 mountain bluebird | 1 dark-eyed junco | 1 blue grouse | 1 harlequin duck | 1 Hammond's flycatcher | 1 Hammond's flycatcher |
| 2 mountain quail | 1 dusky flycatcher | 1 dark-eyed junco | 1 pine siskin | 1 gray jay | 1 gray jay |
| 2 turkey vulture | 1 hermit thrush | 1 dusky flycatcher | 1 sharp-shinned hawk | 1 Steller's jay | 1 Steller's jay |
| 2 white-crowned sparrow | 1 rufous hummingbird | 1 hermit thrush | 2 American crow | 1 Townsend's solitaire | 1 Townsend's solitaire |
| | 1 yellow-rumped warbler | 1 orange-crowned warbler | 2 American robin | 1 Townsend's warbler | 1 Townsend's warbler |
| | 2 American robin | 1 pine grosbeak | 2 Cassin's finch | 1 barred owl | 1 Vaux's swift |
| | 2 Brewer's blackbird | 1 yellow-rumped warbler | 2 Cooper's hawk | 1 brown creeper | 1 bald eagle |
| | 2 Lincoln's sparrow | 2 American crow | 2 Hammond's flycatcher | 1 bufflehead | 1 barred owl |
| | 2 MacGillivray's warbler | 2 Brewer's blackbird | 2 Steller's jay | 1 common merganser | 1 brown creeper |
| | 2 Nashville warbler | 2 Cooper's hawk | 2 Wilson's warbler | 1 common raven | 1 bufflehead |
| | 2 Swainson's thrush | 2 MacGillivray's warbler | 2 band-tailed pigeon | 1 dark-eyed junco | 1 chestnut-backed chickadee |
| | 2 Wilson's warbler | 2 Nashville warbler | 2 barred owl | 1 evening grosbeak | 1 common merganser |
| | 2 brown-headed cowbird | 2 Steller's jay | 2 black-backed woodpecker | 1 golden-crowned kinglet | 1 dark-eyed junco |
| | 2 chipping sparrow | 2 Swainson's thrush | 2 brown creeper | 1 great horned owl | 1 evening grosbeak |
| | 2 fox sparrow | 2 Wilson's warbler | 2 brown-headed cowbird | 1 hairy woodpecker | 1 golden-crowned kinglet |
| | 2 green-tailed towhee | 2 band-tailed pigeon | 2 brown-headed cowbird | 1 harlequin duck | 1 great horned owl |
| | 2 mountain bluebird | 2 brown-headed cowbird | 2 chestnut-backed chickadee | 1 hermit thrush | 1 hairy woodpecker |
| | 2 mountain quail | 2 calliope hummingbird | 2 dark-eyed junco | 1 hermit warbler | 1 harlequin duck |
| | 2 orange-crowned warbler | 2 chipping sparrow | 2 hairy woodpecker | 1 hooded merganser | 1 hermit thrush |
| | 2 turkey vulture | 2 fox sparrow | 2 hermit thrush | 1 mountain chickadee | 1 hermit warbler |
| | 2 white-crowned sparrow | 2 green-tailed towhee | 2 long-eared owl | 1 northern flicker | 1 hooded merganser |
| | | 2 mountain quail | 2 mountain chickadee | 1 northern goshawk | 1 mountain chickadee |
| | | 2 pine siskin | 2 northern pygmy-owl | 1 olive-sided flycatcher | 1 northern flicker |
| | | 2 rufous hummingbird | 2 pine grosbeak | 1 pine grosbeak | 1 northern goshawk |
| | | 2 sharp-shinned hawk | 2 red-breasted sapsucker | 1 red-breasted nuthatch | 1 northern pygmy-owl |
| | | 2 solitary vireo | 2 red-breasted sapsucker | 1 red crossbill | 1 northern saw-whet owl |
| | | 2 warbling vireo | 2 ruby-crowned kinglet | 1 red-breasted nuthatch | 1 olive-sided flycatcher |
| | | 2 white-crowned sparrow | 2 rufous hummingbird | 1 ruby-crowned kinglet | 1 pileated woodpecker |
| | | | 2 solitary vireo | 1 sharp-shinned hawk | 1 pine grosbeak |
| | | | 2 three-toed woodpecker | 1 sharp-shinned hawk | 1 pine siskin |
| | | | 2 varied thrush | 1 solitary vireo | 1 red crossbill |
| | | | 2 western wood-pewee | 1 varied thrush | 1 red-breasted nuthatch |
| | | | 2 white-headed woodpecker | 1 winter wren | 1 red-tailed hawk |
| | | | 2 winter wren | 2 American crow | 1 ruby-crowned kinglet |
| | | | 2 yellow-rumped warbler | 2 American kestrel | 1 sharp-shinned hawk |
| | | | | 2 American robin | 1 solitary vireo |
| | | | | 2 Cassin's finch | 1 varied thrush |
| | | | | 2 Clark's nutcracker | 1 winter wren |
| | | | | 2 MacGillivray's warbler | 2 American crow |
| | | | | 2 Nashville warbler | 2 American kestrel |
| | | | | 2 Swainson's thrush | 2 American robin |
| | | | | 2 Vaux's swift | 2 Cassin's finch |
| | | | | | 2 Clark's nutcracker |

1 = Primary Habitat
2 = Secondary Habitat

USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: High Temperature Conifer Forest (True Fir Association)

| GRASS/FORB Birds | SHRUB STAGE | SAPLING - POLE (OPEN) | SAPLING - POLE (CLOSED) | LARGE SAWTIMBER OR MATURE FOREST | OLD GROWTH |
|--------------------------------|--------------------------|--------------------------|----------------------------|-------------------------------------|---------------------------|
| | | | | (Continued) | (Continued) |
| | | | | 2 Wilson's warbler | 2 Nashville warbler |
| | | | | 2 band-tailed pigeon | 2 Swainson's thrush |
| | | | | 2 black-backed woodpecker | 2 Wilson's warbler |
| | | | | 2 brown-headed cowbird | 2 band-tailed pigeon |
| | | | | 2 chipping sparrow | 2 black-backed woodpecker |
| | | | | 2 long-eared owl | 2 brown-headed cowbird |
| | | | | 2 northern saw-whet owl | 2 chipping sparrow |
| | | | | 2 osprey | 2 long-eared owl |
| | | | | 2 pileated woodpecker | 2 orange-crowned warbler |
| | | | | 2 red-breasted sapsucker | 2 osprey |
| | | | | 2 red-tailed hawk | 2 red-breasted sapsucker |
| | | | | 2 three-toed woodpecker | 2 rufous hummingbird |
| | | | | 2 tree swallow | 2 spotted owl |
| | | | | 2 violet-green swallow | 2 three-toed woodpecker |
| | | | | 2 western flycatcher | 2 tree swallow |
| | | | | 2 western screech-owl | 2 turkey vulture |
| | | | | 2 western wood-pewee | 2 violet-green swallow |
| | | | | 2 white-headed woodpecker | 2 western flycatcher |
| | | | | | 2 western screech-owl |
| | | | | | 2 western wood-pewee |
| | | | | | 2 white-headed woodpecker |
| <u>Amphibians and Reptiles</u> | | | | | |
| 1 north alligator lizard | 1 north alligator lizard | 1 ensatina | 1 OR slender salamander | 1 OR slender salamander | 1 OR slender salamander |
| 1 rubber boa | 1 rubber boa | 1 north alligator lizard | 2 clouded salamander | 2 clouded salamander | 2 ensatina |
| 2 OR slender salamander | 2 OR slender salamander | 1 rubber boa | 2 ensatina | 2 ensatina | 2 north alligator lizard |
| 2 clouded salamander | 2 clouded salamander | 2 OR slender salamander | 2 clouded salamander | 2 clouded salamander | 2 ringneck snake |
| 2 common garter snake | 2 common garter snake | 2 common garter snake | 2 ringneck snake | 2 ringneck snake | 2 rubber boa |
| 2 racer | 2 racer | 2 common garter snake | 2 rubber boa | 2 rubber boa | |
| 2 ringneck snake | 2 ringneck snake | 2 ringneck snake | | | |
| 2 western fence lizard | 2 western fence lizard | 2 ringneck snake | | | |
| 2 western pond turtle | 2 western pond turtle | 2 western fence lizard | | | |
| 2 western skink | 2 western skink | 2 western pond turtle | | | |
| | | 2 western skink | | | |

1 = Primary Habitat
2 = Secondary Habitat

USE OF HABITAT... BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: High Temperature Conifer Forest (True Fir Association)

| GRASS/FORB | SHRUB STAGE | SAPLING - POLE (OPEN) | SAPLING - POLE (CLOSED) | LARGE SAWTIMBER OR MATURE FOREST | OLD GROWTH |
|--------------------------|--------------------------|--------------------------|----------------------------|-------------------------------------|---------------------------|
| Mammals | | | | | |
| 1 Pacific jumping mouse | 1 Pacific jumping mouse | 1 Douglas' squirrel | 1 Douglas' squirrel | 1 Douglas' squirrel | 1 Douglas' squirrel |
| 1 coast mole | 1 Roosevelt elk | 1 Roosevelt elk | 1 Townsend's chipmunk | 1 Townsend's chipmunk | 1 Townsend's chipmunk |
| 1 coyote | 1 bobcat | 1 Townsend's chipmunk | 1 Townsend's chipmunk | 1 Townsend's chipmunk | 1 Townsend's chipmunk |
| 1 creeping vole | 1 coast mole | 1 bobcat | 1 black bear | 1 Yuma myotis | 1 Yuma myotis |
| 1 long-tailed weasel | 1 coyote | 1 coast mole | 1 bushy-tailed woodrat | 1 big brown bat | 1 big brown bat |
| 1 mule deer/bk-ld deer | 1 creeping vole | 1 coyote | 1 dusky shrew | 1 black bear | 1 black bear |
| 1 vagrant shrew | 1 deer mouse | 1 creeping vole | 1 ermine (sht-ld weasel) | 1 bushy-tailed woodrat | 1 bushy-tailed woodrat |
| 1 western pocket gopher | 1 gl'n-mtd grnd squirrel | 1 deer mouse | 1 gl'n-mtd grnd squirrel | 1 dusky shrew | 1 dusky shrew |
| 1 yellow-bellied marmot | 1 long-tailed weasel | 1 gl'n-mtd grnd squirrel | 1 western red-backed vole | 1 ermine (sht-ld weasel) | 1 ermine (sht-ld weasel) |
| 2 CA ground squirrel | 1 mink | 1 long-tailed weasel | 2 California myotis | 1 fisher | 1 fisher |
| 2 Townsend's chipmunk | 1 mountain beaver | 1 long-tailed weasel | 2 Pacific jumping mouse | 1 gl'n-mtd grnd squirrel | 1 gl'n-mtd grnd squirrel |
| 2 Townsend's mole | 1 mountain lion | 1 mountain beaver | 2 Yuma myotis | 1 hoary bat | 1 hoary bat |
| 2 Townsend's vole | 1 mule deer/bk-ld deer | 1 mule deer/bk-ld deer | 2 bobcat | 1 long-legged myotis | 1 long-legged myotis |
| 2 brush rabbit | 1 snowshoe hare | 1 yellow-pine chipmunk | 2 brush rabbit | 1 marten | 1 marten |
| 2 deer mouse | 1 yellow-pine chipmunk | 2 Pacific jumping mouse | 2 coast mole | 1 mountain lion | 1 north flying squirrel |
| 2 dusky shrew | 2 CA ground squirrel | 2 Townsend's mole | 2 creeping vole | 1 western red-backed vole | 1 western red-backed vole |
| 2 gl'n-mtd grnd squirrel | 2 Townsend's chipmunk | 2 Townsend's mole | 2 deer mouse | 2 California myotis | 2 California myotis |
| 2 heather vole | 2 Townsend's mole | 2 black bear | 2 little brown myotis | 2 Pacific jumping mouse | 2 Pacific jumping mouse |
| 2 long-tailed vole | 2 brush rabbit | 2 brush rabbit | 2 long-legged myotis | 2 bobcat | 2 bobcat |
| 2 mink | 2 bushy-tailed woodrat | 2 bushy-tailed woodrat | 2 long-tailed weasel | 2 brush rabbit | 2 brush rabbit |
| 2 mountain beaver | 2 dusky shrew | 2 ermine (sht-ld weasel) | 2 mink | 2 coyote | 2 coyote |
| 2 raccoon | 2 ermine (sht-ld weasel) | 2 long-eared myotis | 2 mountain lion | 2 creeping vole | 2 creeping vole |
| 2 red fox | 2 heather vole | 2 long-tailed vole | 2 mule deer/bk-ld deer | 2 deer mouse | 2 deer mouse |
| 2 river otter | 2 long-tailed vole | 2 porcupine | 2 north flying squirrel | 2 heather vole | 2 heather vole |
| 2 shrew-mole | 2 raccoon | 2 red fox | 2 porcupine | 2 little brown myotis | 2 little brown myotis |
| 2 spotted skunk | 2 river otter | 2 shrew-mole | 2 raccoon | 2 long-tailed weasel | 2 mink |
| 2 vagrant shrew | 2 shrew-mole | 2 snowshoe hare | 2 red fox | 2 mountain beaver | 2 mountain lion |
| 2 western pocket gopher | 2 spotted skunk | 2 vagrant shrew | 2 yellow-pine chipmunk | 2 porcupine | 2 mule deer/bk-ld deer |
| | | | | 2 raccoon | 2 porcupine |
| | | | | 2 red tree vole | 2 red tree vole |
| | | | | 2 river otter | 2 river otter |
| | | | | 2 shrew-mole | 2 shrew-mole |
| | | | | 2 silver-haired bat | 2 silver-haired bat |
| | | | | 2 snowshoe hare | 2 snowshoe hare |
| | | | | 2 vagrant shrew | 2 vagrant shrew |
| | | | | 2 wolverine | 2 wolverine |
| | | | | 2 yellow-pine chipmunk | 2 yellow-pine chipmunk |

1 = Primary Habitat
2 = Secondary Habitat

USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING
HABITAT TYPE: Subalpine Forest (Mountain Hemlock)

| GRASS/FORB | SHRUB STAGE | SAPLING - POLE (OPEN) | SAPLING - POLE (CLOSED) | LARGE SAWTIMBER OR MATURE FOREST | OLD GROWTH |
|-------------------------|-------------------------|--------------------------|----------------------------|-------------------------------------|---------------------------|
| Birds | | | | | |
| 1 common nighthawk | 1 Townsend's solitaire | 1 American robin | 1 Cassin's finch | 1 Barrow's goldeneye | 1 Barrow's goldeneye |
| 1 mountain bluebird | 1 calliope hummingbird | 1 Townsend's solitaire | 1 calliope hummingbird | 1 Cassin's finch | 1 Cassin's finch |
| 1 rosy finch | 1 common nighthawk | 1 calliope hummingbird | 1 evening grosbeak | 1 Clark's nutcracker | 1 Clark's nutcracker |
| 1 water pipit | 1 dark-eyed junco | 1 dark-eyed junco | 1 golden-crowned kinglet | 1 Steller's jay | 1 Hammond's flycatcher |
| 1 white-crowned sparrow | 1 fox sparrow | 1 fox sparrow | 1 pine siskin | 1 Townsend's solitaire | 1 gray jay |
| 2 Townsend's solitaire | 1 hermit thrush | 1 hermit thrush | 1 sharp-shinned hawk | 1 Townsend's warbler | 1 Steller's jay |
| 2 mountain quail | 1 mountain bluebird | 1 pine grosbeak | 2 American robin | 1 bufflehead | 1 Townsend's solitaire |
| 2 turkey vulture | 1 white-crowned sparrow | 1 white-crowned sparrow | 2 Steller's jay | 1 calliope hummingbird | 1 Townsend's warbler |
| | 1 yellow-rumped warbler | 1 yellow-rumped warbler | 2 Wilson's warbler | 1 common raven | 1 black-backed woodpecker |
| | 2 American robin | 2 Steller's jay | 2 black-backed woodpecker | 1 evening grosbeak | 1 bufflehead |
| | 2 Lincoln's sparrow | 2 band-tailed pigeon | 2 brown creeper | 1 golden-crowned kinglet | 1 calliope hummingbird |
| | 2 Wilson's warbler | 2 chipmunk sparrow | 2 dark-eyed junco | 1 gray jay | 1 common raven |
| | 2 chipmunk sparrow | 2 mountain quail | 2 fox sparrow | 1 hermit thrush | 1 dark-eyed junco |
| | 2 turkey vulture | 2 pine siskin | 2 gray jay | 1 mountain chickadee | 1 evenng grosbeak |
| | | 2 sharp-shinned hawk | 2 hermit thrush | 1 northern flicker | 1 golden-crowned kinglet |
| | | | 2 long-eared owl | 1 northern flicker | 1 hermit thrush |
| | | | 2 mountain chickadee | 1 pine grosbeak | 1 mountain chickadee |
| | | | 2 northern pygmy-owl | 1 pine siskin | 1 northern flicker |
| | | | 2 red-breasted nuthatch | 1 red crossbill | 1 northern goshawk |
| | | | 2 ruby-crowned kinglet | 1 rufous hummingbird | 1 pine grosbeak |
| | | | 2 rufous hummingbird | 1 sharp-shinned hawk | 1 pine siskin |
| | | | 2 three-toed woodpecker | 1 three-toed woodpecker | 1 red crossbill |
| | | | 2 varied thrush | 1 varied thrush | 1 red-breasted nuthatch |
| | | | 2 yellow-rumped warbler | 2 American kestrel | 1 sharp-shinned hawk |
| | | | | 2 American robin | 1 three-toed woodpecker |
| | | | | 2 Hammond's flycatcher | 1 varied thrush |
| | | | | 2 Vaux's swift | 2 American kestrel |
| | | | | 2 Wilson's warbler | 2 American robin |
| | | | | 2 band-tailed pigeon | 2 Vaux's swift |
| | | | | 2 black-backed woodpecker | 2 Wilson's warbler |
| | | | | 2 brown creeper | 2 band-tailed pigeon |
| | | | | 2 chipmunk sparrow | 2 brown creeper |
| | | | | 2 fox sparrow | 2 chipmunk sparrow |
| | | | | 2 great horned owl | 2 fox sparrow |
| | | | | 2 hairy woodpecker | 2 great horned owl |
| | | | | 2 hermit warbler | 2 hairy woodpecker |
| | | | | 2 long-eared owl | 2 hermit warbler |
| | | | | 2 northern pygmy-owl | 2 long-eared owl |
| | | | | 2 olive-sided flycatcher | 2 northern pygmy-owl |
| | | | | 2 osprey | 2 olive-sided flycatcher |
| | | | | 2 ruby-crowned kinglet | 2 osprey |
| | | | | 2 violet-green swallow | 2 ruby-crowned kinglet |
| | | | | 2 western screech-owl | 2 rufous hummingbird |
| | | | | | 2 turkey vulture |
| | | | | | 2 violet-green swallow |
| | | | | | 2 western screech-owl |
| | | | | | 2 western tanager |

USE OF HABIT. BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Subalpine Forest (Mountain Hemlock)

| GRASS/FORB | SHRUB STAGE | SAPLING - POLE (OPEN) | SAPLING - POLE (CLOSED) | LARGE SAWTIMBER OR MATURE FOREST | OLD GROWTH |
|--------------------------------|--------------------------|--------------------------|----------------------------|-------------------------------------|--------------------------|
| Amphibians and Reptiles | | | | | |
| 1 north alligator lizard | 1 north alligator lizard | 2 north alligator lizard | 1 OR slender salamander | 1 OR slender salamander | 1 OR slender salamander |
| 2 N.M. garter snake | 2 common garter snake | 2 rubber boa | 2 north alligator lizard | 2 north alligator lizard | 2 north alligator lizard |
| 2 common garter snake | | | 2 ensatina | 2 ensatina | 2 ensatina |
| | | | 2 rubber boa | | |
| Mammals | | | | | |
| 1 Pacific jumping mouse | 1 Pacific jumping mouse | 1 Douglas' squirrel | 1 Douglas' squirrel | 1 Douglas' squirrel | 1 Douglas' squirrel |
| 1 badger | 1 Roosevelt elk | 1 Roosevelt elk | 1 Townsend's chipmunk | 1 Townsend's chipmunk | 1 Townsend's chipmunk |
| 1 creeping vole | 1 bobcat | 1 Townsend's chipmunk | 1 Trowbridge's shrew | 1 Trowbridge's shrew | 1 Trowbridge's shrew |
| 1 heather vole | 1 coyote | 1 bobcat | 1 dusky shrew | 1 dusky shrew | 1 dusky shrew |
| 1 long-tailed vole | 1 creeping vole | 1 deer mouse | 1 ermine (sh-tld weasel) | 1 ermine (sh-tld weasel) | 1 ermine (sh-tld weasel) |
| 1 long-tailed weasel | 1 deer mouse | 1 deer mouse | 1 gl'n-mld grnd squirrel | 1 gl'n-mld grnd squirrel | 1 gl'n-mld grnd squirrel |
| 1 mule deer/btk-tld deer | 1 gl'n-mld grnd squirrel | 1 gl'n-mld grnd squirrel | 1 mountain lion | 1 fisher | 1 fisher |
| 1 red fox | 1 heather vole | 1 long-tailed weasel | 1 red fox | 1 gl'n-mld grnd squirrel | 1 marten |
| 1 western pocket gopher | 1 long-tailed vole | 1 mountain lion | 1 western red-backed vole | 1 marten | 1 marten |
| 1 yellow-bellied marmot | 1 long-tailed weasel | 1 mule deer/btk-tld deer | 1 wolf | 1 north flying squirrel | 1 little brown myotis |
| 2 Townsend's mole | 1 mountain lion | 1 red fox | 2 Pacific jumping mouse | 1 western red-backed vole | 1 north flying squirrel |
| 2 coast mole | 1 mule deer/btk-tld deer | 1 yellow-pine chipmunk | 2 black bear | 1 wolf | 1 wolf |
| 2 coyote | 1 red fox | 2 Townsend's vole | 2 bobcat | 2 Pacific jumping mouse | 1 wolverine |
| 2 deer mouse | 1 yellow-pine chipmunk | 2 badger | 2 bushy-tailed woodrat | 2 big brown bat | 2 black bear |
| 2 dusky shrew | 2 Townsend's mole | 2 bushy-tailed woodrat | 2 coast mole | 2 black bear | 2 black bear |
| 2 gl'n-mld grnd squirrel | 2 badger | 2 coast mole | 2 creeping vole | 2 bobcat | 2 bobcat |
| 2 mountain beaver | 2 bushy-tailed woodrat | 2 dusky shrew | 2 little brown myotis | 2 bushy-tailed woodrat | 2 bushy-tailed woodrat |
| 2 shrew-mole | 2 coast mole | 2 ermine (sh-tld weasel) | 2 long-eared myotis | 2 coast mole | 2 coast mole |
| 2 vagrant shrew | 2 ermine (sh-tld weasel) | 2 long-tailed vole | 2 long-tailed weasel | 2 deer mouse | 2 deer mouse |
| 2 yellow-pine chipmunk | 2 mountain beaver | 2 shrew-mole | 2 mountain beaver | 2 heather vole | 2 heather vole |
| | 2 shrew-mole | 2 snowshoe hare | 2 mule deer/btk-tld deer | 2 little brown myotis | 2 long-tailed weasel |
| | 2 snowshoe hare | 2 vagrant shrew | 2 north flying squirrel | 2 long-eared myotis | 2 mountain beaver |
| | 2 western pocket gopher | | 2 shrew-mole | 2 mountain lion | 2 mule deer/btk-tld deer |
| | | | 2 snowshoe hare | 2 shrew-mole | 2 shrew-mole |
| | | | 2 vagrant shrew | 2 snowshoe hare | 2 vagrant shrew |
| | | | 2 yellow-pine chipmunk | 2 yellow-pine chipmunk | 2 yellow-pine chipmunk |

1 = Primary Habitat
2 = Secondary Habitat

USE OF HABITAT BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Riparian - Coniferous

| GRASS/FORB | SHRUB STAGE | SAPLING - POLE (OPEN) | SAPLING - POLE (CLOSED) | LARGE SAWTIMBER OR MATURE FOREST | OLD GROWTH |
|---|--|---|--|--|--|
| 1 American coot 1 American wigeon 1 Canada goose 1 Virginia rail 1 blue-winged teal 1 common nighthawk 1 common snipe 1 gadwall 1 green-winged teal 1 mallard 1 northern harrier 1 northern pintail 1 northern shoveler 1 red-winged blackbird 1 savannah sparrow 1 sora 2 California quail 2 cinnamon teal 2 marsh wren 2 mountain quail 2 ring-necked duck 2 ring-necked pheasant 2 turkey vulture 2 white-crowned sparrow | 1 Allen's hummingbird 1 American robin 1 Brewer's blackbird 1 Hutton's vireo 1 Lincoln's sparrow 1 MacGillivray's warbler 1 Wilson's warbler 1 brown-headed cowbird 1 chipping sparrow 1 common nighthawk 1 dark-eyed junco 1 fox sparrow 1 hermit thrush 1 orange-crowned warbler 1 red-winged blackbird 1 ruffed grouse 1 rufous hummingbird 1 rufous-sided towhee 1 song sparrow 1 white-crowned sparrow 1 yellow-rumped warbler 2 American coot 2 American goldfinch 2 California quail 2 Swainson's thrush 2 Virginia rail 2 black-headed grosbeak 2 blue-winged teal 2 common yellowthroat 2 gadwall 2 green-backed heron 2 green-winged teal 2 house finch 2 mallard 2 mountain quail 2 mourning dove 2 ring-necked duck 2 sora 2 turkey vulture 2 warbling vireo 2 willow flycatcher 2 yellow warbler | 1 Allen's hummingbird 1 American robin 1 Brewer's blackbird 1 Hutton's vireo 1 MacGillivray's warbler 1 Swainson's thrush 1 Wilson's warbler 1 black-throat gray warbler 1 brown-headed cowbird 1 chipping sparrow 1 dark-eyed junco 1 evening grosbeak 1 fox sparrow 1 hermit thrush 1 orange-crowned warbler 1 purple finch 1 ruffed grouse 1 rufous hummingbird 1 rufous-sided towhee 1 song sparrow 1 white-crowned sparrow 1 yellow-rumped warbler 2 American crow 2 American goldfinch 2 Cooper's hawk 2 Hammond's flycatcher 2 Lincoln's sparrow 2 Steller's jay 2 band-tailed pigeon 2 black-headed grosbeak 2 mountain quail 2 mourning dove 2 northern oriole 2 pine siskin 2 ring-necked duck 2 sharp-shinned hawk 2 warbling vireo 2 willow flycatcher 2 yellow warbler | 1 Cooper's hawk 1 Swainson's thrush 1 band-tailed pigeon 1 evening grosbeak 1 golden-crowned kinglet 1 harlequin duck 1 long-eared owl 1 pine siskin 1 purple finch 1 ruffed grouse 1 sharp-shinned hawk 2 American crow 2 American robin 2 Cassin's finch 2 European starling 2 Hammond's flycatcher 2 Hutton's vireo 2 Steller's jay 2 Wilson's warbler 2 barred owl 2 black-backed woodpecker 2 black-headed grosbeak 2 black-throat gray warbler 2 brown creeper 2 brown-headed cowbird 2 chestnut-backed chickadee 2 dark-eyed junco 2 downy woodpecker 2 fox sparrow 2 gray jay 2 hairy woodpecker 2 hermit thrush 2 mountain chickadee 2 mourning dove 2 northern pygmy owl 2 red crossbill 2 red-breasted sapsucker 2 ring-necked duck 2 ruby-crowned kinglet 2 rufous hummingbird 2 solitary vireo 2 three-toed woodpecker 2 varied thrush 2 western flycatcher 2 western wood-pewee 2 willow flycatcher 2 winter wren 2 yellow warbler 2 yellow-rumped warbler | 1 American crow 1 Barrow's goldfinch 1 Cooper's hawk 1 European starling 1 Hammond's flycatcher 1 Steller's jay 1 Swainson's thrush 1 Townsend's warbler 1 band-tailed pigeon 1 barred owl 1 brown creeper 1 bufflehead 1 chestnut-backed chickadee 1 common merganser 1 common raven 1 evening grosbeak 1 golden-crowned kinglet 1 gray jay 1 great blue heron 1 harlequin duck 1 hermit thrush 1 hermit warbler 1 hooded merganser 1 long-eared owl 1 northern flicker 1 northern saw-whet owl 1 pine grosbeak 1 pine siskin 1 purple finch 1 red crossbill 1 red-breasted nuthatch 1 red-breasted sapsucker 1 rufous-crowned kinglet 1 ruffed grouse 1 rufous hummingbird 1 sharp-shinned hawk 1 violet-green swallow 1 western flycatcher 1 western screech-owl 1 western tanager 1 winter wren 1 wood duck 2 American kestrel 2 American robin 2 Cassin's finch 2 Hutton's vireo 2 MacGillivray's warbler | 1 American crow 1 Barrow's goldfinch 1 Cooper's hawk 1 European starling 1 Hammond's flycatcher 1 Steller's jay 1 Swainson's thrush 1 Townsend's warbler 1 bald eagle 1 barred owl 1 brown creeper 1 bufflehead 1 chestnut-backed chickadee 1 common merganser 1 common raven 1 evening grosbeak 1 golden-crowned kinglet 1 gray jay 1 harlequin duck 1 hermit thrush 1 hermit warbler 1 hooded merganser 1 northern flicker 1 northern saw-whet owl 1 olive-sided flycatcher 1 osprey 1 pine grosbeak 1 pine siskin 1 purple finch 1 red crossbill 1 red-breasted nuthatch 1 red-breasted sapsucker 1 red-tailed hawk 1 rufous-crowned kinglet 1 ruffed grouse 1 spotted owl 1 tree swallow 1 varied thrush 1 violet-green swallow 1 western flycatcher 1 western screech-owl 1 western tanager 1 winter wren 1 wood duck 2 Allen's hummingbird 2 American kestrel 2 American robin |

1 = Primary Habitat
2 = Secondary Habitat

USE OF HABITAT BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Riparian - Coniferous

| GRASS/FORB | SHRUB STAGE | SAPLING - POLE (OPEN) | SAPLING - POLE (CLOSED) | LARGE SAWTIMBER OR MATURE FOREST | OLD GROWTH |
|------------|-------------|--------------------------|----------------------------|-------------------------------------|------------|
|------------|-------------|--------------------------|----------------------------|-------------------------------------|------------|

(Continued)

2 Vaux's swift
 2 Wilson's warbler
 2 black-backed woodpecker
 2 black-headed grosbeak
 2 black-throat gray wrbler
 2 brown-headed cowbird
 2 chipping sparrow
 2 dark-eyed junco
 2 downy woodpecker
 2 fox sparrow
 2 great egret
 2 great horned owl
 2 hairy woodpecker
 2 house finch
 2 mountain chickadee
 2 mourning dove
 2 northern goshawk
 2 northern pygmy-owl
 2 olive-sided flycatcher
 2 orange-crowned warbler
 2 osprey
 2 pileated woodpecker
 2 red-tailed hawk
 2 ring-necked duck
 2 rufous-sided towhee
 2 solitary vireo
 2 three-toed woodpecker
 2 tree swallow
 2 warbling vireo
 2 willow flycatcher

2 common garter snake
 2 ensatina

Amphibians and Reptiles

2 common garter snake
 2 common garter snake
 2 common garter snake
 2 west red-backed salamdr
 2 common garter snake
 2 ensatina
 2 common garter snake
 2 ensatina

1 = Primary Habitat
 2 = Secondary Habitat

USE OF HABITATS BY WILDLIFE SPECIES FOR REPRODUCING

HABITAT TYPE: Riparian - Coniferous

| GRASS/FORB | SHRUB STAGE | SAPLING - POLE (OPEN) | SAPLING - POLE (CLOSED) | LARGE SAWTIMBER OR MATURE FOREST | OLD GROWTH |
|--------------------------|---------------------------|---------------------------|----------------------------|-------------------------------------|---------------------------|
| Mammals | | | | | |
| 1 Pacific jumping mouse | 1 Pacific jumping mouse | 1 Virginia opossum | 1 Virginia opossum | 1 Trowbridge's shrew | 1 California myotis |
| 1 Townsend's vole | 1 Virginia opossum | 1 beaver | 1 bushy-tailed woodrat | 1 Virginia opossum | 1 Trowbridge's shrew |
| 1 Virginia opossum | 1 bobcat | 1 dusky-footed woodrat | 1 dusky shrew | 1 Yuma myotis | 1 Yuma myotis |
| 1 coast mole | 1 coast mole | 1 ermine (sht-tld weasel) | 1 dusky-footed woodrat | 1 bushy-tailed woodrat | 1 bushy-tailed woodrat |
| 1 deer mouse | 1 deer mouse | 1 mink | 1 ermine (sht-tld weasel) | 1 dusky shrew | 1 dusky shrew |
| 1 long-tailed vole | 1 dusky-footed woodrat | 1 mountain beaver | 1 mink | 1 dusky-footed woodrat | 1 dusky-footed woodrat |
| 1 mink | 1 ermine (sht-tld weasel) | 1 mule deer/btk-tld deer | 1 raccoon | 1 ermine (sht-tld weasel) | 1 ermine (sht-tld weasel) |
| 1 mule deer/btk-tld deer | 1 mink | 1 river otter | 1 river otter | 1 long-legged myotis | 1 little brown myotis |
| 1 striped skunk | 1 mountain beaver | 1 shrew-mole | 1 shrew-mole | 1 marten | 1 little brown myotis |
| 1 vagrant shrew | 1 mule deer/btk-tld deer | 1 shrew-mole | 1 shrew-mole | 1 mink | 1 marten |
| 1 water vole | 1 river otter | 1 yellow-pine chipmunk | 1 water shrew | 1 raccoon | 1 raccoon |
| 2 Townsend's chipmunk | 1 striped skunk | 2 Douglas' squirrel | 2 California myotis | 1 river otter | 1 river otter |
| 2 Townsend's mole | 1 shrew-mole | 2 Pacific jumping mouse | 2 Douglas' squirrel | 1 shrew-mole | 1 shrew-mole |
| 2 badger | 1 yellow-pine chipmunk | 2 Roosevelt elk | 2 Townsend's chipmunk | 2 California myotis | 1 water shrew |
| 2 beaver | 2 Roosevelt elk | 2 Townsend's chipmunk | 2 Trowbridge's shrew | 2 Douglas' squirrel | 2 Douglas' squirrel |
| 2 coyote | 2 Townsend's chipmunk | 2 bobcat | 2 Yuma myotis | 2 Pacific jumping mouse | 2 Douglas' squirrel |
| 2 creeping vole | 2 Townsend's mole | 2 black bear | 2 beaver | 2 Townsend's chipmunk | 2 Townsend's chipmunk |
| 2 dusky shrew | 2 badger | 2 bushy-tailed woodrat | 2 black bear | 2 beaver | 2 beaver |
| 2 heather vole | 2 badger | 2 coast mole | 2 bobcat | 2 big brown bat | 2 big brown bat |
| 2 long-tailed weasel | 2 bushy-tailed woodrat | 2 coyote | 2 coast mole | 2 black bear | 2 black bear |
| 2 mountain beaver | 2 coyote | 2 creeping vole | 2 deer mouse | 2 coyote | 2 cast mole |
| 2 muskrat | 2 muskrat | 2 deer mouse | 2 little brown myotis | 2 deer mouse | 2 cast mole |
| 2 nutria | 2 dusky shrew | 2 long-eared myotis | 2 long-eared myotis | 2 fisher | 2 fisher |
| 2 raccoon | 2 heather vole | 2 muskrat | 2 muskrat | 2 heather vole | 2 heather vole |
| 2 red fox | 2 long-tailed vole | 2 porcupine | 2 mule deer/btk-tld deer | 2 little brown myotis | 2 long-eared myotis |
| 2 shrew-mole | 2 muskrat | 2 raccoon | 2 mountain beaver | 2 long-eared myotis | 2 long-eared weasel |
| 2 spotted skunk | 2 porcupine | 2 red fox | 2 north flying squirrel | 2 mountain beaver | 2 mule deer/btk-tld deer |
| 2 water shrew | 2 raccoon | 2 snowshoe hare | 2 porcupine | 2 mule deer/btk-tld deer | 2 north flying squirrel |
| 2 yellow-pine chipmunk | 2 red fox | 2 snowshoe hare | 2 red tree vole | 2 porcupine | 2 porcupine |
| | 2 snowshoe hare | 2 spotted skunk | 2 red tree vole | 2 silver-haired bat | 2 red tree vole |
| | 2 vagrant shrew | 2 water shrew | 2 snowshoe hare | 2 snowshoe hare | 2 shrew-mole |
| | 2 water vole | 2 yellow-pine chipmunk | 2 yellow-pine chipmunk | 2 yellow-pine chipmunk | 2 yellow-pine chipmunk |

1 = Primary Habitat
2 = Secondary Habitat

USE OF SPECIAL AND UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Edges--Grass-Shrub

BREEDING

FEEDING ONLY

RESTING ONLY

FEEDING AND RESTING

Birds

| | | | |
|---------------------------------|-------------------------|--|-----------------------|
| 1 American robin | 1 American goldfinch | | |
| 1 Brewer's blackbird | 1 American kestrel | | 1 band-tailed pigeon |
| 1 California quail | 1 Vaux's swift | | 1 golden eagle |
| 1 European starling | 1 calliope hummingbird | | 1 western screech-owl |
| 1 Lincoln's sparrow | 1 common barn-owl | | |
| 1 Townsend's solitaire | 1 common raven | | |
| 1 Virginia rail | 1 great horned owl | | |
| 1 blue grouse | 1 mountain bluebird | | |
| 1 brown-headed cowbird | 1 pine siskin | | |
| 1 chestnut-backed chickadee | 1 red-tailed hawk | | |
| 1 chipping sparrow | 1 rufous hummingbird | | |
| 1 common nighthawk | 1 turkey vulture | | |
| 1 dark-eyed junco | 2 Allen's hummingbird | | |
| 1 dusky flycatcher | 2 American crow | | |
| 1 evening grosbeak | 2 Clark's nutcracker | | |
| 1 hermit thrush | 2 Nashville warbler | | |
| 1 lazuli bunting | 2 barn swallow | | |
| 1 marsh wren | 2 black swift | | |
| 1 mountain chickadee | 2 great blue heron | | |
| 1 mountain quail | 2 long-eared owl | | |
| 1 ring-necked pheasant | 2 northern flicker | | |
| 1 ruffed grouse | 2 northern pygmy-owl | | |
| 1 rufous-sided towhee | 2 peregrine falcon | | |
| 1 scrub jay | 2 sharp-shinned hawk | | |
| 1 song sparrow | 2 western bluebird | | |
| 1 sora | 2 yellow-rumped warbler | | |
| 1 white-crowned sparrow | | | |
| 1 willow flycatcher | | | |
| 1 yellow-breasted chat | | | |
| 2 Bewick's wren | | | |
| 2 Steller's jay | | | |
| 2 common yellowthroat | | | |
| 2 fox sparrow | | | |
| 2 house finch | | | |
| 2 house wren | | | |
| 2 mourning dove | | | |
| 2 northern harrier (marsh hawk) | | | |
| 2 savannah sparrow | | | |
| 2 western kingbird | | | |
| 2 western meadowlark | | | |

1 = Primary Habitat
2 = Secondary Habitat

USE OF SPT 'AL ON UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Edges--Grass-Shrub

BREEDING

FEEDING ONLY

RESTING ONLY

FEEDING AND RESTING

Amphibians and Reptiles

| | | |
|-----------------------------|----------------|---------------------------|
| 1 northern alligator lizard | 2 gopher snake | |
| 1 northwestern garter snake | | 2 northwestern salamander |
| 1 ringneck snake | | 2 roughskin newt |
| 1 rubber boa | | 2 western skink |
| 2 clouded salamander | | 2 western toad |
| 2 racer | | |
| 2 sharp-tail snake | | |
| 2 western fence lizard | | |

Mammals

| | |
|----------------------------------|--------------------------------|
| 1 Roosevelt elk | 1 Virginia opossum |
| 1 Townsend's mole | 1 ermine (short-tailed weasel) |
| 1 brush rabbit | 2 Yuma myotis |
| 1 coyote | 2 hoary bat |
| 1 creeping vole | 2 little brown myotis |
| 1 long-tailed vole | 2 mountain lion |
| 1 mountain beaver | 2 silver-haired bat |
| 1 mule deer/black-tailed deer | |
| 1 red fox | |
| 1 snowshoe hare | |
| 1 vagrant shrew | |
| 1 western pocket gopher | |
| 2 California ground squirrel | |
| 2 Townsend's vole | |
| 2 bobcat | |
| 2 coast mole | |
| 2 deer mouse | |
| 2 golden-mantled ground squirrel | |
| 2 heather vole | |
| 2 long-tailed weasel | |
| 2 striped skunk | |
| 2 yellow-bellied marmot | |
| 2 yellow-pine chipmunk | |

HP05:B26B33.E5

1 = Primary Habitat
2 = Secondary Habitat

USE OF SPEC. R UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Edges--Grass-Forest

BREEDING

FEEDING ONLY

RESTING ONLY

FEEDING AND RESTING

Birds

| | | |
|--------------------------|---------------------------------|----------------------|
| 1 American kestrel | 2 black swift | |
| 1 American robin | 2 northern goshawk | |
| 1 European starling | 2 northern rough-winged swallow | |
| 1 Hammond's flycatcher | | |
| 1 Lewis' woodpecker | | |
| 1 Vaux's swift | | |
| 1 band-tailed pigeon | | |
| 1 black-headed grosbeak | | |
| 1 blue grouse | | |
| 1 brown-headed cowbird | | |
| 1 chipping sparrow | | |
| 1 common barn-owl | | |
| 1 common nighthawk | | |
| 1 dark-eyed junco | | |
| 1 golden eagle | | |
| 1 great horned owl | | |
| 1 house finch | | |
| 1 mountain bluebird | | |
| 1 mourning dove | | |
| 1 northern flicker | | |
| 1 northern oriole | | |
| 1 northern pygmy-owl | | |
| 1 northern saw-whet owl | | |
| 1 pine grosbeak | | |
| 1 pine siskin | | |
| 1 purple finch | | |
| 1 ruffed grouse | | |
| 1 rufous hummingbird | | |
| 1 western bluebird | | |
| 1 western kingbird | | |
| 1 western screech-owl | | |
| 1 western wood-pewee | | |
| 2 American crow | | |
| 2 Clark's nutcracker | | |
| 2 Steller's jay | | |
| 2 Swainson's thrush | | |
| 2 Townsend's solitaire | | |
| 2 common raven | | |
| 2 dusky flycatcher | | |
| 2 fox sparrow | | |
| 2 hermit thrush | | |
| 2 mountain quail | | |
| 2 olive-sided flycatcher | | |
| 2 red-breasted sapsucker | | |
| 2 red-tailed hawk | | |
| 2 ring-necked pheasant | | |
| | | 1 Brewer's blackbird |
| | | 1 Cooper's hawk |
| | | 1 long-eared owl |
| | | 1 turkey vulture |
| | | 2 American kestrel |
| | | 2 bald eagle |
| | | 2 bald eagle |
| | | 2 spotted sandpiper |

1 = Primary Habitat

2 = Secondary Habitat

USE OF SPECIAL UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Edges--Grass-Forest

| BREEDING | FEEDING ONLY | RESTING ONLY | FEEDING AND RESTING |
|----------------------------------|--------------------------------|--------------|----------------------------|
| <u>Birds (Continued)</u> | | | |
| 2 scrub jay | | | |
| 2 song sparrow | | | |
| 2 varied thrush | | | |
| 2 western tanager | | | |
| 2 wood duck | | | |
| 2 yellow-rumped warbler | | | |
| <u>Amphibians and Reptiles</u> | | | |
| 1 clouded salamander | | | 2 Pacific giant salamander |
| 1 northwestern garter snake | | | 2 northwestern salamander |
| 1 racer | | | 2 roughskin newt |
| 1 ringneck snake | | | 2 western toad |
| 1 rubber boa | | | |
| 2 northern alligator lizard | | | |
| 2 sharptail snake | | | |
| 2 western fence lizard | | | |
| <u>Mammals</u> | | | |
| 1 Roosevelt elk | | | |
| 1 Townsend's chipmunk | | | |
| 1 Townsend's mole | | | |
| 1 coyote | | | |
| 1 creeping vole | | | |
| 1 heather vole | | | |
| 1 mountain beaver | | | |
| 1 mule deer/black-tailed deer | | | |
| 1 vagrant shrew | | | |
| 1 western pocket gopher | | | |
| 2 California ground squirrel | | | |
| 2 Douglas' squirrel | | | |
| 2 Townsend's vole | | | |
| 2 bobcat | | | |
| 2 brush rabbit | | | |
| 2 coast mole | | | |
| 2 deer mouse | | | |
| 2 dusky shrew | | | |
| 2 golden-mantled ground squirrel | | | |
| 2 long-tailed vole | | | |
| 2 long-tailed weasel | | | |
| 2 northern flying squirrel | | | |
| 2 spotted skunk | | | |
| 2 striped skunk | | | |
| 2 western gray squirrel | | | |
| 2 yellow-bellied marmot | | | |
| | 1 California myotis | | |
| | 1 Virginia opossum | | |
| | 1 little brown myotis | | |
| | 1 marten | | |
| | 1 mountain lion | | |
| | 1 silver-haired bat | | |
| | 2 Yuma myotis | | |
| | 2 ermine (short-tailed weasel) | | |

1 = Primary Habitat
? = Secondary Habitat

USE OF SPECIAL UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Edges--Shrub-Forest

| BREEDING | FEEDING ONLY | RESTING ONLY | FEEDING AND RESTING |
|-------------------------------|------------------------|--------------|----------------------|
| <u>Birds</u> | | | |
| 1 Allen's hummingbird | 1 ruby-crowned kinglet | | 1 Cooper's hawk |
| 1 American goldfinch | 2 American crow | | 1 long-eared owl |
| 1 American kestrel | 2 Clark's nutcracker | | 2 bald eagle |
| 1 American robin | 2 black swift | | 2 peregrine falcon |
| 1 Bewick's wren | 2 northern goshawk | | 2 sharp-shinned hawk |
| 1 Brewer's blackbird | 2 spotted owl | | 2 turkey vulture |
| 1 Cassin's finch | | | |
| 1 European starling | | | |
| 1 Hammond's flycatcher | | | |
| 1 Hutton's vireo | | | |
| 1 Lewis' woodpecker | | | |
| 1 MacGillivray's warbler | | | |
| 1 Nashville warbler | | | |
| 1 Swainson's thrush | | | |
| 1 Townsend's solitaire | | | |
| 1 Vaux's swift | | | |
| 1 Wilson's warbler | | | |
| 1 band-tailed pigeon | | | |
| 1 black-capped chickadee | | | |
| 1 black-headed grosbeak | | | |
| 1 black-throated gray warbler | | | |
| 1 blue grouse | | | |
| 1 brown-headed cowbird | | | |
| 1 bushtit | | | |
| 1 calliope hummingbird | | | |
| 1 chipping sparrow | | | |
| 1 common barn-owl | | | |
| 1 common nighthawk | | | |
| 1 dark-eyed junco | | | |
| 1 dusky flycatcher | | | |
| 1 fox sparrow | | | |
| 1 golden eagle | | | |
| 1 great horned owl | | | |
| 1 green-backed heron | | | |
| 1 green-tailed towhee | | | |
| 1 hermit thrush | | | |
| 1 house finch | | | |
| 1 house wren | | | |
| 1 lesser goldfinch | | | |
| 1 mountain bluebird | | | |
| 1 northern oriole | | | |
| 1 northern pygmy-owl | | | |
| 1 northern saw-whet owl | | | |
| 1 orange-crowned warbler | | | |
| 1 pine grosbeak | | | |
| 1 pine siskin | | | |
| 1 purple finch | | | |

1 = Primary Habitat
2 = Secondary Habitat

USE OF SPECIAL . UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Edges--Shrub-Forest

| BREEDING | FEEDING ONLY | RESTING ONLY | FEEDING AND RESTING |
|--------------------------|--------------|--------------|---------------------|
| <u>Birds (Continued)</u> | | | |
| 1 red-tailed hawk | | | |
| 1 ruffed grouse | | | |
| 1 rufous hummingbird | | | |
| 1 rufous-sided towhee | | | |
| 1 scrub jay | | | |
| 1 varied thrush | | | |
| 1 warbling vireo | | | |
| 1 western bluebird | | | |
| 1 western screech-owl | | | |
| 1 western tanager | | | |
| 1 western wood-pewee | | | |
| 1 willow flycatcher | | | |
| 1 winter wren | | | |
| 1 wren-tit | | | |
| 1 yellow warbler | | | |
| 1 yellow-rumped warbler | | | |
| 2 American crow | | | |
| 2 California quail | | | |
| 2 Steller's jay | | | |
| 2 common raven | | | |
| 2 mountain quail | | | |
| 2 mourning dove | | | |
| 2 northern flicker | | | |
| 2 olive-sided flycatcher | | | |
| 2 red-breasted sapsucker | | | |
| 2 song sparrow | | | |
| 2 western kingbird | | | |
| 2 white-crowned sparrow | | | |
| 2 wood duck | | | |
| 2 yellow-breasted chat | | | |

1 = Primary Habitat
2 = Secondary Habitat

USE OF SPECIAL UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Edges--Shrub-Forest

| BREEDING | FEEDING ONLY | RESTING ONLY | FEEDING AND RESTING |
|----------|--------------|--------------|---------------------|
|----------|--------------|--------------|---------------------|

Amphibians and Reptiles

| | | | |
|-----------------------------|--|--|----------------|
| 1 ensatina | | | |
| 2 Oregon slender salamander | | | |
| 2 clouded salamander | | | |
| 2 northern alligator lizard | | | 2 western toad |
| 2 northwestern garter snake | | | |

Mammals

| | | | |
|----------------------------------|--------------------------------|--|------------------------------|
| 1 Roosevelt elk | | | |
| 1 deer mouse | | | |
| 1 heather vole | | | |
| 1 mountain beaver | | | |
| 1 mule deer/black-tailed deer | | | |
| 1 red fox | | | |
| 1 vagrant shrew | | | |
| 1 western gray squirrel | | | |
| 2 Douglas' squirrel | | | |
| 2 Townsend's chipmunk | | | |
| 2 Townsend's mole | | | |
| 2 bobcat | | | |
| 2 brush rabbit | | | |
| 2 bushy-tailed woodrat | | | |
| 2 coast mole | | | |
| 2 coyote | | | |
| 2 dusky shrew | | | |
| 2 dusky-footed woodrat | | | |
| 2 golden-mantled ground squirrel | | | |
| 2 long-tailed vole | | | |
| 2 long-tailed weasel | | | |
| 2 snowshoe hare | | | |
| 2 spotted skunk | | | |
| 2 striped skunk | | | |
| 2 western pocket gopher | | | |
| 2 yellow-pine chipmunk | | | |
| | 1 California myotis | | |
| | 1 Virginia opossum | | |
| | 1 big brown bat | | |
| | 1 ermine (short-tailed weasel) | | |
| | 1 hoary bat | | |
| | 1 little brown myotis | | |
| | 1 marten | | |
| | 1 mountain lion | | |
| | 1 silver-haired bat | | |
| | 2 Yuma myotis | | |
| | | | 2 California ground squirrel |

1 = Primary Habitat
2 = Secondary Habitat

USE OF SPECIAL HABITATS BY WILDLIFE

HABITAT FEATURE: Snags

| BREEDING | FEEDING ONLY | RESTING ONLY | FEEDING AND RESTING |
|-----------------------------|--------------|--------------------------|---------------------|
| <u>Birds</u> | | | |
| 1 American kestrel | | 1 bald eagle | |
| 1 Barrow's goldeneye | | 1 belted kingfisher | |
| 1 European starling | | 2 Cooper's hawk | |
| 1 European starling | | 2 Hammond's flycatcher | |
| 1 Vaux's swift | | 2 dusky flycatcher | |
| 1 black-backed woodpecker | | 2 olive-sided flycatcher | |
| 1 black-capped chickadee | | 2 peregrine falcon | |
| 1 brown creeper | | 2 red-tailed hawk | |
| 1 bufflehead | | 2 sharp-shinned hawk | |
| 1 chestnut-backed chickadee | | 2 turkey vulture | |
| 1 common barn-owl | | 2 western kingbird | |
| 1 common merganser | | | |
| 1 downy woodpecker | | | |
| 1 hairy woodpecker | | | |
| 1 hooded merganser | | | |
| 1 house wren | | | |
| 1 mountain bluebird | | | |
| 1 mountain chickadee | | | |
| 1 northern flicker | | | |
| 1 northern pygmy-owl | | | |
| 1 northern saw-whet owl | | | |
| 1 osprey | | | |
| 1 pileated woodpecker | | | |
| 1 red-breasted nuthatch | | | |
| 1 red-breasted sapsucker | | | |
| 1 song sparrow | | | |
| 1 spotted owl | | | |
| 1 three-toed woodpecker | | | |
| 1 tree swallow | | | |
| 1 violet-green swallow | | | |
| 1 western bluebird | | | |
| 1 western screech-owl | | | |
| 1 white-breasted nuthatch | | | |
| 1 white-headed woodpecker | | | |
| 1 wood duck | | | |
| 2 Bewick's wren | | | |
| 2 great horned owl | | | |
| 2 house finch | | | |

1 = Primary Habitat
2 = Secondary Habitat

USE OF SPECIAL UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Snags

| BREEDING | FEEDING ONLY | RESTING ONLY | FEEDING AND RESTING |
|--------------------------------|--------------------------------|--------------|---------------------|
| <u>Amphibians and Reptiles</u> | | | |
| 2 Oregon slender salamander | | | |
| 2 clouded salamander | | | |
| <u>Mammals</u> | | | |
| 1 California myotis | | | |
| 1 Douglas' squirrel | | | |
| 1 Virginia opossum | | | |
| 1 Yuma myotis | | | |
| 1 big brown bat | | | |
| 1 fisher | | | |
| 1 long-eared myotis | | | |
| 1 long-legged myotis | | | |
| 1 marten | | | |
| 1 northern flying squirrel | | | |
| 1 raccoon | | | |
| 1 silver-haired bat | | | |
| 1 western gray squirrel | | | |
| 2 black bear | | | |
| 2 bobcat | | | |
| 2 bushy-tailed woodrat | | | |
| 2 deer mouse | | | |
| 2 gray fox | | | |
| 2 hoary bat | | | |
| 2 little brown myotis | | | |
| 2 porcupine | | | |
| 2 spotted skunk | | | |
| 2 yellow-pine chipmunk | | | |
| | 2 ermine (short-tailed weasel) | | |

1 = Primary Habitat
2 = Secondary Habitat

USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Logs and Down Material

| BREEDING | FEEDING ONLY | RESTING ONLY | FEEDING AND RESTING |
|---------------------------------|---------------------------|-----------------------|----------------------------|
| <u>Birds</u> | | | |
| 1 Bewick's wren | 1 hairy woodpecker | 1 blue grouse | |
| 1 Townsend's solitaire | 1 northern flicker | | |
| 1 house wren | 1 pileated woodpecker | | |
| 1 ruffed grouse | 1 three-toed woodpecker | | |
| 1 rufous-sided towhee | 2 Cooper's hawk | | |
| 1 turkey vulture | 2 Steller's jay | | |
| 1 winter wren | 2 barred owl | | |
| 2 Barrow's goldeneye | 2 black-backed woodpecker | | |
| 2 California quail | 2 green-tailed towhee | | |
| 2 common merganser | 2 northern goshawk | | |
| 2 dark-eyed junco | 2 sharp-shinned hawk | | |
| 2 mountain chickadee | 2 white-headed woodpecker | | |
| 2 red-breasted sapsucker | | | |
| 2 song sparrow | | | |
| 2 white-breasted nuthatch | | | |
| 2 wood duck | | | |
| <u>Amphibians and Reptiles</u> | | | |
| 1 Oregon slender salamander | | 1 western pond turtle | 1 Dunn's salamander |
| 1 clouded salamander | | | 1 Pacific giant salamander |
| 1 common garter snake | | | 1 Pacific tree frog |
| 1 ensatina | | | 1 northwestern salamander |
| 1 northern alligator lizard | | | 1 tailed frog |
| 1 ringneck snake | | | 1 western fence lizard |
| 1 rubber boa | | | 1 western toad |
| 1 sharptail snake | | | 2 gopher snake |
| 1 western red-backed salamander | | | |
| 1 western skink | | | |
| 2 northwestern garter snake | | | |
| 2 western rattlesnake | | | |

1 = Primary Habitat
2 = Secondary Habitat

USE OF SPECIAL UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Logs and Down Material

| BREEDING | FEEDING ONLY | RESTING ONLY | FEEDING AND RESTING |
|----------------------------------|--------------|--------------|---------------------|
| Mammals | | | |
| 1 Townsend's chipmunk | | | |
| 1 Trowbridge's shrew | | | |
| 1 Virginia opossum | | | |
| 1 black bear | | | |
| 1 bobcat | | | |
| 1 bushy-tailed woodrat | | | |
| 1 coyote | | | |
| 1 creeping vole | | | |
| 1 deer mouse | | | |
| 1 dusky shrew | | | |
| 1 ermine | | | |
| 1 fisher | | | |
| 1 golden-mantled ground squirrel | | | |
| 1 gray fox | | | |
| 1 heather vole | | | |
| 1 long-tailed vole | | | |
| 1 long-tailed weasel | | | |
| 1 marten | | | |
| 1 mink | | | |
| 1 mountain beaver | | | |
| 1 porcupine | | | |
| 1 red fox | | | |
| 1 shrew-mole | | | |
| 1 spotted skunk | | | |
| 1 water shrew | | | |
| 1 western red-backed vole | | | |
| 1 wolverine | | | |
| 2 Townsend's mole | | | |
| 2 coast mole | | | |
| 2 dusky-footed woodrat | | | |
| 2 mountain lion | | | |
| 2 snowshoe hare | | | |
| 2 striped skunk | | | |
| 2 vagrant shrew | | | |
| 2 yellow-pine chipmunk | | | |

1 = Primary Habitat
2 = Secondary Habitat

USE OF SPECIAL ... UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Burrows and Bank Cavities

| BREEDING | FEEDING ONLY | RESTING ONLY | FEEDING AND RESTING |
|----------|--------------|--------------|---------------------|
|----------|--------------|--------------|---------------------|

Birds

- 1 Barrow's goldeneye
- 1 Townsend's solitaire
- 1 bank swallow
- 1 belted kingfisher
- 1 northern rough-winged swallow

Amphibians and Reptiles

- 1 gopher snake
- 1 racer
- 1 rubber boa
- 1 Oregon slender salamander
- 1 ensatina
- 1 western toad

Mammals

- 1 California ground squirrel
- 1 Townsend's chipmunk
- 1 Townsend's mole
- 1 Townsend's vole
- 1 Virginia opossum
- 1 beaver
- 1 black bear
- 1 coast mole
- 1 coyote
- 1 creeping vole
- 1 deer mouse
- 1 dusky shrew
- 1 golden-mantled ground squirrel
- 1 gray fox
- 1 heather vole
- 1 long-tailed vole
- 1 long-tailed weasel
- 1 mink
- 1 mountain beaver
- 1 red fox
- 1 river otter
- 1 shrew-mole
- 1 spotted skunk
- 1 striped skunk
- 1 vagrant shrew
- 1 water shrew
- 1 water vole
- 1 wolverine
- 1 yellow-bellied marmot
- 1 yellow-pine chipmunk

1 = Primary Habitat
2 = Secondary Habitat

USE OF SPECIAL UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Cliffs

| BREEDING | FEEDING ONLY | RESTING ONLY | FEEDING AND RESTING |
|----------|--------------|--------------|---------------------|
|----------|--------------|--------------|---------------------|

Birds

| | | | |
|---------------------------------|--|--|--|
| 1 Townsend's solitaire | | | |
| 1 bank swallow | | | |
| 1 belted kingfisher | | | |
| 1 black swift | | | |
| 1 canyon wren | | | |
| 1 cliff swallow | | | |
| 1 common raven | | | |
| 1 double-crested cormorant | | | |
| 1 northern rough-winged swallow | | | |
| 1 peregrine falcon | | | |
| 1 rock dove | | | |
| 1 rock wren | | | |
| 1 turkey vulture | | | |
| 1 violet-green swallow | | | |
| 2 American dipper | | | |
| 2 American kestrel | | | |
| 2 European starling | | | |
| 2 common barn-owl | | | |
| 2 golden eagle | | | |
| 2 great horned owl | | | |
| 2 house finch | | | |
| 2 red-tailed hawk | | | |
| 2 western gull | | | |

Amphibians and Reptiles

| | | | |
|-----------------------|--|--|--|
| 1 western rattlesnake | | | 2 pacific tree frog 1 western fence lizard 2 western skink |
|-----------------------|--|--|--|

Mammals

| | | | |
|----------------------------------|--|--|------------------------------|
| 1 California myotis | | | 2 black bear |
| 1 Yuma myotis | | | 2 ermine (short-tail weasel) |
| 1 big brown bat | | | 2 fisher |
| 1 bobcat | | | 2 marten |
| 1 bushy-tailed woodrat | | | 2 red fox |
| 1 long-legged myotis | | | 2 striped skunk |
| 1 mountain lion | | | |
| 1 porcupine | | | |
| 2 coyote | | | |
| 2 deer mouse | | | |
| 2 golden-mantled ground squirrel | | | |
| 2 little brown myotis | | | |
| 2 long-tailed weasel | | | |
| 2 yellow-pine chipmunk | | | |

1 = Primary Habitat
2 = Secondary Habitat

USE OF SPECIAL . UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Talus

| BREEDING | FEEDING ONLY | RESTING ONLY | FEEDING AND RESTING |
|----------------------------------|--------------------|--------------|----------------------------|
| <u>Birds</u> | | | |
| 1 canyon wren | 2 American kestrel | | 2 peregrine falcon |
| 1 common nighthawk | 2 black swift | | |
| 1 rock wren | 2 common raven | | |
| 1 rosy finch | 2 great horned owl | | |
| 2 Townsend's solitaire | 2 red-tailed hawk | | |
| <u>Amphibians and Reptiles</u> | | | |
| 1 Dunn's salamander | | | 1 sharptail snake |
| 1 Olympic salamander | | | 1 western fence lizard |
| 1 western red-backed salamander | | | 2 Pacific giant salamander |
| 1 western skink | | | 2 Pacific tree frog |
| 2 Oregon slender salamander | | | 2 ringneck snake |
| 2 clouded salamander | | | 2 rubber boa |
| 2 ensatina | | | 2 tailed frog |
| 2 northern alligator lizard | | | 2 western toad |
| <u>Mammals</u> | | | |
| 1 Townsend's chipmunk | 1 spotted skunk | | |
| 1 bobcat | 2 black bear | | |
| 1 bushy-tailed woodrat | 2 coyote | | |
| 1 deer mouse | 2 striped skunk | | |
| 1 ermine (short-tailed weasel) | | | |
| 1 fisher | | | |
| 1 golden-mantled ground squirrel | | | |
| 1 long-tailed vole | | | |
| 1 mountain lion | | | |
| 1 pika | | | |
| 1 wolverine | | | |
| 1 yellow-bellied marmot | | | |
| 1 yellow-pine chipmunk | | | |
| 2 badger | | | |
| 2 gray fox | | | |
| 2 long-tailed weasel | | | |
| 2 marten | | | |
| 2 mink | | | |
| 2 red fox | | | |
| 2 western red-backed vole | | | |

1 = Primary Habitat
> = Secondary Habitat

USE OF SPECIAL OR UNIQUE HABITATS BY WILDLIFE

HABITAT FEATURE: Caves and Crevices

| BREEDING | FEEDING ONLY | RESTING ONLY | FEEDING AND RESTING |
|---------------------------------|--------------|---------------------|---------------------|
| <u>Birds</u> | | | |
| 1 Townsend's solitaire | | | |
| 1 common merganser | | | |
| 1 northern rough-winged swallow | | | |
| 1 peregrine falcon | | | |
| 1 rosy finch | | | |
| 1 turkey vulture | | | |
| 2 common barn-owl | | | |
| 2 great horned owl | | | |
| <u>Amphibians and Reptiles</u> | | | |
| 1 Dunn's salamander | | | 2 Pacific tree frog |
| <u>Mammals</u> | | | |
| 1 California myotis | | 2 silver-haired bat | |
| 1 Townsend's big-eared bat | | | |
| 1 Yuma myotis | | | |
| 1 big brown bat | | | |
| 1 bobcat | | | |
| 1 little brown myotis | | | |
| 1 mountain lion | | | |
| 1 wolverine | | | |
| 2 black bear | | | |
| 2 bushy-tailed woodrat | | | |
| 2 coyote | | | |
| 2 ermine (short-tailed weasel) | | | |
| 2 gray fox | | | |
| 2 long-eared myotis | | | |
| 2 long-legged myotis | | | |
| 2 long-tailed weasel | | | |
| 2 marten | | | |
| 2 pika | | | |
| 2 porcupine | | | |
| 2 raccoon | | | |
| 2 spotted skunk | | | |

1 = Primary Habitat
2 = Secondary Habitat

FAUNA OF WILLAMETTE NATIONAL FOREST
AMPHIBIANS, REPTILES AND FISHES

1/14/91

AMPHIBIANS

Salamanders

*Oregon slender salamander (Batrachoseps wrighti)
Rough-skinned newt (Taricha granulosa)
Pacific giant salamander (Dicamptodon ensatus)
Northwestern salamander (Ambystoma gracilis)
Olympic salamander (Rhyacotriton olympicus)
Dunn's salamander (Plethodon dunni)
Ensatina (Ensatina eschscholtzi)
Clouded salamander (Aneides ferreus)

Frogs and Toads

Yellow-legged frog (Rana boylei)
Cascade frog (Rana cascadae)
Red-legged frog (Rana aurora)
Western toad (Bufo boreas)
Pacific tree frog (Hyla regilla)
*Tailed frog (Ascaphus truei)
Spotted frog (Rana pretiosa)
Bullfrog (Rana catesbeiana)

REPTILES

Western pond turtle (Clemmys marmorata)
Western fence lizard (Sceloporus occidentalis)
Western skink (Eumeces skiltonianus)
Short-horned lizard (Phrynosoma douglassi)
Northern alligator lizard (Gerrhonotus coeruleus)
Southern alligator lizard (Gerrhonotus multicarinatus)
Rubber boa (Charina bottae)
Western ringneck snake (Diadophis amabilis)
Sharp-tailed snake (Contia tenuis)
Racer (Coluber constrictor)
Common garter snake (Thamnophis sirtalis)
Northwestern garter snake (Thamnophis ordinoides)
Gopher snake (Pituophis melanoleucus)

Fishes

Spring chinook (Oncorhynchus tshawytscha)
Kokanee (Oncorhynchus nerka)
Coho (Oncorhynchus kisutch)
Rainbow trout (Oncorhynchus gairdneri)
Summer steelhead (Oncorhynchus gairdneri)
Winter steelhead (Oncorhynchus gairdneri)
Cutthroat trout (Oncorhynchus clarki)

AMPHIBIANS, REPTILES AND FISHES (CONT.)

***Hackleman cutthroat trout (Oncorhynchus clarki hackelmanii)
Brown trout (Salmo Trutta)
Atlantic salmon (Salmo salar)
Brook trout (Salvelinus fontinalis)
Bull trout (Salvelinus confluentus)
Mountain whitefish (Prosopium williamsoni)
Large-mouth bass (Micropterus salmoides)
brown bullhead (Ictalurus nebulosus)
White crappie (Pomoxis annularis)
Black crappie (Pomoxis nigromaculatus)
Oregon chub (Oregonichthys crameri)
Largescale sucker (Catostomus macrocheilus)
Mountain sucker (Catostomus platyrhynchus)
Trout-perch (Percopsis transmontanus)
Northern squawfish (Ptychocheilus oregonensis)
Chiselmouth (Acrocheilus alutaceus)
Redside shiner (Richardsonius balteatus)
Cottids (Cottus sp.)
Speckled dace (Rhinichthys osculus)
Blackside dace (Rhinichthys osculus nubilus)
Longnose dace (Rhinichthys cataractae dulcis)
Leopard dace (Rhinichthys falcatus)
Prickly sculpin (Cottus asper)
Torrent sculpin (Cottus confusus)
Reticulate sculpin (Cottus rhotheus)
Piute sculpin (Cottus beldingi)
Western brook lamprey (Lampetra richardsoni)
Pacific lamprey (Lampetra tridentatus)

*Species listed as "unique" on Forest Service Region 6 list of Endangered, Threatened or Unique Species.

**Species or subspecies listed as "Threatened" on Forest Service Region 6 list of Endangered, Threatened or Unique Species.

***The Hackleman cutthroat trout is not on the R-6 list but is considered "unique" on the Forest, because it has been isolated for 10,000 years and may have developed into a distinct race.

Nomenclature of reptiles and amphibians are based on "A Field Guide to Western Reptiles and Amphibians", Robert C. Stebbins, published by Houghton Mifflin Co. 1966.

BIRDS OF THE WILLAMETTE NATIONAL FOREST

SPECIES

Common loon (Gavia immer)
Pacific loon (Gavia pacifica)
Western grebe (Aechmophorus occidentalis)
Horned grebe (Podiceps auritus)
Pied-billed grebe (Podilymbus podiceps)
Leach's storm-petrel (Oceanodroma leucorhoa) (Accidental)
Double-crested cormorant (Phalacrocorax auritus)
Tundra swan (Cygnus columbianus)
Trumpeter swan (Cygnus buccinator) (accidental)
Canada goose (Branta canadensis)
Greater white-fronted goose (Anser albifrons)
Snow goose (Chen caerulescens)
Mallard (Anas platyrhynchos)
Pintail (Anas acuta)
Gadwall (Anas strepera)
Eurasian widgeon (Anas penelope)
American widgeon (Anas americana)
Northern shoveller (Anas clypeata)
Green-winged teal (Anas crecca)
Cinnamon teal (Anas cyanoptera)
Blue-winged teal (Anas discors)
Wood duck (Aix sponsa)
Redhead (Aythya americana)
Canvasback (Aythya valisineria)
Ring-necked duck (Aythya collaris)
Greater scaup (Aythya marila)
Lesser scaup (Aythya affinis)
Common goldeneye (Bucephala clangula)
Barrow's goldeneye (Bucephala islandica)
Bufflehead (Bucephala albeola)
*Harlequin duck (Histrionicus histrionicus)
Oldsquaw (Clangula hyemalis) (Accidental)
White-winged scoter (Melanitta fusca) (Accidental)
Surf scoter (Melanitta perspicillata)
Common merganser (Mergus merganser)
Hooded merganser (Lophodytes cucullatus)
Ruddy duck (Oxyura jamaicensis)
Turkey vulture (Cathartes aura)
Goshawk (Accipiter gentilis)
Cooper's hawk (Accipiter cooperi)
Sharp-shinned hawk (Accipiter striatus)
Northern harrier (Circus cyaneus)
Rough-legged hawk (Buteo lagopus)
Ferruginous hawk (Buteo regalis)
Red-tailed hawk (Buteo jamaicensis)
Swainson's hawk (Buteo swainsoni)
Golden eagle (Aquila chrysaetos)
**Northern bald eagle (Haliaeetus leucocephalus alascanus)

BIRDS OF THE WILLAMETTE (CONT.)

*Osprey (Pandion haliaetus)
Prairie falcon (Falco mexicanus)
**Peregrine falcon (Falco peregrinus)
Merlin (Falco columbarius)
American kestrel (Falco sparverius)
Turkey (Meleagris gallopavo) (introduced)
Blue grouse (Dendragapus obscurus)
Ruffed grouse (Bonasa umbellus)
California quail (Callipepla californicus)
Mountain quail (Oreortyx pictus)
Ring-necked pheasant (Phasianus colchicus)
Common egret (Casmerodius albus)
Cattle egret (Bubulcus ibis) (Accidental)
Great blue heron (Ardea herodias)
Green-backed heron (Butorides striatus)
American bittern (Botaurus lentiginosus)
White-faced ibis (Eudocimus albus) (Accidental)
Sandhill crane (Grus canadensis)
American coot (Fulica americana)
Semipalmated plover (Charadrius semipalmatus)
Killdeer (Charadrius vociferus)
Greater yellowlegs (Tringa melanoleucus)
Lesser yellowlegs (Tringa flavipes)
Solitary sandpiper (Tringa solitaria)
Spotted sandpiper (Actitus macularia)
Long-billed dowitcher (Limnodromus scolopaceus)
Red phalarope (Phalaropus fulicarius) (Accidental)
Red-necked phalarope (Phalaropus lobatus) (Accidental)
Common snipe (Gallinago gallinago)
Pectoral sandpiper (Calidris melanotos)
Dunlin (Calidris alpina)
Least sandpiper (Calidris minutilla)
Glaucous-winged gull (Larus glaucescens)
California gull (Larus californicus)
Ring-billed gull (Larus delawarensis)
Bonaparte's gull (Larus philadelphus) (Accidental)
Caspian tern (Sterna caspia)
Band-tailed pigeon (Columba fasciata)
Rock dove (Columba livia) (Introduced)
Mourning dove (Zenaida macroura)
Western screech owl (Otus kennicottii)
Great horned owl (Bubo virginianus)
Long-eared owl (Asio otus)
Barn owl (Tyto alba)
Barred Owl (Strix varia)
**Northern spotted owl (Strix occidentalis caurina)
Great grey owl (Strix nebulosa)
Boreal owl (Aegolius funereus)
Northern saw-whet owl (Aegolius acadicus)
Flammulated owl (Otus flammeolus)
Northern pygmy owl (Glaucidium gnoma)
Common nighthawk (Chordeiles minor)

BIRDS OF THE WILLAMETTE (CONT.)

Black swift (Cypseloides niger)
Vaux's swift (Chaetura vauxi)
Calliope hummingbird (Stellula calliope)
Anna's hummingbird (Calypte anna)
Rufous hummingbird (Selasphorus rufus)
Belted kingfisher (Ceryle alcyon)
Northern flicker (Colaptes auratus)
Pileated woodpecker (Dryocopus pileatus)
White-headed woodpecker (Picoides albolarvatus)
Lewis woodpecker (Melanerpes lewis)
Red-naped sapsucker (Sphyrapicus ?)
Red-breasted sapsucker (Sphyrapicus ruber)
Williamson's sapsucker (Sphyrapicus thyroideus)
Hairy woodpecker (Picoides villosus)
Downy woodpecker (Picoides pubescens)
Black-backed woodpecker (Picoides arctus)
Three-toed woodpecker (Picoides tridactylus)
Western kingbird (Tyrannus verticalis)
Willow flycatcher (Empidonax traillii)
Hammond's flycatcher (Empidonax hammondi)
Dusky flycatcher (Empidonax oberholseri)
Gray flycatcher (Empidonax wrightii)
Western flycatcher (Empidonax difficilis)
Western wood pewee (Contopus sordidulis)
Olive-sided flycatcher (Contopus borealis)
Horned lark (Eremophila alpestris)
Barn swallow (Hirundo rusticus)
Cliff swallow (Hirundo pyrrhonota)
Violet-green swallow (Tachycineta thalassina)
Tree swallow (Tachycineta bicolor)
Bank swallow (Riparia riparia)
Rough-winged swallow (Stelgidopteryx serripennis)
Purple martin (Progne subis)
Steller's jay (Cyanocitta stelleri)
Scrub jay (Aphelocoma coerulescens)
Gray jay (Perisoreus canadensis)
Black-billed magpie (Pica pica)
Clark's nutcracker (Nucifraga columbiana)
Common raven (Corvus corax)
American crow (Corvus brachyrhynchos)
Black-capped chickadee (Parus atricapillus)
Mountain chickadee (Parus gambeli)
Chestnut-backed chickadee (Parus rufescens)
Bushtit (Psaltiriparus minimus)
Wrentit (Chamaea fasciata)
Dipper (Cinclus mexicanus)
White-breasted nuthatch (Sitta carolinensis)
Red-breasted nuthatch (Sitta canadensis)
Brown creeper (Certhia americana)
House wren (Troglodytes aedon)
Winter wren (Troglodytes troglodytes)
Bewick's wren (Thryomanes bewickii)

BIRDS OF THE WILLAMETTE (CONT.)

Rock wren (Salpinctes obsoletus)
Marsh wren (Cistothorus palustris)
Mockingbird (Mimus polygottos)
American robin (Turdus migratorius)
Varied thrush (Ixoreus naevius)
Townsend's solitaire (Myadestes townsendii)
Hermit thrush (Catharus guttatus)
Swainson's thrush (Catharus ustulatus)
Western bluebird (Sialia mexicana)
Mountain bluebird (Sialia currucoides)
Golden-crowned kinglet (Regulus satrapa)
Ruby-crowned kinglet (Regulus calendula)
American pipit (Anthus spinoletta)
Bohemian waxwing (Bombycilla garrulus) (Accidental)
Cedar waxwing (Bombycilla cedrorum)
Northern shrike (Lanius excubitor)
Starling (Sturnus vulgaris)
Solitary vireo (Vireo solitarius)
Hutton's vireo (Vireo huttoni)
Red-eyed vireo (Vireo olivaceus)
Warbling vireo (Vireo gilvus)
Tennessee warbler (Vermivora peregrina) (Accidental)
Orange-crowned warbler (Vermivora celata)
Nashville warbler (Vermivora ruficapilla)
Yellow warbler (Dendroica petechia)
Yellow-rumped warbler (Dendroica coronata)
Townsend's warbler (Dendroica townsendi)
Hermit warbler (Dendroica occidentalis)
Black-throated gray warbler (Dendroica nigrescens)
Northern waterthrush (Seiurus noveboracensis)
Common yellow-throat (Geothlypis trichas)
Yellow-breasted chat (Icteria virens)
MacGillivray's warbler (Oporornis tolmiei)
Wilson's warbler (Wilsonia pusilla)
American redstart (Setophaga ruticilla)
House sparrow (Passer domesticus)
Western meadowlark (Sturnella neglecta)
Yellow-headed blackbird (Xanthocephalus xanthocephalus)
Red-winged blackbird (Agelaius phoeniceus)
Brewer's blackbird (Euphagus cyanocephalus)
Brown-headed cowbird (Molothrus ater)
Northern oriole (Icterus galbula bullockii)
Western tanager (Piranga ludoviciana)
Black-headed grosbeak (Pheucticus melanocephalus)
Evening grosbeak (Coccothraustes vespertina)
Lazuli bunting (Passerina amoena)
Purple finch (Carpodacus purpureus)
Cassin's finch (Carpodacus cassinii)
House finch (Carpodacus mexicanus)
Pine grosbeak (Pinicola enucleator)
Rosy finch (Leucosticte arctoa)
Pine siskin (Carduelis pinus)

BIRDS OF THE WILLAMETTE (CONT.)

American goldfinch (Carduelis tristis)
Lesser goldfinch (Carduelis psaltria)
Red crossbill (Loxia curvirostra)
White-winged crossbill (Loxia leucoptera)
Green-tailed towhee (Pipilo chlorurus)
Rufous-sided towhee (Pipilo erythrophthalmus)
Savannah sparrow (Passerculus sandwichensis)
Vesper sparrow (Pooecetes gramineus)
Lark sparrow (Chondestes grammacus)
Dark-eyed junco (Junco hyemalis oreganus)
Chipping sparrow (Spizella passerina)
Brewer's sparrow (Spizella breweri)
White-crowned sparrow (Zonotrichia leucophrys)
Golden-crowned sparrow (Zonotrichia atricapilla)
White-throated sparrow (Zonotrichia albicollis)
Fox sparrow (Passerella iliaca)
Lincoln's sparrow (Melospiza lincolni)
Song sparrow (Melospiza melodia)

*Species or subspecies listed as "Unique" on Forest Service Region 6 list of Endangered, Threatened or Unique Species.

**Species or subspecies listed as "Threatened" or "Endangered" on Forest Service Region 6 list of Endangered, Threatened or Unique Species.

Nomenclature of Birds is based on "A Guide to Field Identification, Birds of North America", Robbins, Bruun, Zim and Singer published by Golden Press, New York, 1983; and Checklist of North American Birds, American Ornithologists' Union, 1974.

MAMMALS OF THE WILLAMETTE NATIONAL FOREST

SPECIES

Opposum (Didelphus virginiana), (Introduced)
Dusky shrew (Sorex obscurus)
Vagrant shrew (Sorex vagrans)
Water shrew (Sorex palustris)
Trowbridge shrew (Sorex trowbridgii)
Coast mole (Scapanus orarius)
Shrew mole (Neurotrichus gibbsii)
Little brown myotis (Myotis lucifugus)
California myotis (Myotis californicus)
Long-eared myotis (Myotis evotis)
Yuma myotis (Myotis yumanensis)
***Townsend's big-eared bat (Plecotus townsendii)
Big brown bat (Eptesicus fuscus)
Pika (Ochotona princeps)
Snowshoe hare (Lepus americanus)
Brush rabbit (Sylvilagus bachmani)
*Mountain beaver (Aplodontia rufus)
Beechey ground squirrel (Ostospermophilus beecheyi)
Sierra Nevada golden-mantled ground squirrel (Callospermophilus lateralis)
Yellow pine chipmunk (Eutamias amoenus)
Townsend chipmunk (Eutamias townsendii)
Western gray squirrel (Sciurus griseus)
Douglas squirrel (Tamiasciurus douglasii)
Northern flying squirrel (Glaucomys sabrinus)
Mazama pocket gopher (Thomomys mazama)
Beaver (Castor canadensis)
Deer mouse (Peromyscus maniculatus)
Bushy-tailed woodrat (Neotoma cinerea)
Red tree mouse (Phenacomys longicaudus)
Western red-backed mouse (Clethrionomys occidentalis)
Oregon meadow mouse (Microtus oregonia)
White-footed vole (Microtus albipes)
Water rat (Microtus richardsoni)
Porcupine (Erethizon dorsatum)
Red Fox (Vulpes fulva)
Coyote (Canis latrans)
Black bear (Euarctos americanus)
Ring-tailed cat (Bassariscus astutus)
Raccoon (Procyon lotor)
Marten (Martes americana)
*Fisher (Martes pennanti)
Ermine (Mustela erminea)
Long-tailed weasel (Mustela frenata)
Mink (Mustela vison)
*Wolverine (Gulo luscus)
Spotted skunk (Spilogale putorius)
Striped skunk (Mephitis mephitis)
River otter (Lutra canadensis)

MAMMALS OF THE WILLAMETTEE (CONT.)

Mountain lion (Felis concolor)

Bobcat (Lynx rufus)

Roosevelt elk (Cervus canadensis roosevelti)

Black-tailed deer (Odocoileus hemionus columbianus)

Mule deer (Odocoileus hemionus hemionus)

Yellow bellied marmot (Marmota flaviventris)

*Species or subspecies listed as "Unique" on Forest Service Region 6 list of Endangered, Threatened or Unique Species.

Nomenclature of Mammals based on "Mammals of the Pacific States" by F. Ingles, Stanford University Press, 1965.

Reptiles, amphibians, birds, and mammals believed to be in the Middle Santiam Research Natural Area are listed below:¹

| Order | Scientific name | Common name | Elevation and habitat ² |
|--------------------------------------|--|---------------------------|---|
| REPTILES AND AMPHIBIANS ³ | | | |
| Caudata | <i>Ambystoma gracile</i> | Northwestern salamander | Low-mid; riparian, upland (during rains) |
| | <i>Aneides ferreus</i> | Clouded salamander | Low; upland |
| | <i>Batrachoseps wrighti</i> | Oregon slender salamander | Low-mid |
| | <i>Dicamptodon ensatus</i> | Pacific giant salamander | Low-high; riparian, upland |
| | <i>Ensatina eschscholtzi</i> subspecies <i>oregonensis</i> | Ensatina | Low; riparian-upland |
| | <i>Plethodon dunni</i> | Dunn's salamander | Low; riparian-upland |
| | <i>Rhyacotriton olympicus</i> | Olympic salamander | Low; riparian |
| | <i>Taricha granulosa</i> | Rough-skinned newt | Low-high; riparian, upland |
| | | | |
| Anura | <i>Ascaphus truei</i> | Tailed frog | Low-mid; riparian |
| | <i>Bufo boreas</i> | Western toad | Low-high; riparian, upland |
| | <i>Hyla regilla</i> | Pacific tree frog | Low-mid; riparian, upland |
| | <i>Rana aurora</i> | Red-legged frog | Low; riparian, upland (only during heavy rains) |
| | | | |
| | <i>Rana cascadae</i> | Cascade frog | High; riparian, upland |
| Serpentes | <i>Charina bottae</i> | Rubber boa | Low-mid; upland |
| | <i>Diadophis punctatus</i> | Ringneck snake | Low; upland |
| | <i>Thamnophis ordinoides</i> | Northwestern garter snake | Low-high; upland |
| | <i>Thamnophis sirtalis</i> | Common garter snake | Low-high; upland, riparian |
| Squamata | <i>Sceloporus occidentalis</i> | Western fence lizard | Low; upland |
| | | | |
| BIRDS ⁴ | | | |
| Anseriformes | <i>Aix sponsa</i> | Wood duck | Low; riparian |
| | <i>Ardea herodias</i> | Great blue heron | Low; riparian |
| | <i>Histrionicus histrionicus</i> | Harlequin duck | Low; riparian |
| | <i>Mergus merganser</i> | Common merganser | Low; riparian |

¹Vertebrates listed are believed to use the area during some part of the year; information supplied by Chris Maser, wildlife biologist, U.S. Department of the Interior, Bureau of Land Management, Forestry Sciences Laboratory, Corvallis, Oregon.

²Elevation: low=300 to 800 m, mid=800 to 1200 m, high=1200+ m.

³Nomenclature follows Stebbins (1966).

⁴Nomenclature follows Peterson (1961).

| Order | Scientific name | Common name | Elevation and habitat ² |
|------------------|--------------------------------|------------------------|-------------------------------------|
| Falconiformes | <i>Accipiter gentilis</i> | Goshawk | Low-mid; old growth |
| | <i>Buteo jamaicensis</i> | Red-tailed hawk | Low-high |
| | <i>Cathartes aura</i> | Turkey vulture | Low-high |
| Galliformes | <i>Bonasa umbellus</i> | Ruffed grouse | Low-mid |
| | <i>Dendragapus obscurus</i> | Blue grouse | Low-high |
| Columbiformes | <i>Columba fasciata</i> | Band-tailed pigeon | Low-high |
| | <i>Zenaidura macroura</i> | Mourning dove | Low-mid |
| Strigiformes | <i>Aegolius acadicus</i> | Saw-whet owl | Low-mid; old growth |
| | <i>Bubo virginianus</i> | Great-horned owl | Low-mid |
| | <i>Glaucidium gnoma</i> | Pygmy owl | Low-mid; old growth, riparian |
| | <i>Strix occidentalis</i> | Spotted owl | Low-high; old growth |
| Caprimulgiformes | <i>Chordeiles minor</i> | Common nighthawk | Low-high; openings |
| Apodiformes | <i>Chaetura vauxi</i> | Vaux's swift | Low-high; old growth |
| | <i>Megaceryle alcyon</i> | Belted kingfisher | Low; riparian |
| | <i>Selasphorus rufus</i> | Rufous hummingbird | Low-high; openings, forest margins |
| Piciformes | <i>Colaptes cafer</i> | Red-shafted flicker | Low-high |
| | <i>Dendrocopos pubescens</i> | Downy woodpecker | Low-high; second growth, old growth |
| | <i>Dendrocopos villosus</i> | Hairy woodpecker | Low-high; old growth |
| | <i>Dryocopus pileatus</i> | Pileated woodpecker | Low-high; old growth |
| | <i>Sphyrapicus varius</i> | Red-breasted sapsucker | Low-high; old growth |
| Passeriformes | <i>Bombycilla cedrorum</i> | Cedar waxwing | Low-high |
| | <i>Certhia familiaris</i> | Brown creeper | Low-high; old growth |
| | <i>Cinclus mexicanus</i> | Dipper (water ouzel) | Low-high; riparian |
| | <i>Contopus sordidulus</i> | Western wood pewee | Low-high; forest margins |
| | <i>Corvus corax</i> | Common raven | Low-high; cliff |
| | <i>Cyanocitta stelleri</i> | Steller's jay | Low-high; old growth |
| | <i>Dendroica auduboni</i> | Audubon's warbler | Low-mid; forest margins |
| | <i>Dendroica occidentalis</i> | Hermit warbler | Low-high; old growth |
| | <i>Dendroica townsendii</i> | Townsend's warbler | Low-high; old growth |
| | <i>Empidonax difficilis</i> | Western flycatcher | Low-high; old growth |
| | <i>Empidonax hammondi</i> | Hammond's flycatcher | Low-mid; old growth |
| | <i>Empidonax oberholseri</i> | Dusky flycatcher | Low-high; forest margin |
| | <i>Hesperiphona vespertina</i> | Evening grosbeak | High; openings, old growth |

| Order | Scientific name | Common name | Elevation and habitat ² |
|-------|----------------------------------|---------------------------|-------------------------------------|
| | <i>Hylocichla guttata</i> | Hermit thrush | Low-high; old growth |
| | <i>Hylocichla ustulata</i> | Swainson's thrush | Low-high; old growth |
| | <i>Ixoreus naevius</i> | Varied thrush | Mid-high; old growth |
| | <i>Junco hyemalis</i> | Slate-colored junco | Low-high; openings |
| | <i>Leucosticte tephrocotis</i> | Gray-crowned rosy finch | Mid-high; old growth |
| | <i>Loxia curvirostra</i> | Red crossbill | High; old growth |
| | <i>Melospiza melodia</i> | Song sparrow | Low-high; openings |
| | <i>Myadestes townsendi</i> | Townsend's solitaire | Low-high; old growth, riparian |
| | <i>Nucifraga columbiana</i> | Clark's nutcracker | High; old growth, forest margins |
| | <i>Oporornis tolmiei</i> | MacGillivray's warbler | Low; forest margins |
| | <i>Parus articapillus</i> | Black-capped chickadee | Low-high; second growth, old growth |
| | <i>Parus rufescens</i> | Chestnut-backed chickadee | Low-high; second growth, old growth |
| | <i>Passerella iliaca</i> | Fox sparrow | Low-high; openings |
| | <i>Perisoreus canadensis</i> | Gray jay | Mid-high; old growth |
| | <i>Petrochelidon pyrrhonota</i> | Cliff swallow | Cliff; low; riparian |
| | <i>Pinicola enucleator</i> | Pine grosbeak | Low-high; old growth |
| | <i>Pipilo erythrophthalmus</i> | Rufous-sided towhee | Low-high; openings |
| | <i>Piranga ludoviciana</i> | Western tanager | Low-high; old growth |
| | <i>Regulus calendula</i> | Ruby-crowned kinglet | Low-high; old growth |
| | <i>Regulus satrapa</i> | Golden-crowned kinglet | Mid-high; old growth |
| | <i>Sialia mexicana</i> | Western bluebird | High; openings, forest margins |
| | <i>Sitta canadensis</i> | Red-breasted nuthatch | Low-high; old growth |
| | <i>Spinus pinus</i> | Pine siskin | Low-high |
| | <i>Stelgidopteryx ruficollis</i> | Rough-winged swallow | Low; riparian |
| | <i>Sturnus vulgaris</i> | Starling | — |
| | <i>Tachycineta thalassina</i> | Violet-green swallow | Low-high; openings, riparian |
| | <i>Troglodytes troglodytes</i> | Winter wren | Low-high; old growth, second growth |
| | <i>Turdus migratorius</i> | Robin | Low-high |
| | <i>Vireo solitarius</i> | Solitary vireo | Low-mid |
| | <i>Zonotrichia leucophrys</i> | White-crowned sparrow | Low-high; openings |

| Order | Scientific name | Common name | Elevation and habitat ² |
|----------------------|-----------------------------------|----------------------------|--|
| MAMMALS ⁵ | | | |
| Insectivora | <i>Neurotrichus gibbsi</i> | Shrew-mole | Low-high; riparian-upland |
| | <i>Scapanus orarius</i> | Pacific mole | Low-high; riparian-upland |
| | <i>Sorex bendirei</i> | Pacific water shrew | Low-high; riparian |
| | <i>Sorex obscurus</i> | Dusky shrew | Low-high; riparian-upland |
| | <i>Sorex trowbridgei</i> | Trowbridge shrew | Low-high; second growth, old growth |
| | <i>Sorex vagrans</i> | Vagrant shrew | Low-high; upland |
| | <i>Sorex obscurus</i> | Dusky shrew | Low-high; riparian-upland |
| Chiroptera | <i>Eptesicus fuscus</i> | Big brown bat | Low-high; old growth, second growth |
| | <i>Lasionycteris noctivagans</i> | Silver-haired bat | Low-high; old growth, second growth |
| | <i>Lasiurus cinereus</i> | Hoary bat | Low-high |
| | <i>Myotis californicus</i> | California myotis | Low-high; riparian |
| | <i>Myotis evotis</i> | Long-eared myotis | Low-high; riparian |
| | <i>Myotis lucifugus</i> | Little brown myotis | Low-high |
| | <i>Myotis volans</i> | Long-legged myotis | Low-high |
| | <i>Myotis yumanensis</i> | Yuma myotis | Low; riparian |
| | <i>Plecotus townsendi</i> | Western big-eared bat | Low-high; cliff, old growth, second growth |
| | | | Low-high |
| Lagomorpha | <i>Lepus americanus</i> | Snowshoe hare | Mid-high; talus slopes |
| | <i>Ochotona princeps</i> | Pika | |
| Rodentia | <i>Aplodontia rufa</i> | Mountain beaver | Low-mid |
| | <i>Castor canadensis</i> | Beaver | Low; riparian |
| | <i>Clethrionomys occidentalis</i> | California red-backed vole | Low-high; second growth, old growth |
| | <i>Erethizon dorsatum</i> | Porcupine | Low-high |
| | <i>Eutamias townsendi</i> | Townsend chipmunk | Low-high |
| | <i>Glaucomys sabrinus</i> | Northern flying squirrel | Low-high; second growth, old growth |
| | <i>Microtus longicaudus</i> | Longtail vole | Low; riparian |
| | <i>Microtus richardsoni</i> | Richardson vole | Low-high; riparian |
| | <i>Neotoma cinerea</i> | Bushytail woodrat | Low-high; talus slopes, old growth |
| | <i>Peromyscus maniculatus</i> | Deer mouse | Low-high |
| | <i>Phenacomys albipes</i> | Pacific phenacomys | Low; riparian |
| | <i>Phenacomys longicaudus</i> | Tree phenacomys | Low-mid; second growth, old growth |
| | <i>Tamiasciurus douglasi</i> | Chickaree | Low-high; second growth, old growth |
| | <i>Zapus trinotatus</i> | Pacific jumping mouse | Low; riparian |

⁵Nomenclature follows Burt and Grossenheider (1976).

| Order | Scientific name | Common name | Elevation and habitat ² |
|--------------|---|------------------|---------------------------------------|
| Carnivora | <i>Canis latrans</i> | Coyote | Low-high; openings |
| | <i>Felis concolor</i> | Mountain lion | Low-high |
| | <i>Lutra canadensis</i> | River otter | Low-mid; riparian |
| | <i>Lynx rufus</i> | Bobcat | Low-high |
| | <i>Martes americana</i> | Marten | Low-high; talus slopes, old growth |
| | <i>Mustela erminea</i> | Shorttail weasel | Low-high |
| | <i>Mustela frenata</i> | Longtail weasel | Low-high |
| | <i>Mustela vison</i> | Mink | Low-mid; riparian |
| | <i>Procyon lotor</i> | Raccoon | Low-mid; riparian |
| | <i>Spilogale putorius</i> | Spotted skunk | Low-mid |
| | <i>Ursus americanus</i> | Black bear | Low-high |
| | <i>Vulpes fulva</i> | Red fox | Mid-high; openings |
| Artiodactyla | <i>Cervus elaphus</i> subspecies <i>roosevelti</i> | Roosevelt elk | Low-high |
| | <i>Odocoileus hemionus</i> subspecies <i>columbianus</i> | Blacktail deer | Low-high |

Table WM-2. — Tentative list of mammals for Wildcat Mountain Research Natural Area

| Order | Scientific name | Common name |
|--------------|-----------------------------------|-------------------------------|
| Insectivora | <i>Neurotrichus gibbsi</i> | shrew mole |
| | <i>Scapanus orarius</i> | coast mole |
| | <i>Scapanus townsendi</i> | Townsend mole |
| | <i>Sorex bendirii</i> | marsh shrew |
| | <i>Sorex palustris</i> | northern water shrew |
| | <i>Sorex trowbridgii</i> | Trowbridge shrew |
| | <i>Sorex vagrans</i> | wandering shrew |
| Chiroptera | <i>Eptesicus fuscus</i> | big brown bat |
| | <i>Lasionycteris noctivagans</i> | silver-haired bat |
| | <i>Lasiurus borealis</i> | red bat |
| | <i>Lasiurus cinereus</i> | hoary bat |
| | <i>Myotis californicus</i> | California myotis |
| | <i>Myotis evotis</i> | long-eared myotis |
| | <i>Myotis lucifugus</i> | little brown myotis |
| | <i>Myotis thysanodes</i> | fringed myotis |
| | <i>Myotis volans</i> | long-legged myotis |
| | <i>Myotis yumanensis</i> | Yuma myotis |
| | <i>Plecotus townsendi</i> | Townsend big-eared bat |
| Lagomorpha | <i>Lepus americanus</i> | snowshoe hare |
| | <i>Ochotona princeps</i> | pika |
| Rodentia | <i>Aplodontia rufa</i> | mountain beaver |
| | <i>Arborimus albipes</i> | white-footed vole |
| | <i>Arborimus longicaudus</i> | red tree vole |
| | <i>Clethrionomys californicus</i> | California red-backed vole |
| | <i>Erethizon dorsatum</i> | porcupine |
| | <i>Eutamias amoenus</i> | yellow-pine chipmunk |
| | <i>Eutamias townsendi</i> | Townsend chipmunk |
| | <i>Glaucomys sabrinus</i> | northern flying squirrel |
| | <i>Microtus longicaudus</i> | long-tailed vole |
| | <i>Microtus oregoni</i> | Oregon or creeping vole |
| | <i>Microtus richardsoni</i> | Richardson vole |
| | <i>Microtus townsendi</i> | Townsend vole |
| | <i>Neotoma cinerea</i> | bushy-tailed wood rat |
| | <i>Peromyscus maniculatus</i> | deer mouse |
| | <i>Phenacomys intermedius</i> | heather vole |
| | <i>Tamiasciurus douglasi</i> | chickaree |
| | <i>Thomomys mazama</i> | Mazama pocket gopher |
| | <i>Zapus trinotatus</i> | Pacific jumping mouse |
| Carnivora | <i>Canis latrans</i> | coyote |
| | <i>Canis lupus</i> | wolf |
| | <i>Felis concolor</i> | mountain lion or cougar |
| | <i>Gulo luscus</i> | wolverine |
| | <i>Lynx rufus</i> | bobcat |
| | <i>Martes americana</i> | marten |
| | <i>Martes pennanti</i> | fisher |
| | <i>Mustela erminea</i> | short-tailed weasel or ermine |
| | <i>Mustela frenata</i> | long-tailed weasel |
| | <i>Mustela vison</i> | mink |
| | <i>Procyon lotor</i> | raccoon |
| | <i>Spilogale putorius</i> | spotted skunk or civet cat |
| | <i>Ursus americanus</i> | black bear |
| Artiodactyla | <i>Vulpes fulva</i> | red fox |
| | <i>Cervus canadensis</i> | wapiti or elk |
| | <i>Odocoileus h. hemionus</i> | mule deer |

DECISION NOTICE/DESIGNATION ORDER
AND
FINDING OF NO SIGNIFICANT IMPACT

Three Creek Research Natural Area

USDA Forest Service, Willamette National Forest
Sweet Home Ranger District
Linn County, Oregon

By virtue of the authority vested in me by the Chief of the Forest Service, in Forest Service Manual Section 4063, I hereby established the Three Creek Research Natural Area (RNA). It shall be comprised of 691 acres of land in Linn County, Oregon, on the Sweet Home District of the Willamette National Forest, as described in the section of the Establishment Record entitled "location".

The Regional Forester recommended the establishment of this RNA in the Record of Decision for the Willamette National Forest Land and Resource Management Plan in 1990. That recommendation was the result of an analysis of the factors listed in 36 CFR 219.25 and Forest Service Manual 4063.41. Results of the Regional Forester's analysis are documented in the Forest Plan and Final Environmental Impact Statement which are available to the public.

The Regional Forester has reexamined the Three Creek area to ensure that the environmental effects of establishing the area as an RNA have not changed since 1990. This analysis is documented in the attached environmental assessment. Based on the analysis in the environmental assessment, it is my decision to adopt Alternative A, to establish Three Creek as an RNA. Alternative A is selected because it provides long-term protection and recognition of very old, late-successional stands. The Three Creek RNA will be managed in compliance with all relevant laws, regulations, and Forest Service Manual direction regarding RNA's, and in accordance with the management direction identified in the Forest Plan.

The other alternative considered was Alternative B, the "No Action" alternative which would continue management of Three Creek as a "proposed" RNA. Alternative B was not selected because it would only provide short-term protection of the Three Creek area.

Alternative B is consistent with the Forest Plan. Although the proposed action (Alternative A) is consistent with the management direction, it is not consistent with the land allocation for the Three Creek Area in the Forest Plan. The Willamette Forest Plan is hereby amended to change the allocation of the Three Creek area from "Proposed" to Established RNA. This is a non-significant amendment of the Forest Plan [36 CFR 219.10(f)].

It has been determined through the environmental assessment that the proposed action is not a major Federal action that would significantly affect the quality of the human environment, therefore, an environmental impact statement is not needed. This determination is based on the following factors (40 CFR 1508.27):

A. Context

Although this is an addition to the national system of RNA's, both short-term and long-term physical and biological effects are limited to the local area.

B. Intensity

1. There are no known effects on public health and safety.
2. There are no known effects on historic or cultural resources, actual or eligible National Register of Historic places sites, park lands, prime farmlands, wetlands, wild and scenic rivers. Effects on ecologically critical areas are minimal.
3. Effects on the human environment are not uncertain, do not involve unique or unknown risks, and are not likely to be highly controversial.
4. The action is not likely to establish a precedent for future actions with significant effects.
5. No significant direct, indirect or cumulative impacts to natural resources or other components of the human environment are anticipated.
6. The proposed action will not adversely affect any federally listed or proposed endangered or threatened species or associated critical habitat, nor will it affect any Regionally sensitive plant or animal species.
7. The proposed action is consistent with the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (USDA, USDI 1994).
8. The proposed action is consistent with Federal, State, and local laws and requirements for the protection of the environment.

Legal notice of this decision will appear in The Oregonian. The Forest Supervisor of the Willamette National Forest shall notify the public of this decision and mail a copy of the Decision Notice/Designation Order to all persons on the Willamette Forest Plan mailing list.

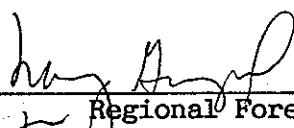
Implementation of this decision shall not occur within seven days following publication of the legal notice of the decision in The Oregonian.

This decision is subject to appeal pursuant to 36 CFR Part 217. Any written Notice of Appeal must be fully consistent with 36 CFR 217.9 (Content of a Notice of Appeal) and must include the reasons for appeal. A written notice of appeal must be submitted to:

Chief, USDA Forest Service
14th & Independence Ave., S.W.
P.O. Box 96090
Washington, D.C. 20090-6090

within 45 days of the date of legal notice of this decision.

For further information, contact Alice Smith, Sweet Home Ranger District, 3225 Highway 20, Sweet Home, Oregon, 97386, or by phone at (503) 367-5168.



Regional Forester

NANCY GRAYBEAL (for)

Deputy Regional Forester

March 29, 1995

Date

ENVIRONMENTAL ASSESSMENT
Three Creek Research Natural Area
Willamette National Forest,
Sweet Home Ranger District,
Linn County, Oregon

Proposed Action

The proposed action is to establish the Three Creek Research Natural Area (RNA) proposed in the Willamette National Forest (WNF) Land and Resource Management Plan (USDA Forest Service 1990), and to manage it according to the direction provided in the WNF Plan (Chp. IV., pages 134-137). The proposed action, formal designation of the RNA by the Regional Forester, will amend the Forest Plan.

Purpose and Need for Action

The purpose of establishing the Three Creek RNA is to contribute to a series of RNA's 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). The Three Creek RNA contributes to this series of RNA's by providing an example of very old stands of Douglas-fir, Pacific silver fir, and Alaska yellow-cedar, as discussed in the WNF EIS (Chp. III., p. 170). An evaluation by the Regional RNA Committee, pursuant to direction in Forest Service Manual (FSM) 4063.04b, of the need for RNA's identified these types as suitable and desirable for inclusion in the national network. Establishment of the Three Creek RNA provides long-term protection and recognition of this type.

The Three Creek area was identified in the WNF Plan as a "proposed" RNA based on the relatively undisturbed conditions of these types in the area at that time. Comments received from interested and affected members of the public supported establishment of an RNA in the area. Site conditions and public concerns have been reviewed; no important changes have occurred. Conditions and environmental effects of designation are the same as described on pages 167-170 of the EIS for the WNF Plan. Designation of alternate RNA's for protection of this type was considered during WNF Plan development (WNF Plan EIS, Chp. III., pages 169-170). Three Creek was determined at that time to provide the most appropriate site for inclusion in the national network for protection of this type.

Alternatives and Environmental Consequences

Alternative A, Proposed Action

Alternative A would designate a 691 acre area as the Three Creek RNA. Three Creek was estimated to be 725 acres in the WNF Plan (Chp. IV., p. 29); more precise measurement sets acreage at 691 as described on page 3 of the attached Establishment Record (ER). Management of the area discourages recreation use; ORV use is prohibited, as is timber harvest. Fire management strategies will emphasize late successional communities (WNF Plan, Chp. IV., pages 134-137).