

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

CHERRY CREEK BASIN RESEARCH NATURAL AREA

(Klamath County, Oregon)

Winema National Forest

Klamath Ranger District



ESTABLISHMENT RECORD
FOR THE
CHERRY CREEK BASIN RESEARCH NATURAL AREA

WINEMA NATIONAL FOREST
KLAMATH COUNTY, OREGON

SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Cherry Creek Basin Research Natural Area
Winema National Forest
Klamath 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.

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INTRODUCTION

The Cherry Creek Basin was first recommended as a potential Research Natural Area in the 1970's by Bill Hopkins, Region 6 Area IV ecologist. The McLoughlin-Klamath Planning Unit FEIS of 1979 allocated a portion of the Cherry Creek watershed to Proposed RNA. A draft establishment record was begun in the early 1980's.

The entire 9,638-acre RNA is located within the boundaries of the Winema National Forest (Figure 1). Approximately 88% of the RNA lies within the Sky Lakes Wilderness Boundary. The primary use of this area is semi-primitive recreation, including hiking, horseback riding, cross-country skiing, camping, fishing, and hunting. The area outside the wilderness is used for roaded natural recreation, including dispersed camping, fishing, and hunting. Timber harvest occurred on 250 acres of the RNA during the 1960's and 1970's.

Land Management Planning

The Winema National Forest Land and Resource Management Plan of 1990 (Forest Plan) proposes the establishment of the Cherry Creek Basin RNA and directs development of this establishment record. The Forest Plan designates the portion outside the wilderness boundary as Management Area 13, Research Natural Area. Inside the wilderness boundary, the RNA is allocated to Management Area 6, Wilderness Management.

OBJECTIVES

The primary objective of establishing the Cherry Creek Basin RNA is to preserve representative areas that typify the nine forest, alpine, and aquatic community cell types listed under the justification statement below. The Cherry Creek Basin ecosystem will be maintained in a natural condition, by allowing physical and biological processes to prevail without human intervention to the extent possible.

Maintaining the RNA in a natural condition will provide a reference area for the study of succession and other long-term ecological changes, opportunities for onsite and extension educational activities, and control sites for comparing results from manipulative research and the effects of resource management techniques and practices outside the RNA. The RNA will also serve as a reserve for the preservation and maintenance of genetic diversity and biodiversity as a whole.

JUSTIFICATION STATEMENT FOR ESTABLISHMENT OF AREA

The Cherry Creek Basin RNA adequately represents eight cell types in the East Slope of the Oregon Cascades physiographic province which are not represented in any other established RNA (Oregon Natural Heritage Plan, 1993). They include: first-to-third order stream system in the white fir/Shasta red fir zone; high elevation lake; subalpine pond; white fir-Douglas-fir/snowberry community; white fir-Douglas-fir/snowbrush community; white fir-Shasta red fir/long-stolon sedge community with chinquapin; Shasta red fir-mountain hemlock/pinemat manzanita community; and mountain hemlock/grouse huckleberry community. A ninth cell type, the lodgepole pine/grouse huckleberry community, is also present, but is represented in the Cache Mountain RNA as well.

In addition to filling eight gaps in the RNA system, the Cherry Creek Basin RNA will provide the opportunity for studies of ecosystem processes and functioning in a third order watershed. Other RNA's on the east slope of the southern Oregon Cascades are not large enough to provide this opportunity.

Opportunities for research on the habitat of threatened, endangered, or sensitive species are also present. The RNA contains habitat for one documented sensitive plant species and potential habitat for six sensitive plants. Two threatened and six sensitive wildlife and fish species have been located in the RNA. Potential habitat is present for an additional four sensitive wildlife and fish species.

PRINCIPAL DISTINGUISHING FEATURES

The Cherry Creek RNA encompasses the entire upper and mid portions of the Cherry Creek watershed, which drains eastward from the Cascade crest to the Klamath Lake Basin (Figure 2). The wide range of elevations, land forms, and aspects within the RNA make it one of the most important and diverse habitat areas on the Klamath Ranger District. Nine different terrestrial and aquatic community cell types are adequately represented in the RNA. Two threatened species and several other species on the Region 6 sensitive plant and animal lists have been documented, or have potential habitat in the RNA.

LOCATION

The Cherry Creek Basin RNA is located entirely on the Klamath Ranger District of the Winema National Forest at T34S R6E, Sections 16-21, 28-30; and T34S R5E, Sections 2, 3, 10-15, 22-26. Appendix A contains the official metes and bounds description.

AREA BY COVER TYPES

Four Society of American Forester (SAF) cover types and 4 Kuchler types are present in the RNA. Figure 3 shows the distribution of cover types in the RNA. Table 1 gives approximate acres (hectares) for the cover types and also lists locally recognized plant associations and ecoclasses.

PHYSICAL AND CLIMATIC CONDITIONS

The RNA lies in the East Slope of the Oregon Cascades physiographic province south of Crater Lake National Park and the Mazama pumice and ash mantle. High, broad ridgetops at the crest of the Cascades form the western boundary of the RNA. East of the crest, the RNA consists of a high, glaciated, gently rolling plateau with scattered volcanic cones and peaks. Hummocky topography and small, scattered kettle lakes are present. From the high plateau, steep forested slopes descend to the Klamath Lake Basin. The predominant feature is the eastward-draining Cherry Creek stream system, with a deep, glaciated stream valley.

SAF Type	Kuchler Type	Plant Association or Ecoclass	Acres (Hectares)
205 Mtn Hemlock	K4 Fir-Hemlock	Mtn Hemlock/Grouse Huckleberry	4209 (1704)
		Shasta Red Fir-Mtn Hemlock/Pinemat Manzanita/Long Stolon Sedge	
207 Red Fir	K7 Red Fir	Shasta Red Fir-Mtn Hemlock/Pinemat Manzanita/Long Stolon Sedge	1785 (722)
		Shasta Red Fir-White Fir/Chinquapin-Princes Pine/Long-Stolon Sedge	
211 White Fir	K5 Mixed Conifer	White Fir/Chinquapin-Boxwood-Princes Pine	2547 (1031)
		Mixed Conifer/Snowbrush-Pinemat Manzanita	
		White Fir-Alder/Shrub Meadow	
218 Lodgepole Pine	--	Lodgepole Pine/Grouse Huckleberry/ Long Stolon Sedge	94 (38)
--	K45 Meadows & Barren	Moist/Wet Meadow	25 (10)
		Rocky Land/Talus	846 (342)
		Lakes and Ponds	132 (53)
Total			9638 (3900)

TABLE 1. ACRES BY COVER TYPE IN THE CHERRY CREEK BASIN RNA.

Cold, snowy winters and warm, dry summers characterize the climate of the RNA. Precipitation is greatest during December to January and falls primarily as snow (Carlson, 1979). Deep snowpacks can accumulate, particularly at the higher elevations. Significantly lower amounts of precipitation fall during the summer, concurrent with moderate to high temperatures. Annual precipitation averages between 60 inches/year at upper elevations near the Cascade crest and 30 inches/year at the lower-most elevations near the eastern boundary of the RNA. The length of the growing season can be extremely short, ranging from an average of six days at upper elevations, to 23 days at lower elevations. Killing frosts can occur on any night throughout the summer. Average temperature and precipitation data from U.S. Weather Bureau Stations at Crater Lake (15 miles north), Fort Klamath (8 miles northeast), and Chiloquin (12 miles east) are listed in Appendix B.

DESCRIPTION OF VALUES

Flora

The RNA contains habitat for several species on the Region 6 sensitive plant list. A large population of the category 2 plant species Mt. Mazama collomia (Collomia mazama) has been documented in the RNA. Sensitive species which have been located in other areas of the District and have suitable habitat inside the RNA include Newberry's gentian (Gentiana newberryi), and pondmoss (Calliergon trifarium). Habitat is also present on the higher peaks for four sensitive species known to occur just outside the district boundary: Shasta arnica (Arnica viscosa), Crater Lake Rockcress (Arabis suffrutescens var. horizontalis), Bolander's hawkweed (Hieraceum bolanderi), and pumice grapefern (Botrychium pumicola). Appendix C contains a list of plant species which have been documented as occurring in the Cherry Creek Basin RNA. Nomenclature follows Hitchcock and Cronquist (1973). Surveys for non-vascular plants and fungi have not yet been completed. Habitat for some of the survey and manage species listed in Table C-3 of the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents within the Range of the Northern Spotted Owl may also be present.

The RNA overlaps three different vegetation zones as described in Franklin and Dyrness (1973). More than one locally recognized plant association (Hopkins, 1979) occurs within each of the zones. The mountain hemlock zone occurs at the upper elevations and the high plateau near the crest of the Cascades. Forests of the mountain hemlock/grouse huckleberry (Tsuga mertensiana/Vaccinium scoparium) plant association dominate the wilderness plateau. Shasta red fir (Abies magnifica var. shastensis), lodgepole pine (Pinus contorta), western white pine (Pinus monticola), white bark pine (Pinus albicaulus), and subalpine fir (Abies lasiocarpa) are often minor overstory components of this association. Diversity in the shrub and herbaceous layers is low. Grouse huckleberry is common in openings and under partial canopies; big huckleberry (Vaccinium membranaceum) occupies mesic sites; and pinemat manzanita (Arctostaphylos nevadensis) grows on rocky sites. Herbaceous species are sparse and include prince's pine (Chimaphila umbellata), long-stolon sedge (Carex pensylvanica), sidebells pyrola (Pyrola secunda), rattlesnake plantain (Goodyera oblongifolia), and bleeding hearts (Dicentra formosa).

The lodgepole pine/grouse huckleberry/long-stolon sedge association is found in concave basins at the upper elevations. Mountain hemlock and Shasta red fir are minor overstory components. Stands of this association tend to have open canopies and dense shrub cover. Grouse huckleberry, big huckleberry, and pinemat manzanita are the dominant shrubs. *Spiraea* (*Spiraea douglasii*) and Sitka mountain ash (*Sorbus sitchensis*) may also be found. Common herbaceous species are long-stolon sedge, sickle keeled lupine (*Lupinus albicaulis*), spreading phlox (*Phlox diffusa*), and sidebells pyrola.

The Shasta red fir-mountain hemlock/pinemat manzanita/long-stolon sedge association overlaps the mountain hemlock zone and the red fir zone. It is found primarily on upper slopes and ridgetops. Western white pine and lodgepole pine are minor canopy components. The shrub and herbaceous layers are generally depauperate. Pinemat manzanita is the dominant shrub, occurring on rocky sites. Prince's pine, sidebells pyrola, white vein pyrola (*Pyrola picta*), dwarf bramble (*Rubus lasiococcus*), white flowered hawkweed (*Hieracium albiflorum*), and striped coralroot (*Corallorhiza striata*) are scattered underneath closed canopies, while long-stolon sedge is more prominent in the openings.

Several non-forested communities also occur in the mountain hemlock zone. The hummocky Sky Lakes Basin contains numerous vernal wet depressions, ponds, and small lakes with distinctive vegetation. Meadows dominated by tufted hairgrass (*Deschampsia caespitosa*) occur in many of the vernal wet depressions. Some depressions have bare centers which support a variety of mudflat species, including bristle-like quillwort (*Isoetes echinospora*) and awlwort (*Subularia aquatica*). Patches of sedge (*Carex* sp.) and mats of moss (*Polystrichum* sp., *Drepanocladus* sp.) can also be found. Shrubs consisting of species such as *spirea*, dwarf huckleberry (*Vaccinium caespitosum*), western huckleberry (*Vaccinium occidentale*), and grouse huckleberry often form transition zones between these meadows and surrounding forest.

Several ponds holding 1-2 feet of water exhibit distinct zonation of vegetation. Submersed and floating leaved aquatics (*Sparganium angustifolium*, *Nuphar polysepalum*, *Potamogeton* sp., and *Juncus* sp.) are found in shallow water. In one pond, an unusual fresh-water sponge was also located. At the edge of the water, typical mudflat species occur. Inflated sedge (*Carex vesicaria*) or lenticular sedge (*C. lenticularis*) often form dense stands in saturated soils or intermittent standing water around the edges of ponds. Tufted hairgrass, bog St. Johnswort (*Hypericum anagalloides*), elephanthead (*Pedicularis groenlandica*), long-stalked clover (*Trifolium longipes*), and alpine shooting star (*Dodecatheon alpinum*) also occur around the edges of ponds. Shrub transition zones similar to those described above are present.

The lakes (Trapper, Margurette, Lower Puck, Deep, Sonya, Wizard, White Pine, Donna, Martin, No-See-Um, and Snow Lakes) differ from ponds in being significantly deeper and having steeper sides. Aquatic vegetation is limited around the lakes and consists primarily of sporadic occurrences of buckbean (*Menyanthes trifoliata*) and spikerush (*Eleocharis palustris*), with patches of inflated sedge. Shrubs are generally present around the lakeshore.

Moving east from the Cascade crest, the mountain hemlock zone grades into the Shasta red fir zone. Few stands are composed of pure Shasta red fir. In addition to the Shasta red fir-mountain hemlock association described above, forests of the Shasta red fir-white fir (Abies concolor)/chinquapin (Castanopsis chrysophylla)-prince's pine/long-stolon sedge plant association occur on the upper slopes and higher elevations of the Cherry Creek drainage. These forests also overlap with the white fir zone.

On upland sites, Douglas-fir (Pseudotsuga menziesii) and western white pine are minor canopy components of the Shasta red fir-white fir association. Chinquapin often forms dense patches in openings and on rocky sites. Green manzanita (Arctostaphylos patula), pinemat manzanita, boxwood (Pachystima myrsinites), and oceanspray (Holodiscus discolor) may also be present on open, rocky slopes. Herbaceous species are scattered on rocky sites and include sully buckwheat (Eriogonum umbellatum), western eupatorium (Eupatorium occidentale), rock brake (Cryptogramma crista), spreading phlox (Phlox diffusa) and cliff penstemon (Penstemon rupicola). Under closed canopies, ground cover is sparse and limited to species described above for the Shasta red fir-mountain hemlock association.

On mesic sites, Engelmann spruce (Picea engelmannii), mountain hemlock, and Douglas-fir are often present. Big huckleberry, grouse huckleberry, and spirea are common shrubs. Herbaceous species include arrowleaf groundsel (Senecio triangularis), solomon plume (Smilacina stellata), bracken fern (Pteridium aquilinum), Scouler's harebell (Campanula scouleri), mountain sweetroot (Osmorhiza chilensis), bigleaf sandwort (Arenaria macrophylla), and bleeding hearts.

The white fir zone occurs at approximately 5,600 feet elevation on south-facing slopes and approximately 5,200 feet elevation on north-facing slopes. Upland forests are primarily of the white fir/chinquapin-boxwood-prince's pine association. Ponderosa pine (Pinus ponderosa) and Douglas-fir may be present in these stands. Dense stands of white fir have little shrub or herbaceous cover. Chinquapin dominates rocky sites and openings in the upland forests with snowbrush, pinemat manzanita, and squaw carpet (Ceanothus prostratus). Boxwood and snowberry (Symphoricarpos mollis) are common under partial canopy closure, becoming more prominent as this association grades into the white fir-alder (Alnus incana) association on the moister creek terraces. Common herbaceous species are prince's pine, rattlesnake plantain, long-stolon sedge, brome (Bromus carinatus), and strawberry (Fragaria vesca).

A highly variable and poorly defined white fir-alder/shrub meadow association occurs along Cherry Creek and on the adjacent terraces. Stands dominated by white fir, Engelmann spruce, lodgepole pine or mixes of these species are present in this association. Solomon plume, bead lily (Clintonia uniflora), and twinflower (Linnaea borealis) grow on the upper terraces under partial canopy closure with boxwood and snowberry. Dry openings on the upper terraces may be dominated by shrubs such as honeysuckle (Lonicera conjugialis), squaw current (Ribes cereum), and serviceberry (Amelanchier alnifolia); or grasses and forbs such as western needlegrass (Stipa occidentalis), bottlebrush squirreltail (Sitanion hystrix), blue wildrye (Elymus glaucus), Idaho fescue (Festuca idahoensis), tall trisetum (Trisetum canescens) goldenrod (Solidago canadensis), Indian paintbrush (Castilleja miniata), tawny hawkweed (Horkelia fusca), and few-flowered aster (Aster modestus).

On the lower terraces, prickly current (Ribes lacustre) is the primary shrub. Thimbleberry (Rubus parviflorus), solomon plume, bead lily, twinflower, pathfinder (Adenocaulon bicolor), wild pea (Lathyrus nevadensis), heart-leaved arnica (Arnica cordifolia), mountain sweetroot, coolwort foamflower (Tiarella trifoliata), strawberry, and sweetroot are common herbs. Along the creek itself, alder, black cottonwood (Populus trichocarpa), and red oiser dogwood (Cornus stolonifera) grow in patches. Streamside herbaceous species include several grasses (tall managrass (Glyceria elata), woodreed (Cinna latifolia, reedgrass (Calamagrostis canadensis), weak alkali grass (Puccinellia pauciflora), and bentgrass (Agrostis thurberiana)) and a variety of forbs (arrowleaf groundsel, Lewis monkeyflower (Mimulus lewisii), yellow monkeyflower (M. guttatus), musk monkeyflower (M. moschatus), willowherb (Epilobium glandulosum), rigid betony (Stachys rigida), angelica (Angelica genuflexa), and cow parsnip (Heracleum lanatum)).

Several small springs feed into Cherry Creek in the white fir zone and are surrounded by lush vegetation. Species such as slender bog orchid (Habenaria saccata), monkshood (Aconitum columbianum), small flowered bulrush (Scirpus microcarpus), small winged sedge (Carex microptera), small flowered woodrush (Luzula parviflora), and leopard lily (Lilium pardalinum) occur at one or more of these sites.

The mixed conifer/snowbrush-pinemat manzanita plant association occurs on south-facing slopes at the lowest elevations. Ponderosa pine, white fir, and Douglas-fir are the major overstory species in these stands, with minor amounts of sugar pine (Pinus lambertiana) and incense cedar (Calocedrus decurrens). Chinquapin, snowbrush, and green manzanita occupy openings. Snowberry, boxwood, and pinemat manzanita grow under partial canopies. Common herbaceous species include prince's pine, strawberry, hairy hawkweed (Hieraceum albertinum), and long-stolon sedge.

Fauna

The RNA contains habitat for several species of fish and wildlife which are on the Region 6 sensitive species list. Redband trout (Onchorhynchus mykiss) and bull trout (Salvelinus confluentus) have been located in Cherry Creek. The Cascade frog (Rana cascadae) was found during recent surveys. Spotted frogs (Rana pretiosa) were also sighted in the Sky Lakes Basin in 1974. Sensitive species of mammals include marten (Martes americana), which have been documented in the Sky Lakes Basin. There are historical sightings of California wolverine (Gulo gulo luteus) near Crater Lake and the Cascade crest. Potential habitat for North American lynx (Felis lynx canadensis) and Pacific western big-eared bat (Plecotus townsendii) is present. Northern spotted owl (Strix occidentalis) nests have been located in the Cherry Creek drainage. Bald eagles (Haliaeetus leucocephalus) use the area and may nest near some of the lakes. Northern goshawks (Accipiter gentilis) have also been sighted in the RNA. (Goshawks and the three amphibians noted are not currently on the R6 list, but have been elevated to C2 status and are proposed for inclusion in the next list update.)

Cherry Creek provides approximately 5.8 miles of fish habitat inside the RNA. Recent stream surveys have located brook trout (Salvelinus fontinalis) and redband trout in the creek. There is historical documentation of bull trout and a recent finding of a bull trout x brook trout hybrid. The larger lakes (Deep, Donna, Marguerette, Southern Puck, Snow, Sonya, Trapper, Wind, and Wizard) are stocked with brook and rainbow trout by the Oregon Department of Fish and Wildlife. See Appendix D.

The Sky Lakes Basin was briefly surveyed by Cross and Lang (1975) for amphibians and reptiles. A more thorough amphibian survey was done by Hayes in 1994. In addition to the Cascade and spotted frog, the northern alligator lizard (Gerrhonotus coeruleus), Rough-skinned newt, (Taricha granulosa), common garter snake (Thamnophis sirtolisi), boreal toad (Bufo boreas), and pacific treefrog (Pseudacris (Hyla) regilla) were identified. Appendix E shows other amphibian and reptile species likely to occur in the RNA.

Mammals documented in the RNA include martin, coyote (Canis latrans), cougar (Felis concolor), black bear (Euarctos americanus), golden-mantled squirrel (Citellus lateralis), Townsend's chipmunk (Eutamias townsendi), beaver (Castor canadensis), porcupine (Erethizon dorsatum), pika (Ochotona princeps), showshoe hare (Lepus americanus), elk (Cervus canadensis), and mule deer (Odocoileus hemionus) (Cross and Lang, 1975; observations by District personnel). Habitat for many other mammal species is present (see Appendix F).

Incomplete surveys by Cross and Lang (1975) and Wilson (1993) identified over 50 bird species in the RNA (Appendix G). Species most frequently encountered by Wilson include stellar jay (Cyanocitta stelleri), mountain chickadee (Parus gambeli), red-breasted nuthatch (Sitta canadensis), golden-crowned kinglet (Regulus satrapa), yellow-rumped warbler (Dendroica coronata), Western tanager (Piranga ludoviciana), chipping sparrow (Spizella passerina), and Dark-eyed junco (Junco hyemalis).

Geology

The RNA is underlain by volcanic rocks of late Miocene to Holocene age which are part of the sequence of volcanic rocks of the High Cascade Range (Smith and Benham, 1984). Volcanic rocks of the High Cascade Range occur in andesite stratovolcanoes and less prominent basalt and basaltic-andesite shield volcanoes, as well as small, generally monogenetic volcanoes of basalt, basaltic andesite or andesite, extensive valley-filling flows, and cinder cones. Constructional volcanic landforms predominate, although stream erosion and glacial action has considerably modified the symmetrical shapes of older volcanoes. Most of the volcanoes formed between 3.5 million and 500,000 years ago. Extensive ice sheets extended over most of the RNA more than once, covering the crest of the Cascades to a depth of hundreds of feet. Valley glaciers spread eastward down the Cherry drainage to the Klamath Lake Basin. Surficial deposits consist of loose aggregates of boulders, cobbles, pebbles, gravel, sand, silt, and clay deposited as alluvium along the stream valley; an alluvial fan at the mouth of Cherry Creek; and glacial deposits in the glacially carved Cherry Creek canyon and along the broad crest of the Cascade Range.

Soils

Unnamed soils of the R group, derived from a mixture of volcanic ash, weathered andesites, basalts, mudflows, and pyroclastics are found on the upper to lower slopes of Cherry Creek (Carlson, 1979). The R group consists of well-drained gravelly and cobbly fine sandy loams to loam soils. Gravel, cobble, and stones make up 10 to 75 percent of the soil material. Slope gradients range from 0 to 70%. Soils on concave slope positions tend to be less rocky, while those on steeper slopes are higher in coarse fragments. Productivity is potentially quite high as a result of high fertility. A generalized description of the soil profile is as follows: The litter layer consists of a needle mat layer up to 3 inches in depth. The A horizon is comprised of a dark brown, very gravelly loam, with weak fine granular structure 0-6 inches in depth. The A3 horizon extends down to 17 inches below the surface and differs mainly in its slightly sticky and plastic character. The B horizon extends down to 34 inches and is lighter in color; a dark yellowish brown and pale brown, very gravelly clay loam, with structure ranging from weak and very fine to fine subangular-blocky. In the C horizon, the structure is massive. Bedrock is generally greater than 60 inches below the surface.

Unnamed soils of the X group formed from glacial till in the uplands and valley bottom where slope gradients are less than 35%. This group consists of well-drained gravelly to very gravelly and cobbly sandy loams and loamy sands. Gravel, cobble, and stones make up 15 to 75% of the soil material. These soils tend to be less fertile and shallower than R group soils (depth to bedrock is greater than 40"). The impervious nature of dense glacial till or mudflow material underlying the soil at fairly shallow depths increases the chance for runoff and limits water storage space. A generalized description of the soil profile is as follows: The litter layer consists of needles and is 0-2 inches in depth. The A1 horizon is a very dark, grayish brown, gravelly cobbly loam, with weak fine granular structure 0-6 inches in depth. The A2 horizon extends to 12 inches and is a dark brown, very gravelly and cobbly sandy loam, with weak fine and very fine subangular blocky structure. The B horizon extends to 21 inches and is a dark yellow-brown, very gravelly, cobbly sandy loam, with weak fine and very fine subangular blocky structure. The C horizon extends beyond 21 inches and is comprised of dense glacial till.

Lands

The RNA was included in the Cascade Range Forest Reserve created in 1893. The area was successively part of the Cascade, Crater, and Rogue River National Forests, before becoming part of the Winema National Forest in 1961. There are no outstanding rights on any portion of the RNA.

Cultural

A review of Klamath Ranger District files (Penn II Timber Sale survey, 1986; Sky Lakes Wilderness survey, 1989; Cherry Creek Trail Reroute survey, 1990; and on-going Nannie Planning Area survey) indicates that the proposed Cherry Creek RNA currently contains four inventoried cultural resource sites. A new site (not inventoried at this time) has been recently discovered. The inventoried cultural resource sites include two historic era structure remnants (cabins) within the Sky Lakes Wilderness and two prehistoric era vision quest sites. The newly discovered site is also an historic era cabin in moderate condition.

The historic era use of the area has not been ascertained, but it is likely that hunting or trapping and possibly grazing may have been conducted in the watershed.

The presence of the two known vision quest sites attests to spiritual or religious significance of the area to the Klamath Indians and their predecessors. One site consists of a single rock cairn on an east and south facing slope, with a view of the lower portion of the RNA. The other vision quest site sits atop a peak and is much larger. This site has more than 100 rock cairns and at least 12 semi-circular rock alignments ("prayer seats"). It commands a view of most of the Cherry Creek drainage as well as distant landscape features important to Klamath Indian religious practices and oral traditions.

Inventory of the Cherry Creek watershed is incomplete, and it is likely that other cultural sites exist. The watershed's perennial fish-bearing stream and broad, flat flood plain would have been attractive for human subsistence use. A number of meadows are located along Cherry Creek, and such habitats are frequently associated with edible plant resources important to the Klamath Indians and their predecessors. The area is easily traversed and may have made an ideal transportation route connecting marsh and high altitude ecological zones, each of which were economically important during different seasons of the year. Additional sites could include prehistoric era lithic scatters where edible plants, game animals and fish may have been collected and processed; and historic stock pens, cabins, and miscellaneous artifact scatters, attesting to short term camping and recreational activities.

IMPACTS AND POSSIBLE CONFLICTS

Mineral Resources

It is unlikely that the Cherry Creek Basin RNA contains significant metallic mineral or geothermal energy resources. No mining districts occur within the RNA and no mining claims have been recorded. Geologic mapping, aeromagnetic surveys, and spectrographic analyses of rocks and stream sediments by the US Geological Survey as well as field observations, scintillation surveys, and assays of samples from the most likely sites within the Sky Lakes Wilderness by the US Bureau of Mines failed to show any evidence of mineralization or hydrothermally altered areas (Smith and Benham, 1984). Geologic mapping and aeromagnetic and gravity surveys likewise give no indication of buried silicic magma bodies of sufficient size to serve as sources of heat for geothermal systems. Volcanic cinders, scoria, ash, and breccia which could be used in road construction, along with sand and gravel, occur in the area, but these deposits are remote, and larger deposits of equal or better quality occur at more accessible localities in nearby areas (Smith and Benham, 1984). The geology of the area is not favorable for metallic deposits, or for coal, oil, or gas resources.

Grazing

The RNA is not included in any grazing allotments on the Forest. Establishment of the RNA will have no impact on grazing use.

Timber

The portion of the RNA lying outside the Sky Lakes Wilderness boundary totals 1,171 acres, all of which are forested. Approximately 360 acres are suitable for timber production. These acres are currently withdrawn from the timber producing base in the Forest Plan. The remaining 811 acres are unsuitable for timber production, primarily because of their high rock content.

Watershed Values

Cherry Creek is a third order stream, designated as a Key Watershed in the Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl. It originally flowed from the Cascade crest to the wetlands west of Agency Lake. A large percentage of the flow is now diverted for use on private land near the eastern District boundary. The Cherry Creek watershed is approximately 12,000 acres in size. The RNA will encompass all of the upper and mid portions of the watershed. The lower-most portion of the watershed occurs outside the RNA on both National Forest System and private land. Approximately 8% of the watershed has been detrimentally compacted by timber harvest and road construction. This includes 250 acres inside the RNA boundary. Because the entire upper portion of the watershed is contained in the Sky Lakes Wilderness, it is already protected from major human-caused disturbances, such as road building and timber harvest. Establishment of the RNA will protect watershed values in the portion outside the wilderness.

Recreation Values

The RNA is currently used for hiking, horseback riding, dispersed camping, swimming, fishing, and hunting. The Cherry Creek Trail follows Cherry Creek for much of its length and connects with the north-south Sky Lakes Trail near Trapper Lake. The Pacific Crest National Scenic Trail follows the western boundary of the RNA. The Nannie Creek Trail enters the northern portion of the RNA and also connects with the Sky Lakes Trail. A number of shorter trails lead to various lakes in the area. Recreation use is moderate, but does cause soil compaction, alteration and loss of vegetation, and disturbance to wildlife in some areas. Impacts are heaviest around the larger lakes: Lake Margurette, Trapper Lake, and Lake Sonya. Areas not immediately adjacent to, or easily accessed by existing trails show very little impact. Because wilderness management takes precedence over RNA management, establishment of the RNA will have no effect on wilderness values (see section on Special Management Area values).

Wildlife and Plant Values

By allowing the natural processes of succession, fire, flooding, erosion, etc., to occur in the watershed, a mosaic of forested stands and openings in different conditions and seral stages will be maintained. This is expected to provide suitable habitat for the threatened and sensitive species present in the RNA, and to maintain biodiversity as a whole. No management needs for improving/enhancing threatened, endangered, or sensitive species habitat have been identified in the RNA or will be precluded as a result of its establishment.

Special Management Area Values

The portion of the RNA inside the Sky Lakes Wilderness boundary will be managed according to FSM and Forest Plan objectives for wildernesses. Forest Plan standard and guideline Wilderness 1. for Management Area 13 states, "Wildernesses shall take precedence where they overlap with RNA's, because land use regulations are generally more restrictive in wilderness. Management plans for wildernesses shall address overlaps with RNA's." This policy may restrict some research activities inside the RNA; for example, any requiring the use of mechanical devices.

Transportation Plans

Two existing roads enter the RNA. Forest Road 3419 is proposed for closure at the RNA boundary. Forest Road 3450 ends just inside the eastern boundary of the RNA, at the Cherry Creek Trailhead. The Winema transportation plan neither identifies a need, nor proposes to construct additional roads in the RNA.

MANAGEMENT PRESCRIPTION

The Winema Forest Plan designates RNA's as Management Area 13 and provides the goal, desired future condition, and standards and guidelines for their management on pages 4-156 through 4-158 (see Appendix H). A management plan and monitoring plan will be developed for the RNA.

VEGETATION MANAGEMENT

The Cherry Creek RNA will be included in an upcoming Prescribed Natural Fire Plan for the Sky Lakes Wilderness. No other vegetation management practices are proposed at this time.

ADMINISTRATION, RECORDS, AND PROTECTION

Listed below are the principal contacts responsible for administering and protecting the Cherry Creek Basin RNA.

1. For administration and protection of the physical area:

District Ranger
Klamath Ranger District
1936 California Avenue
Klamath Falls, OR 97601

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 Cherry Creek Basin RNA will be maintained in the following offices:

Director Pacific Northwest Research Station 333 S.W. First Avenue P.O. Box 3890 Portland, OR 97208	USFS Region 6 RNA Database Coordinator Forestry Sciences Lab 3200 Jefferson Way Corvallis, OR 97331
Forest Supervisor Winema National Forest 2819 Dahlia Street Klamath Falls, OR 97601	District Ranger Klamath Ranger District 1936 California Avenue Klamath Falls, OR 97601

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 database at the Forestry Sciences Lab, Corvallis, Oregon, under the cooperative agreement between the Oregon State University Forest Science databank and the Forest Service.

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APPENDIX A. BOUNDARY DESCRIPTION

Map: cherry 02/15/94, 15:18:05 LT4X V 3.13 User:matg
 Object 93: bndyl
 Closed Traverse generated from LT4x data
 Basis of Bearing: State Plane grid bearings
 State Plane Projection used,
 zone 3602 OREGON SOUTH ZONE, NAD 27.

point no.	bearing	distance- feet	-- point description -----
1			POB - Summit Cherry Peak; GPS Pt.#12, ROS#5311 Lat. 42-34-40.47066 Long. 122-09-01.16497 State Plane Coord. N.336478.058 E.4476793.742
2	S76/23/23.2W	2859.78	Intersection of USFS Rds. 3419 and 710
3	N88/44/19.2W	7732.36	Protracted Section Corner for 25,26,35 and 36
4	N49/45/54.9W	3903.22	Summit
5	N35/23/40.9W	7057.45	Intersection of Pacific Crest Trail and Cascade Crest. Boundary between Winema and Rogue River National Forests.
6	N30/10/19.4E	415.71	Along the Cascade Crest
7	N36/06/31.8E	246.44	
8	N24/18/59.0E	153.75	
9	N43/53/08.0W	28.55	
10	N01/07/06.1E	100.94	
11	N34/25/19.6W	173.65	
12	N20/41/03.6W	108.71	
13	N35/45/15.8W	302.80	
14	N18/32/11.2W	300.10	
15	N37/32/39.9W	129.26	
16	N10/11/30.7W	102.93	
17	N01/07/06.6E	323.00	
18	N05/03/49.3E	586.83	
	N12/55/05.9W	83.23	

19	N43/53/06.7W	28.55
20	N01/07/06.6E	60.56
21		Along the Cascade Crest
	N20/41/02.5W	108.71
22	N43/53/06.6W	57.10
23	N03/38/42.7W	243.09
24	N43/53/06.4W	28.55
25	N01/07/06.7E	60.56
26	N43/53/06.4W	57.10
27	N03/07/04.5W	546.55
28	N25/26/52.7W	90.28
29	N01/07/06.9E	323.00
30	N46/06/54.9E	57.10
31	N06/18/46.6E	222.98
32	N05/35/29.0W	345.55
33	N25/26/52.3W	90.28
34	N05/13/18.1W	182.80
35	N04/23/20.5E	707.72
36	N19/33/09.9E	191.52
37	N46/06/54.0E	28.55
38	N09/51/52.2E	265.53
39	N32/04/49.2E	235.44
40	N07/27/30.8E	365.62
41	N19/33/09.3E	383.05
42	N46/06/53.2E	342.61
43	N17/19/01.2W	63.84
44	N05/21/16.9E	546.56
45	N46/06/52.7E	28.55

46	N01/07/06.2E	121.13	
47	N22/55/06.8E	108.72	
48			Along the Cascade Crest
	N46/06/52.5E	85.65	
49	N01/07/06.1E	20.19	
50	N57/25/23.8E	72.79	
51	N36/39/12.0E	173.67	
52	N01/07/05.9E	100.94	
53	N09/51/51.0E	265.53	
54	N14/08/13.1W	230.17	
55	N19/06/24.9W	408.75	
56	N43/53/03.6W	28.55	
57	N04/07/51.8E	384.10	
58	N46/06/51.7E	28.55	
59	N01/07/06.1E	40.38	
60	N10/58/35.0W	289.03	
61	N22/04/50.5W	153.74	
62	N36/17/19.2W	432.00	
63	N22/50/40.3W	198.81	
64	N14/49/37.1W	146.96	
65	N25/26/49.9W	451.38	
66	N43/53/02.2W	256.93	
67	N55/11/42.8W	72.78	
68	N88/53/17.7W	60.56	
69	N52/00/53.9W	100.93	
70	N68/39/43.0W	408.74	
71	N59/08/26.9W	162.74	
72	N43/53/01.5W	57.09	

73	N28/37/37.0W	162.75	
74	N46/36/37.2W	300.09	
75	N34/25/12.8W	173.65	
76	N20/40/57.9W	108.71	
77	N43/53/01.0W	57.09	
78	N30/53/14.9W	190.44	Summit of Shale Butte
79	N17/18/57.7W	191.51	
80	N25/26/47.7W	270.83	
81	N01/07/08.5E	121.13	
82	N17/18/57.4W	63.84	
83	N37/32/32.8W	258.51	
84	N12/55/01.3W	249.70	
85	N03/38/39.8W	243.09	
86	N46/06/51.0E	28.55	
87	N46/06/50.9E	28.55	Summit Lucifer
88	N83/59/11.5E	162.75	
89	N54/14/35.7E	201.88	
90	S88/53/17.7E	20.19	
91	N47/54/13.3E	914.07	
92	N57/25/21.2E	436.73	
93	N77/04/30.9E	83.23	
94	N57/25/21.0E	291.16	
95	S88/53/17.7E	20.19	
96	N45/01/58.4E	756.72	
97	N67/08/57.2E	198.82	
98	N40/55/11.0E	315.35	
99	N75/09/57.7E	146.96	
100	N34/48/17.7E	72.79	

101	N57/25/20.1E	72.79	
102	S88/53/17.7E	40.37	Summit of Devils Peak
103	S55/11/41.0E	72.78	
104	S43/53/00.5E	285.47	
105	S88/53/17.7E	20.19	
106	S53/20/49.0E	173.64	
107	S70/27/06.3E	63.83	
108	S88/53/17.7E	80.75	
109	N46/06/48.3E	28.55	
110	S84/18/50.6E	506.27	
111	S76/21/30.7E	186.11	
112	S52/00/52.9E	201.86	
113	S82/10/40.8E	345.53	
114	S73/37/55.1E	230.16	
115	S49/04/45.1E	4887.41	Summit of Lee Peak, leave Cascade Crest
116	S74/27/05.7E	6315.95	Summit
117	S01/56/00.3W	1413.27	Intersection of protracted Range Line between Ranges 5 & 6 East and Sections 12 & 7.
118	S23/21/42.6E	5944.35	Summit
119	S80/17/49.3E	2837.91	Summit of Lather Mountain
120	N82/18/18.1E	1450.43	Intersect Sky Lakes Wilderness Boundary (SLWB) AP#353 - ROS#5365
121	S81/07/23.2E	2241.19	AP#354 - ROS#5365, SLWB
122	N53/20/10.9E	2043.25	AP#355 - ROS#5365, SLWB
123	S86/04/21.7E	1232.93	AP#356 - ROS#5365, SLWB; Leave SLWB
124	S51/54/10.2E	3993.14	Summit
125	S00/34/40.3W	4340.52	Summit
126	S22/23/53.3W	1668.26	Intersect Centerline of Cherry Creek
127	S11/04/23.6E	1817.45	Cherry Creek Trailhead, end of USFS Rd#3450

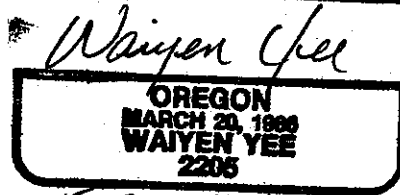
128
S74¹/₄28/25.4W 3666.31
129 Summit
S79/28/24.3W 6204.39
130 POB

traverse length = 93565.60 feet
traverse area = 421473139 sq. feet = 9675.69 acres

This written description accurately depicts, to the best of my knowledge and ability, that parcel of land intended for use as a Research Natural Area. I certify the boundary description was prepared under my direct supervision.

Waiyen Yee 5/31/95

Waiyen Yee, PLS
FOREST LAND SURVEYOR



Exp: 6/30/96

Monthly Means and Extremes

Crater Lake, Oregon

Period: 1961-1990

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Mean Temperature (°F)													
Maximum	34.5	35.2	36.4	41.8	49.2	58.1	67.9	68.5	61.7	52.1	38.5	34.4	48.2
Minimum	17.5	18.0	18.1	21.2	27.0	33.8	39.7	40.2	35.6	30.1	22.5	18.3	26.8
Mean	26.0	26.6	27.2	31.5	38.1	46.0	53.8	54.4	48.6	41.1	30.5	26.3	37.5
Extreme Temperature (°F)													
Maximum	58	60	61	68	75	82	86	90	87	76	68	64	90
Minimum	-21	-13	-7	0	5	13	24	24	11	10	-4	-13	-21
Precipitation (inches)													
Monthly mean	9.66	7.78	8.09	4.60	3.01	1.98	.68	1.29	2.38	4.75	10.56	10.84	65.82
Extreme 24 hour	4.43	2.69	3.65	2.00	1.46	1.28	1.73	2.00	2.00	2.78	3.25	7.13	7.13
Snowfall (inches)													
Monthly mean	85.27	73.24	87.48	43.04	19.26	3.95	.54	.24	4.05	21.31	69.10	84.02	495.00
Average number of days													
Temperature													
Maximum 90° or more	.0	.0	.0	.0	.0	.0	.0	.1	.0	.0	.0	.0	.1
Maximum 32° or less	13.7	11.8	11.7	6.8	1.2	.0	.0	.0	.0	2.0	8.8	14.1	69.6
Minimum 32° or less	30.5	28.0	30.8	28.3	23.9	12.6	4.0	3.3	9.7	18.8	27.4	30.7	245.9
Minimum 0° or less	1.2	.8	.3	.1	.0	.0	.0	.0	.0	.0	.1	.8	3.3
Precipitation													
.01 inches or more	16.7	15.6	18.5	14.1	10.0	7.6	3.2	4.6	6.3	10.2	17.3	17.8	141.0
.10 inches or more	14.3	12.9	15.6	10.3	7.2	5.0	1.9	3.3	4.7	7.9	14.4	15.5	112.5
.50 inches or more	7.2	6.3	6.2	3.1	2.2	1.1	.4	.9	1.5	3.9	8.2	7.9	48.7
1.00 inches or more	2.8	2.0	1.6	.7	.3	.2	.1	.1	.7	1.3	3.5	3.7	16.9
Degree Days													
Heating days @ 65°F	1208	1084	1172	1005	834	571	349	334	492	737	1034	1199	10000
Growing days @ 50°F	0	0	0	0	5	46	163	176	79	20	0	0	497

George H. Taylor
State Climatologist
November, 1992

Monthly Means and Extremes

Fort Klamath, Oregon

Period: 1953-1965

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Mean Temperature (°F)													
Maximum	37.2	41.2	45.3	54.0	62.1	69.9	79.5	77.4	72.7	60.8	46.4	39.6	57.4
Minimum	18.0	19.8	23.5	27.7	32.5	37.1	40.7	38.6	33.8	29.6	25.3	21.3	29.3
Mean	27.6	30.5	34.4	40.8	47.3	53.5	60.1	58.0	53.3	45.2	35.9	30.4	43.3
Extreme Temperature (°F)													
Maximum	57	59	66	76	84	94	95	95	94	84	69	67	95
Minimum	-20	-14	-2	8	0	23	26	24	19	17	-11	-13	-16
Precipitation (inches)													
Monthly mean	6.04	3.91	3.83	1.65	1.26	.97	.29	.62	.94	3.11	6.18	8.22	34.72
Extreme 24 hour	2.05	2.22	1.15	1.03	1.20	1.07	1.62	.83	1.64	3.10	4.80	6.23	4.00
Snowfall (inches)													
Monthly mean	40.17	12.34	23.15	5.95	.98	.04	.00	.00	.00	3.43	15.47	25.32	118.38
Average number of days													
Temperature													
Maximum 90° or more	.0	.0	.0	.0	.0	.5	2.3	.7	.4	.0	.0	.0	3.6
Maximum 32° or less	5.7	1.9	.4	.1	.0	.0	.0	.0	.0	.0	1.1	3.6	11.8
Minimum 32° or less	29.4	25.7	28.7	25.6	15.9	7.6	2.7	3.3	13.0	21.8	25.0	28.3	208.9
Minimum 0° or less	2.4	.9	.2	.0	.1	.0	.0	.0	.0	.0	.3	.3	3.9
Precipitation													
.01 inches or more	15.3	11.7	14.2	10.0	8.2	5.8	2.0	3.5	4.2	7.9	12.8	13.8	101.7
.10 inches or more	12.0	8.7	9.5	5.5	4.2	2.9	.6	1.7	2.1	5.3	9.4	10.4	67.0
.50 inches or more	4.1	2.3	3.0	.7	.5	.4	.1	.4	.7	1.8	4.1	5.3	21.6
1.00 inches or more	1.5	.9	.3	.1	.1	.1	.1	.0	.1	.8	1.5	2.3	7.1
Degree Days													
Heating days @ 65°F	1138	941	925	725	535	340	164	216	344	598	868	1034	7868
Growing days @ 50°F	0	0	0	3	49	142	309	247	128	23	0	0	1005

George H. Taylor
State Climatologist

Monthly Means and Extremes Chiloquin, Oregon

Period: 1961-1979

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Mean Temperature (°F)													
Maximum	39.6	44.3	47.0	53.5	64.5	73.6	81.7	81.8	74.9	62.2	47.9	40.1	57.8
Minimum	14.4	19.7	21.9	24.3	30.5	36.3	38.5	37.8	30.5	26.2	23.6	16.6	26.2
Mean	27.2	32.1	34.5	38.9	47.4	55.0	60.1	60.5	52.7	44.3	35.8	28.3	41.7
Extreme Temperature (°F)													
Maximum	60	63	73	76	87	95	96	102	90	84	71	58	102
Minimum	-24	-8	-9	5	10	20	25	21	11	5	-2	-9	-24
Precipitation (inches)													
Monthly mean	2.60	1.62	1.96	1.01	.91	.94	.22	.62	.40	1.44	2.69	2.79	17.98
Extreme 24 hour	2.20	.90	2.19	.74	.96	2.80	.50	1.31	.75	1.32	2.51	2.58	2.80
Snowfall (inches)													
Monthly mean	11.61	6.97	6.20	3.19	.17	.00	.00	.00	.00	.78	7.03	9.26	43.36
Average number of days													
Temperature													
Maximum 90° or more	.0	.0	.0	.0	.0	1.3	5.2	4.3	.4	.0	.0	.0	9.3
Maximum 32° or less	5.5	.9	.9	.1	.0	.0	.0	.0	.0	.0	.2	3.8	9.6
Minimum 32° or less	26.6	24.9	27.9	26.3	17.8	7.8	4.7	4.3	17.8	24.3	24.7	26.8	203.1
Minimum 0° or less	3.8	.7	2	.0	.0	.0	.0	.0	.0	.0	.3	1.7	6.1
Precipitation													
.01 inches or more	10.3	10.3	11.1	7.2	6.0	4.4	1.1	2.8	2.6	5.7	10.4	10.1	75.1
.10 inches or more	5.4	5.2	5.9	3.9	2.7	2.3	.8	1.4	1.1	3.4	5.9	7.0	41.2
.50 inches or more	1.7	.8	.8	.2	.4	.5	.1	.3	.2	1.1	1.6	1.1	8.1
1.00 inches or more	.4	.0	.3	.0	.0	.1	.0	.2	.0	.3	.4	.5	1.8
Degree Days													
Heating days @ 65°F	1089	879	919	763	524	281	158	150	353	614	823	1021	7713
Growing days @ 50°F	0	0	1	3	52	174	299	293	119	22	0	0	1079

George H. Taylor
State Climatologist

**Monthly Means and Extremes
Chiloquin, Oregon**

Period: 1980-1992

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Mean Temperature (°F)													
Maximum	36.8	42.0	49.0	57.5	64.9	72.9	80.2	80.9	72.8	62.6	44.9	36.1	58.5
Minimum	17.9	21.1	26.2	29.4	32.8	39.0	42.7	42.1	35.9	29.8	24.9	18.7	30.1
Mean	27.4	31.6	37.6	43.4	48.9	56.0	61.5	61.5	54.4	46.2	34.9	27.4	44.3
Extreme Temperature (°F)													
Maximum	56	64	72	84	93	94	98	96	96	85	67	53	98
Minimum	-7	-19	6	12	20	26	30	30	23	16	-7	-18	-19
Precipitation (inches)													
Monthly mean	2.25	2.65	2.37	1.35	1.22	.72	.64	.52	.71	1.21	3.12	3.65	21.08
Extreme 24 hour	1.48	1.73	1.69	.98	.98	.59	1.20	.71	.85	1.12	1.34	2.50	2.50
Snowfall (inches)													
Monthly mean	14.01	9.45	7.00	2.04	.13	.00	.00	.00	.00	.31	7.22	20.58	59.43
Average number of days													
Temperature													
Maximum 90° or more	.0	.0	.0	.0	.2	.9	3.3	2.9	.7	.0	.0	.0	7.5
Maximum 32° or less	8.8	2.9	.3	.0	.0	.0	.0	.0	.0	.0	2.0	7.9	20.9
Minimum 32° or less	28.7	25.8	27.3	21.6	16.5	5.3	.6	.3	7.2	21.8	26.4	29.2	199.2
Minimum 0° or less	1.6	1.9	.0	.0	.0	.0	.0	.0	.0	.0	.2	1.5	4.9
Precipitation													
.01 inches or more	10.1	10.6	12.6	8.1	6.1	5.8	3.3	2.5	4.2	6.3	12.5	12.9	90.0
.10 inches or more	6.4	7.2	6.9	4.7	4.0	2.7	1.8	1.5	2.2	3.5	7.6	8.5	54.1
.50 inches or more	.9	1.5	1.1	.6	.6	.3	.3	.4	.2	.5	2.3	2.0	10.1
1.00 inches or more	.3	.3	.1	.0	.0	.0	.1	.0	.0	.1	.4	.6	1.7
Degree Days													
Heating days @ 65°F	1167	945	848	647	503	283	140	130	322	583	903	1165	7543
Growing days @ 50°F	0	0	0	24	83	207	359	357	171	39	0	0	1259

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State Climatologist

APPENDIX C. PLANT SPECIES DOCUMENTED IN THE RNA

LOWER VASCULAR PLANTS

EQUISETACEAE

Equisetum arvense L.

ISOETACEAE

Isoetes echinospora Durieu

POLYPODIACEAE

Athyrium filix-femina (L.) Roth.

Cheilanthes gracillima D. Eaton

Cryptogramma crista (L.) R. Br.

Cystopteris fragilis (L.) Bernh.

Polystichum munitum (Kaulf.) C. Presl.

Pteridium aquilinum L.

GYMNOSPERMS

CUPRESSACEAE

Calocedrus decurrens (Torrey) Florin

Juniperus communis L.

PINACEAE

Abies concolor (Gord. & Glend.) Lindley

Abies lasiocarpa (Hook.) Nutt.

Abies magnifica A. Murray var. *shastensis* Lemmon

Picea engelmannii Engelm.

Pinus contorta Loudon

Pinus lambertiana Dougl.

Pinus monticola Dougl.

Pinus ponderosa (Mirbel) Laws.

Pseudotsuga menziesii (Mirbel) Franco

Tsuga mertensiana (Bong.) Carriere

ANGIOSPERMS-MONOCOTS

CYPERACEAE

Carex aquatilis Wahlenb.

Carex athrostachya Olney

Carex brunnescens (Pers.) Poir

Carex buxbaumii Wahlenb.

Carex deweyana Schw.

Carex disperma Dewey

Carex flava L.

Carex fracta Mack.

Carex jonesii Bailey

Carex lenticularis Michx.

Carex mertensii Prescott

Carex microptera Mack.

Carex multicostata Mack.

Carex pachystachya Cham.

Carex pensylvanica Lam.

Carex rossii Boott.

Carex rostrata Stokes

Carex scopulorum Holm.
Carex sitchensis Prescott
Carex subfusca W. Boott.
Carex vesicaria L.
Eleocharis palustris (L.) R. & S.
Scirpus congdonii Britt.
Scirpus microcarpus Presl.

IRIDACEAE

Sisyrinchium angustifolium Mill.

JUNCEAE

Juncus balticus Willd.
Juncus drummondii E. Meyer
Juncus ensifolius Wikst.
Juncus hemiendytus Herm.
Juncus nevadensis Wats.
Juncus parryi Engelm.
Juncus supiniformis Engelm.
Luzula campestris (L.) DC
Luzula divaricata Wats.
Luzula hitchcockii Hamet Ahti
Luzula parviflora (Ehrh.) Desv.

LILIACEAE

Clintonia uniflora (Schult.) Kunth.
Lilium pardalinum Kellogg
Smilicina racemosa (L.) Desf.
Smilicina stellata (L.) Desf.
Streptopus amplexifolius (L.) DC
Streptopus roseus Michx.
Trillium ovatum Pursh.
Veratrum viride Ait.

ORCHIDACEAE

Calypto bulbosa (L.) Oakes.
Corallorhiza mertensiana Bong.
Goodyera oblongifolia Raf.
Habenaria dilatata (Pursh.) Hook.
Habenaria saccata Greene
Listera cordata (L.) R. Br.

POACEAE

Agrostis exarata Trin.
Agrostis idahoensis Nash.
Agrostis pallens Trin.
Agrostis semiverticillata (Forsk.) Christ.
Agrostis scabra Willd.
Agrostis thurberiana Hitch.
Bromus orcuttianus Vasey
Bromus suksdorfii Vasey
Calamagrostis canadensis (Michx.) Beauv.
Calamagrostis neglecta (Ehrh.) G. M. & S.
Cinna latifolia L.
Danthonia intermedia Vasey
Danthonia spicata (L.) Beauv.
Deschampsia caespitosa (L.) Beauv.
Deschampsia elongata (Hook.) Munro
Elymus glaucus Buckl.
Festuca idahoensis Elmer
Glyceria elata (Nash) Jones
Melica harfordii Boland.
Melica smithii (Porter) Vasey

Melica subulata (Griseb.) Scribn.
Poa nervosa (Hook.) Vasey
Puccinellia pauciflora (Presl.) Munz
Sitanion hystrix (Nutt.) Smith
Stipa occidentalis Thurb.
Trisetum canescens Buckl.

POTAMOGETONACEAE

Potamogeton gramineus L.
Potamogeton natans L.

SPARGANIACEAE

Sparganium angustifolium Michx.

TYPHACEAE

Typha latifolia L.

ANGIOSPERMS-DICOTS

ACERACEAE

Acer circinatum Pursh.
Acer glabrum Torr.

APIACEAE

Angelica arguta Nutt.
Angelica genuflexa Nutt.
Heracleum lanatum Michx.
Ligusticum grayi J. Coult. & Rose
Lomatium triternatum (Pursh.) J. Coult. & Rose
Osmorhiza chilensis Hook. & Arn.

APOCYNACEAE

Apocynum androsaemifolium L.

ASTERACEAE

Achillea millefolium L.
Adenocaulon bicolor Hook.
Agoseris sp.
Anaphalis margaritacea (L.) Benth. & Hook..
Antennaria alpina (L.) Gaertn.
Antennaria luzuloides Torrey and Gray
Antennaria umbrinella Rydb.
Arnica amplexicaulis Nutt.
Arnica cordifolia Hook.
Arnica discoidea Benth.
Arnica longifolia D.C. Eat.
Arnica mollis Hook.
Artemisia ludoviciana Nutt.
Aster alpigenus (Torrey & Gray) Gray
Aster foliaceus Lindl. var. *parryi* (Eaton) Gray
Aster integrifolius Nutt.
Aster ledophyllus Gray
Aster modestus Lindl.
Aster occidentalis (Nutt.) Torrey & Gray
Cirsium vulgare (Savi) Tenore
Crepsis acuminata Nutt.
Erigeron peregrinus (Pursh.) E. Greene
Eriophyllum lanatum (Pursh.) J. Forbes
Eupatorium occidentale Hook.
Gnaphalium palustre Nutt.
Haplopappus bloomeri Gray
Hieraceum albertinum Farr.
Hieraceum albiflorum Hook.
Madia madioides (Nutt.) Greene

Rudbeckia occidentalis Nutt.
Senecio sylvaticus L.
Senecio triangularis Hook.
Solidago canadensis L.
Stephanomeria lactucina Gray

BERBERIDACEAE

Berberis aquifolium Pursh.
Berberis nervosa Pursh.
Berberis repens Lindl.

BETULACEAE

Alnus incana (L.) Moench
Alnus sinuata (Regel) Rydb.

BORAGINACEAE

Cryptantha sp.
Hackelia californica (Gray) Johnst.

BRASSICACEAE

Arabis divaricarpa Nels.
Rorippa nasturtium-aquaticum (L.) Schinz. & Tell.
Sisymbrium altissimum L.
Subularia aquatica L.

CAMPANULACEAE

Campanula prenanthoides Dur.
Campanula scouleri Hook.

CAPRIFOLIACEAE

Lonicera conjugialis Kell.
Lonicera involucrata (Rich.) Banks
Linnaea borealis L.
Sambucus racemosa L.
Symphoricarpos albus (L.) Blake
Symphoricarpos mollis Nutt.

CARYOPHYLLACEAE

Arenaria congesta Nutt.
Arenaria kingii (Wats.) Jones
Arenaria macrophylla Hook.
Sagina saginoides (L.) Britt.
Silene douglasii Hook.
Stellaria longifolia Muhl.

CELASTRACEAE

Pachistima myrsinites (Pursh.) Raf.

CORNACEAE

Cornus stolonifera Michx.

CRASSULACEAE

Sedum oreganum Nutt.

ERICACEAE

Arctostaphylos nevadensis Gray
Arctostaphylos patula Greene
Chimaphila menziesii (R. Br.) Spreng.
Chimaphila umbellata (L.) Bart.
Gaultheria humifusa (Grah.) Rydb.
Kalmia microphylla (Hook.) Heller
Phyllodoce empetriformis (SW) D. Don
Pterospora andromeda Nutt.
Pyrola aphylla Smith
Pyrola asarifolia Michx.
Pyrola picta Smith
Pyrola secunda L.
Pyrola uniflora L.
Vaccinium caespitosum Michx.

Vaccinium membranaceum Dougl.
Vaccinium occidentale Gray
Vaccinium scoparium Leiberg
Vaccinium uliginosum L.

FABACEAE

Lathyrus nevadensis Wats.
Lathyrus nevadensis Wats. ssp. *cusickii*
Lupinus sp.
Lupinus polyphyllus Lindl. var. *burkei* (Wats.) Hitch.
Trifolium eriocephalum Nutt.
Trifolium longipes Nutt.
Vicia americana Muhl.

FAGACEAE

Castanopsis chrysophylla (Dougl.) DC

FUMITORIACEAE

Dicentra formosa (Andr.) Walp.
Dicentra uniflora Kell.

GENTIANACEAE

Gentiana simplex Gray
Menyanthes trifoliata L.

GERANIACEAE

Geranium richardsonii Fisch. & Trautv.
Geranium viscosissimum F. & M.

GROSSULARIACEAE

Ribes cereum Dougl.
Ribes cruentum (Greene) Rehd.
Ribes inerme Rydb.
Ribes lacustre (Pers.) Poir.
Ribes laxiflorum Pursh.
Ribes lobbii Gray
Ribes viscosissimum Pursh.

HYDROPHYLLACEAE

Hydrophyllum fendleri (Gray) Heller
Phacelia heterophylla Pursh.

HYPERICACEAE

Hypericum anagalloides C. & S.

MENTHACEAE

Mondardella odoratissima Benth.
Prunella vulgaris L.
Stachys rigida Nutt.

NYMPHACEAE

Nuphar polysepalum Engelm.

ONAGRACEAE

Circaea alpina L.
Epilobium angustifolium L.
Epilobium glandulosum Lehm.
Epilobium minutum Lindl.
Epilobium paniculatum Nutt.

POLEMONIACEAE

Collomia grandiflora Dougl.
Collomia mazama Coville
Collomia tinctoria Kell.
Gilia aggregata (Pursh.) Spreng.
Phlox diffusa Benth.
Polemonium californicum Eastw.
Polemonium pulcherrimum Hook.

POLYGONACEAE

Eriogonum umbellatum Torr.

Polygonum confertiflorum Nutt.

Polygonum bistortoides Pursh.

PRIMULACEAE

Dodecatheon alpinum (Gray) Greene

RANUNCULACEAE

Aconitum columbianum Nutt. var. *howellii* (Nels. & Macbr.) Hitchc.

Actaea rubra (Ait.) Willd.

Anemone deltoidea Hook.

Anemone oregana Gray

Aquilegia formosa Fisch.

Delphinium occidentale Wats.

Ranunculus gormannii Greene

RHAMNACEAE

Ceanothus prostratus Benth.

Ceanothus velutinus Dougl.

Rhamnus alnifolia L'Herr.

Rhamnus purshiana DC.

ROSACEAE

Amelanchier alnifolia Nutt.

Fragaria vesca L.

Fragaria virginiana Duchesne

Geum macrophyllum Willd.

Holodiscus discolor (Pursh.) Maxim.

Horkelia fusca Lindl.

Potentilla glandulosa Lindl.

Prunus emarginata (Dougl.) Walp.

Rosa gymnocarpa Nutt.

Rosa woodsii Lindl.

Rubus lasiococcus Gray

Rubus parviflorus Nutt.

Rubus ursinus Cham. & Schlecht.

Sorbus scopulina Greene

Spiraea densiflora Nutt.

Spiraea douglasii Hook.

RUBIACEAE

Galium aparine L.

Galium oreganum Britt.

Galium triflorum Michx.

Kelloggia galioides Torr.

SALICACEAE

Populus tremuloides Michx.

Populus trichocarpa T. & G.

Salix sitchensis Sanson

SAXIFRAGACEAE

Mitella pentandra Hook.

Saxifraga oregana Howell

Tiarella trifoliata L.

SCROPHULARIACEAE

Castilleja miniata Dougl.

Cordylanthus viscidus (Howell) Penn

Mimulus guttatus DC.

Mimulus lewisii Pursh.

Mimulus moschatus Dougl.

Mimulus primuloides Benth.

Orthocarpus imbricatus Torr.

Pedicularis groenlandica Retz.

Pedicularis racemosa Dougl.

Penstemon cinicola Keck

Penstemon deustus Dougl.
Penstemon rupicola (Piper) Howell
Veronica americana Schwein.

VALERIANACEAE

Valeriana scouleri Rydb.
Valeriana sitchensis Bong.

VIOLACEAE

Viola glabella Nutt.
Viola sempervirens Greene

APPENDIX D. LIST OF FISH DOCUMENTED IN THE RNA

Salmonidae

Redband trout

(*Oncorhynchus mykiss*)

Brook Trout

(*Salvelinus fontinalis*)

Bull trout

(*Salvelinus confluentus*)

APPENDIX E. AMPHIBIANS AND REPTILES DOCUMENTED OR LIKELY TO OCCUR IN THE RNA

Class	Scientific Name	Common Name
Order		
Family		
Amphibia		
Caudata		
Ambystomatidae	Ambystoma gracile	northwestern salamander
	Ambystoma macrodactylum	long-toed salamander
Salamandridae	Taricha granulosa	rough-skinned newt
Anura		
Pelobatidae	Scaphiuopus intermontanus	Great Basin spadefoot
Bufonidae	Bufo boreas	western toad
Hylidae	Pseudacris (Hyla) regilla	Pacific treefrog
Ranidae	Rana cascadae	Cascades frog
	Rana pretiosa	spotted frog
Reptilia		
Squamata		
Iguanidae	Phrynosoma douglasii	short-horned lizard
Scinidae	Eumeces skiltonianus	western skink
Anguidae	Gerrhonotus coeruleus	w. alligator lizard
Boidae	Charina bottae	rubber boa
Colubridae	Pituophis melanoleucus	gopher snake
	Thamnophis elegans	w. terrest. garter snake
	Thamnophis sirtalis	common garter snake
	Hypsiglena torquata	night snake
Viperidae	Crotalus viridis	western rattlesnake

APPENDIX F. LIST OF MAMMALS DOCUMENTED OR LIKELY TO OCCUR IN THE RNA

Order	Scientific Name	Common Name
Insectivora	<i>Neurotrichus gibbsi</i>	shrew mole
	<i>Scapanus latimanus</i>	broad-footed mole
	<i>Scapanus orarius</i>	coast mole
	<i>Sorex bendirii</i>	marsh shrew
	<i>Sorex vagrans</i>	wondering shrew
Chiroptera	<i>Eptesicus fuscus</i>	big brown bat
	<i>Lasionycteris noctivagrans</i>	silver-haired 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 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
Rodentia	<i>Castor canadensis</i>	beaver
	<i>Clethrionomys californicus</i>	Cal. 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 montanus</i>	mountain vole
	<i>Microtus oregoni</i>	Oregon vole
	<i>Microtus richardsoni</i>	Richardson vole
	<i>Neotoma cinerea</i>	bushy-tailed woodrat
	<i>Ochotona princeps</i>	pika
	<i>Ondatra zibethicus</i>	muskrat
	<i>Peromyscus maniculatus</i>	deer mouse
	<i>Citellus lateralis</i>	mantled ground squirrel
	<i>Tamiasciurus douglasi</i>	chickaree
	<i>Thomomys mazama</i>	Mazama pocket gopher
<i>Zapus princeps</i>	western jumping mouse	
Carnivora	<i>Canis latrans</i>	coyote
	<i>Felis concolor</i>	mountain lion
	<i>Lutra canadensis</i>	river otter
	<i>Lynx rufus</i>	bobcat
	<i>Martes americana</i>	marten
	<i>Mustela erminea</i>	short-tailed weasel
	<i>Mustela frenata</i>	long-tailed weasel
	<i>Mustela vison</i>	mink
	<i>Procyon lotor</i>	raccoon
	<i>Spilogale putorius</i>	spotted skunk
	<i>Ursus americanus</i>	black bear
<i>Vulpes fulva</i>	red fox	
Artiodactyla	<i>Cervus canadensis</i>	elk
	<i>Odocoileus hemionus</i>	mule deer

APPENDIX G. BIRDS DOCUMENTED IN THE RNA

<u>Species Name</u>	<u>Abundance</u> ¹	<u>Residency Status</u> ²
Spotted sandpiper (<u>Actitis macularia</u>)	U	N
Mountain quail (<u>Oreortyx pictus</u>)	U	R
Northern goshawk (<u>Accipiter gentilis</u>)	R	R
Golden Eagle (<u>Aquila chrysaetos</u>)	*	
Bald Eagle (<u>Haliaeetus leucocephalus</u>)	R	R
Osprey (<u>Pandion haliaetus</u>)	U	
Turkey vulture (<u>Cathartes aura</u>)	U	S
Spotted owl (<u>Strix occidentalis</u>)	R	
Nighthawk (<u>Chordeiles minor</u>)	*	
Belted kingfisher (<u>Ceryle alcyon</u>)	R	R
Rufous hummingbird (<u>Selasphorus rufus</u>)	C	N
Calliope hummingbird (<u>Stellula calliope</u>)	U	N
Pileated woodpecker (<u>Dryocopus pileatus</u>)	U	R
Hairy woodpecker (<u>Picoides villosus</u>)	C	R
Black-backed woodpecker (<u>Picoides arcticus</u>)	C	R
Northern flicker (<u>Colaptes auratus</u>)	U	R
Western wood-pewee (<u>Contopus sordidulus</u>)	U	N
Olive-sided flycatcher (<u>Contopus borealis</u>)	R	N
Hammond's flycatcher (<u>Empidonax hammondi</u>)	U	N
Dusky flycatcher (<u>Empidonax oberholseri</u>)	U	N
Stellar jay (<u>Cyanocitta stelleri</u>)	A	R
Clark's nutcracker (<u>Nucifraga columbiana</u>)	U	R
Gray Jay (<u>Perisoreus canadensis</u>)	C	R
Common Raven (<u>Corvus corax</u>)	*	
Mountain chickadee (<u>Parus gambeli</u>)	A	R
Black-capped chickadee	U	R

<u>Species Name</u>	<u>Abundance</u> ¹	<u>Residency Status</u> ²
(<u>Parus atricapillus</u>) Red-breasted nuthatch (<u>Sitta canadensis</u>)	A	R
Brown creeper (<u>Certhia americana</u>)	U	R
Rock wren (<u>Salpinctes obsoletus</u>)	U	R
Golden-crowned kinglet (<u>Regulus satrapa</u>)	A	R
American robin (<u>Turdus migratorius</u>)	C	S
Varied thrush (<u>Ixoreus naevius</u>)	*	
Townsend's solitaire (<u>Myadestes townsendi</u>)	C	S,N
Hermit thrush (<u>Catharus guttatus</u>)	C	N
Swainson's thrush (<u>Hylocichla minima</u>)	*	
Mountain bluebird (<u>Sialia currucoides</u>)	*	
Solitary vireo (<u>Vireo solitarius</u>)	*	
Yellow-rumped warbler (<u>Dendroica coronata</u>)	A	N
Black-throated gray warbler (<u>Dendroica occidentalis</u>)	*	
Hermit warbler (<u>Dendroica occidentalis</u>)	U	N
Nashville warbler (<u>Vermivora ruficapilla</u>)	U	N
Brown-headed cowbird (<u>Molothrus ater</u>)	U	S,N
Western tanager (<u>Piranga ludoviciana</u>)	A	N
Evening grosbeak (<u>Hesperiphona vespertina</u>)	R	
Chipping sparrow (<u>Spizella passerina</u>)	A	N
Dark-eyed junco (<u>Junco hyemalis</u>)	A	N
Red crossbills (<u>Loxia curvirostra</u>)	U	R,S
Cassin's finch (<u>Carpodacus cassinii</u>)	U	S,N
Gray-crowned rosy finch (<u>Leucosticte tephrocotis</u>)	*	
Pine siskin (<u>Carduelis pinus</u>)	C	S
Green-tailed towhee (<u>Chlorura chlorura</u>)	*	
Oregon junco (<u>Junco oreganus</u>)	*	

¹ Abundance is a relative measure and described as follows: R = rare, one recording only; U = uncommon, 1-3 sightings; C = common, between 4 and 10 encounters; A = abundant, more than 10 encounters.

² Residency is defined as: R = local resident; S = short distance migrant (may just move down-slope); N = neotropical migrant (at least a significant proportion of population migrates to Mexico or south).

* Data not available.

Management Area 13 - Research Natural Areas

Goal

Management Area 13 provides for the preservation of undisturbed forest and rangeland ecosystems for scientific and educational purposes.

Description

Research natural areas (RNA) are part of the network of field ecological research areas for nonmanipulative and nondestructive research, observation and study. Three RNAs will be expanded or established on the Forest: Blue Jay, Cannon Well, and Cherry Creek. These RNAs include the following cells:

- | | |
|--------------|---|
| Blue Jay | (Existing) ponderosa pine/bitterbrush/needlegrass and lodgepole pine/bitterbrush/needlegrass plant communities on pumice soils.

(Addition) Bluegrass-wheatgrass meadow and lodgepole pine/bitterbrush-bearberry/needlegrass plant communities. |
| Cannon Well | (Establish) Lodgepole pine/bitterbrush/needlegrass and lodgepole pine/needlegrass basin. |
| Cherry Creek | (Establish) Mixed conifer forest with snowberry and green manzanita, mixed shasta red fir and mountain hemlock, lodgepole pine/grouse huckleberry, high-elevation lake, permanent subalpine ponds, vernal ponds at high elevation, sedge fen, and a first to third order stream system. |

Desired Future Condition

The desired future condition is an essentially unmodified area.

Standards and Guidelines

There is only one management intensity for this management area. Specific standards and guidelines that apply to this management area are stated in this subsection.

A research natural area establishment report shall be developed for each potential area. A management plan and monitoring plan will be developed for each area once it is established as a research natural area.

Recreation

1. The area shall provide a roaded natural or semiprimitive recreation opportunity.
2. Physical improvements for recreation purposes like buildings or campgrounds shall not be constructed in these areas.
3. Dispersed recreation is a compatible use to the extent that it does not reduce the research or educational values for which the area was established.

Scenic

1. The visual quality level will be preservation.

Wilderness

1. Wildernesses shall take precedence where they overlap with RNAs, because land use regulations are generally more restrictive in wilderness. Management plans for wildernesses shall address overlaps with RNAs.

Wildlife and Fish

1. New wildlife habitat improvements shall not be allowed.

Range

1. Domestic livestock grazing shall be excluded from established research natural areas unless grazing is needed to preserve the existing plant communities.

Timber

1. Timber harvest shall not be allowed.

Minerals and Energy

1. Salable mineral material sources shall not be developed.
2. All established research natural areas on public domain lands shall be recommended for withdrawal from mineral entry under the General Mining Law of 1872, as amended.
3. Surface occupancy shall not be allowed.
4. Personal use or commercial firewood cutting permits shall not be issued for these areas.

Native American Rights and Claims

1. Under the Treaty of 1864, the Klamath Tribe's rights to traditional food gathering activities shall apply to established research natural areas within the jurisdiction of the treaty, but shall not be encouraged.

Lands

1. Landownership classification group 2 applies to this management area.
2. Special-use permits shall be limited to research and related activities.

Management Area 13

3. Easements or rights-of-way shall not be granted.
4. Utility and transportation corridors shall not be allowed.

Facilities

1. Any transportation facilities, such as roads and trails provided for this management area, shall have minimum impacts on the area ecosystems, and must be located and managed in the best way to fulfill the area's management objectives.
2. Helispots needed for fire control shall be located adjacent to, and not within, research natural areas.

Protection

1. Insect and disease outbreaks shall not be suppressed.
2. Using means that will cause minimal damage to the area, wildfires that endanger the RNA will be extinguished as quickly as possible.
3. Prescribed fire and fuels treatment shall be carried out only in conjunction with approved research projects or when needed to meet the RNA management plan objectives.

DECISION NOTICE / DESIGNATION ORDER
AND
FINDING OF NO SIGNIFICANT IMPACT

CHERRY CREEK BASIN RESEARCH NATURAL AREA
ESTABLISHMENT
(Klamath County, Oregon)

WINEMA LAND AND RESOURCE MANAGEMENT PLAN
AMENDMENT NUMBER 5

USDA - Forest Service
Winema National Forest
Klamath Ranger District

Introduction

The Cherry Creek Basin Research Natural Area (RNA) was recommended for establishment in the 1990 Record of Decision for the Winema National Forest Land and Resource Management Plan (Forest Plan). 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 this analysis are documented in the Forest Plan and final Environmental impact statement.

An environmental analysis evaluates a proposal to amend the Winema Forest Plan and change the "candidate" Cherry Creek Basin RNA to an "established" RNA. This environmental assessment documents this analysis of the proposed action and no action (continue current direction).

The Cherry Creek Basin RNA Establishment Record (1994) describes the current condition of the RNA in detail. This 9,638 acre RNA encompasses the entire upper and mid-portion of the Cherry Creek watershed, which drains eastward from the Cascade crest to the Klamath Lake Basin. The wide range of elevations, land forms, and aspects within the RNA make it one of the most important and diverse habitat areas on the Klamath Ranger District. Nine different terrestrial and aquatic habitat cell types are present in the RNA in a relatively undisturbed condition.

Decision

By the authority delegated to me by the Chief of the Forest Service (FSM 4063), it is my decision to select Alternative A (Proposed Action) and establish the 9,638 acre Cherry Creek Basin RNA. The Winema Forest Plan is hereby amended to change the Cherry Creek Basin RNA from a "candidate" RNA to an "established" RNA. This is a non-significant amendment (Amendment Number 5) to the Forest Plan.

This decision is based on the analysis documented in the environmental assessment. Alternative A is selected because it provides long-term protection and recognition of eight different forest and riparian habitat cell types (in the East Slope of the Oregon Cascades physiographic province) not adequately represented, at this time, in any other established RNA. The Cherry Creek Basin RNA will be managed in compliance with all relevant laws, regulations, and Forest Service policy regarding RNA's and in accordance with the management direction identified in the Winema Forest Plan.

Alternative A finalizes the RNA boundary and adjustment needed to delineate the RNA inside the Sky Lakes Wilderness and fine tune the boundary of Management Area 13. The adjusted boundary will follow the watershed boundary and use ridgetops and other features more easily described and identified on the ground. (Appendix A-Boundary Description, Establishment Report).

Alternatives Considered

The other alternative considered was Alternative B-No Action. This alternative would continue management of the Cherry Creek Basin as a candidate RNA. This alternative was not selected because it would only provide short-term protection of the Cherry Creek area.

Public Involvement

Scoping began in May 1993, when Forest reviewed the existing condition of the RNA and proposed boundary of the NRA. A letter describing proposed action and inviting input into analysis was sent to other agencies, tribes, timber companies, environmental and other interest groups, and individuals. Internal and public scoping input support establishment of the RNA in the area. Site conditions and public concerns have been assessed during the analysis.

Finding of No Significant Impact (FONSI)

I have determined through the environmental assessment that this 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:

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.

Intensity.

-There are no known effects on public health and safety.

-There are no known effects on historic or cultural resources, actual or eligible National Register of Historic Places, sites, park lands, prime farmlands, wetlands, or wild and scenic rivers. Effects on ecologically critical areas are minimal.

-There are no uncertain effects on the human environment. Effects do not involve unique or unknown risks and are not likely to be controversial.

-The decision is not likely to establish a precedent for future actions with significant effects.

-The decision will not adversely affect an endangered or threatened species or its critical habitat.

Cherry Creek Basin RNA
Decision Notice/Designation Order

3

-The decision is consistent with Federal, State, and local laws and requirements for the protection of the environment.

Implementation

Implementation of this decision will not occur until seven days after publication of the legal notice of this decision in The Oregonian.

Appeal Rights

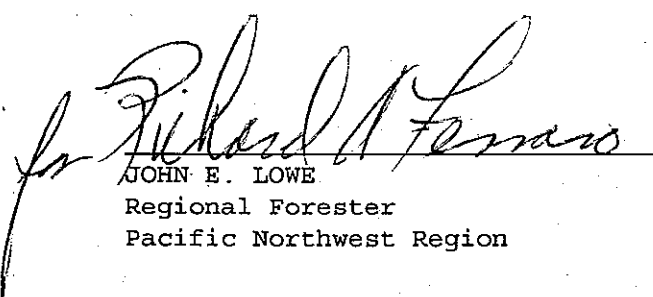
The Forest Supervisor of the Winema National Forest will notify the public of this decision and mail a copy of the Decision Notice / Designation Order to all persons interested in or affected by the decision. This decision is subject to appeal pursuant to 36 CFR Part 217. A copy of the Notice of Appeal must be in writing and submitted to:

Chief
USDA - Forest Service
ATTN: NFS Appeals
14th & Independence Avenue, S.W.
P. O. Box 96090
Washington, D.C. 20090-6090

The Notice of Appeal must be prepared pursuant to 36 CFR 217.9(b) and be submitted within 45 days from the date of legal notice of this decision. Legal notice of this decision will appear in The Oregonian.

Contact Person

For further information regarding this decision or the Cherry Creek Basin RNA, contact: Sarah Malaby, Klamath Ranger District, 1936 California Avenue, Klamath Falls, Oregon 97601, Phone (503) 885-3400.


JOHN E. LOWE
Regional Forester
Pacific Northwest Region

7/12/95
Date

ENVIRONMENTAL ASSESSMENT
CHERRY CREEK BASIN RESEARCH NATURAL AREA ESTABLISHMENT

Klamath Ranger District
Winema National Forest
Klamath County, Oregon

I. PURPOSE AND NEED FOR ACTION

A. INTRODUCTION

1. Description

This environmental assessment evaluates a proposal to amend the Winema National Forest Land and Resource Management Plan of 1990 (Forest Plan) and change the candidate Cherry Creek Basin Research Natural Area (RNA) on the Klamath Ranger District to an established RNA. This assessment will document the analysis of the Proposed Action and one alternative.

2. Current Condition

The Cherry Creek Basin RNA Establishment Record (1994) describes the current condition of the RNA in detail. Briefly, the 9,638-acre RNA encompasses the entire upper and mid portions of the Cherry Creek watershed, which drains eastward from the Cascade crest to the Klamath Lake Basin. The wide range of elevations, land forms, and aspects within the RNA make it one of the most important and diverse habitat areas on the Klamath Ranger District. Nine different terrestrial and aquatic habitat cell types are present in the RNA in a relatively undisturbed condition. Several species on the Region 6 sensitive plant and animal lists have been documented, or are expected to occur, in the RNA.

3. Management Status

The Forest Plan currently lists the Cherry Creek watershed as a candidate RNA. An 8,467-acre portion of the RNA is located within the Sky Lakes Wilderness boundary and is included in Forest Plan Management Area 6, Wilderness. The goal of this management area is to manage areas designated by Congress as part of the National Wilderness Preservation System in order to preserve natural conditions as required by the Wilderness Act of 1964. The 1,171-acre portion outside the wilderness boundary is designated as Management Area 13, Research Natural Area. This management area provides for the preservation of undisturbed forest and rangeland ecosystems for scientific and educational purposes.

B. Proposed Action

The Proposed Action is to establish the 9,638-acre Cherry Creek Basin Research Natural Area, and to manage it according to direction provided in the Winema Forest Plan. The Forest Plan currently lists the Cherry Creek watershed as a candidate RNA; formal designation of the watershed as an established RNA by the Regional Forester will amend the Forest Plan. The Proposed Action will also finalize the boundary of the RNA inside the Sky Lakes Wilderness and adjust the boundary of Management Area 13.

C. PURPOSE AND NEED

The purpose of establishing the Cherry Creek Basin RNA is to implement the Forest Plan. Designation of the Cherry Creek Basin area as an RNA is consistent with the Forest Plan, which directs that an establishment report shall be developed for each candidate area. The Cherry Creek Basin was identified in the Forest Plan as a candidate RNA, based on the relatively undisturbed conditions of habitat types in the area at that time. Internal and public scoping supported establishment of an RNA in the area. Site conditions and public concerns have been reviewed during this analysis, and no important changes have occurred.

The RNA will 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 Cherry Creek Basin RNA adequately represents eight cell types in the east slope of the Oregon Cascades physiographic province which are not represented in any other established RNA (Oregon Natural Heritage Plan, 1993). These include: first-to-third order stream system in the white fir/Shasta red fir zone; high elevation lake; subalpine pond; white fir-Douglas-fir/snowberry community; white fir-Douglas-fir/snowbrush community; white fir-Shasta red fir/long-stolon sedge community with chinguapin; Shasta red fir-mountain hemlock/pinemat manzanita community; and mountain hemlock/grouse huckleberry community.

The boundary finalization and adjustment is needed to delineate the RNA inside the wilderness and fine tune the boundary of Management Area 13. The adjusted boundary will follow the watershed boundary more closely than the map shown in the Forest Plan, and use ridgetops and other features more easily described and identified on the ground.

II. ALTERNATIVES AND ENVIRONMENTAL CONSEQUENCES

A. ALTERNATIVE A, Proposed Action

The Proposed Action is to establish the 9,638-acre Cherry Creek Basin Research Natural Area. This will provide long-term protection of the area. Management will follow direction provided in the Winema Forest Plan. A management and monitoring plan will be developed. Dispersed recreation will be allowed to the extent that it does not reduce the research or educational values of the area, and no physical improvements will be constructed. Wilderness guidelines will take precedence where it overlaps with the RNA, and management plans for the Sky Lakes Wilderness will address the overlap. Wildlife habitat improvements will not be allowed. Livestock grazing will continue to be excluded from the area. Timber harvest and firewood gathering will not be allowed. Salable mineral material sources will not be developed, surface occupancy will not be allowed, and the area will be recommended for withdrawal from mineral entry. Special-use permits will be limited to research and related activities. Transportation facilities will have minimum impacts on the area and helispots for fire control will not be allowed. Insect and disease outbreaks will not be suppressed. Wildfires that endanger the RNA will be extinguished as quickly as possible. Prescribed fire will be carried out only in conjunction with approved research, or to meet management plan objectives. (Additional standards and guidelines pertaining to wilderness are included under Management Area 6, beginning on page 4-121 of the Forest Plan.)

The RNA boundary will be adjusted slightly from that shown in the Forest Plan. This will decrease Management Area 13 by approximately 75 acres from what is currently mapped in GIS (Geographical Information System) on the Forest. The Forest Plan FEIS (Final Environmental Impact Statement) estimate in Table 2-18 is approximately 161 acres less than the GIS figure. The acreage and boundary of the RNA in Management Area 6 was not included in the Forest Plan and will be finalized with this action.

The environmental consequences of implementing Alternative A are the same as those described in the FEIS for the Forest Plan, with the exception of recommending the area for withdrawal from mineral entry. Because the Forest has no known locatable or leasable minerals, and it is unlikely that the area contains significant metallic mineral or geothermal energy resources (Smith and Benham, 1984), the consequences of future withdrawal would be insignificant.

The non-wilderness portion of the RNA contains approximately 360 acres suitable for timber production. This represents less than .05% of the total acreage of suitable timber lands on the Forest (FEIS page 3-12). Suitable timber lands inside the Wilderness are already excluded from timber production.

The RNA is not included in any livestock grazing allotments on the Forest. Establishment will have no effect on domestic livestock grazing.

Roaded natural and semiprimitive recreation, including activities such as cross-country skiing, hunting, fishing, hiking, camping, and horseback riding, currently occur in the RNA at low-to-moderate levels. These activities will continue after establishment, unless conflicts with RNA management objectives develop.

Establishment of the RNA supports the Oregon Natural Heritage Act and will help maintain species and genetic diversity in the area (FEIS Chapter 4-114) over the long term.

The proposed boundary adjustment represents a change of less than .4% of the total area of the RNA and will have no effect on the importance and use of the area for research and education.

Implementation of Alternative A will have no adverse or irreversible environmental effects. Irretrievable effects, resulting from the loss or reduction of resource outputs, are expected to be insignificant. There will be no significant cumulative effects.

B. ALTERNATIVE B

Alternative B continues management of the Cherry Creek Basin as a candidate RNA, according to direction in the Forest Plan. Management will be the same as for Alternative A until the Forest Plan is revised or replaced. The boundary will remain as currently mapped in GIS.

The environmental consequences of implementing Alternative B are the same as those listed in the FEIS for the Forest Plan and described under Alternative A above. An exception is the Forest will not recommend the area for withdrawal from mineral entry with implementation of Alternative B.

III. AGENCIES AND PERSONS CONSULTED

Scoping was conducted during the process of updating information to determine whether to proceed with establishment of the RNA, as proposed in the Forest Plan. Scoping began in May 1993, when Forest specialists reviewed the existing condition of the RNA and finalized the proposed boundary of the RNA. Public scoping was initiated on June 22, 1993, when a letter describing the Proposed Action, showing the finalized boundary, and inviting input was sent to 114 persons on the Klamath Ranger District mailing list. This list includes government agencies, the Klamath Tribes, timber companies, environmental and other special interest groups, and individuals who have expressed an interest in Forest activities. On July 15, 1993, notification of the Proposed Action was published in the Klamath Falls Herald and News.

Four comments were received, all supporting establishment of the RNA. In addition, the Oregon Natural Resources Council and a private individual proposed that the RNA boundary be extended eastward to include the lower portion of the watershed. The interdisciplinary team working on the analysis does not recommend this extension based on the following: FSM 4063.2 directs that RNA's should be located "...where conflicting uses are minimal...." and in areas "... that show no evidence of major disturbances by humans...such as timber cutting, for the past 50 years." Approximately 75% of the lower part of the watershed has been logged during the past 50 years. This area is currently in Bald Eagle Habitat Management (Management Area 9) or Late Successional Reserve (R0227). Proposed management to maintain bald eagle and late successional habitat would require timber harvest and fuels treatments. These treatments would conflict with RNA objectives.

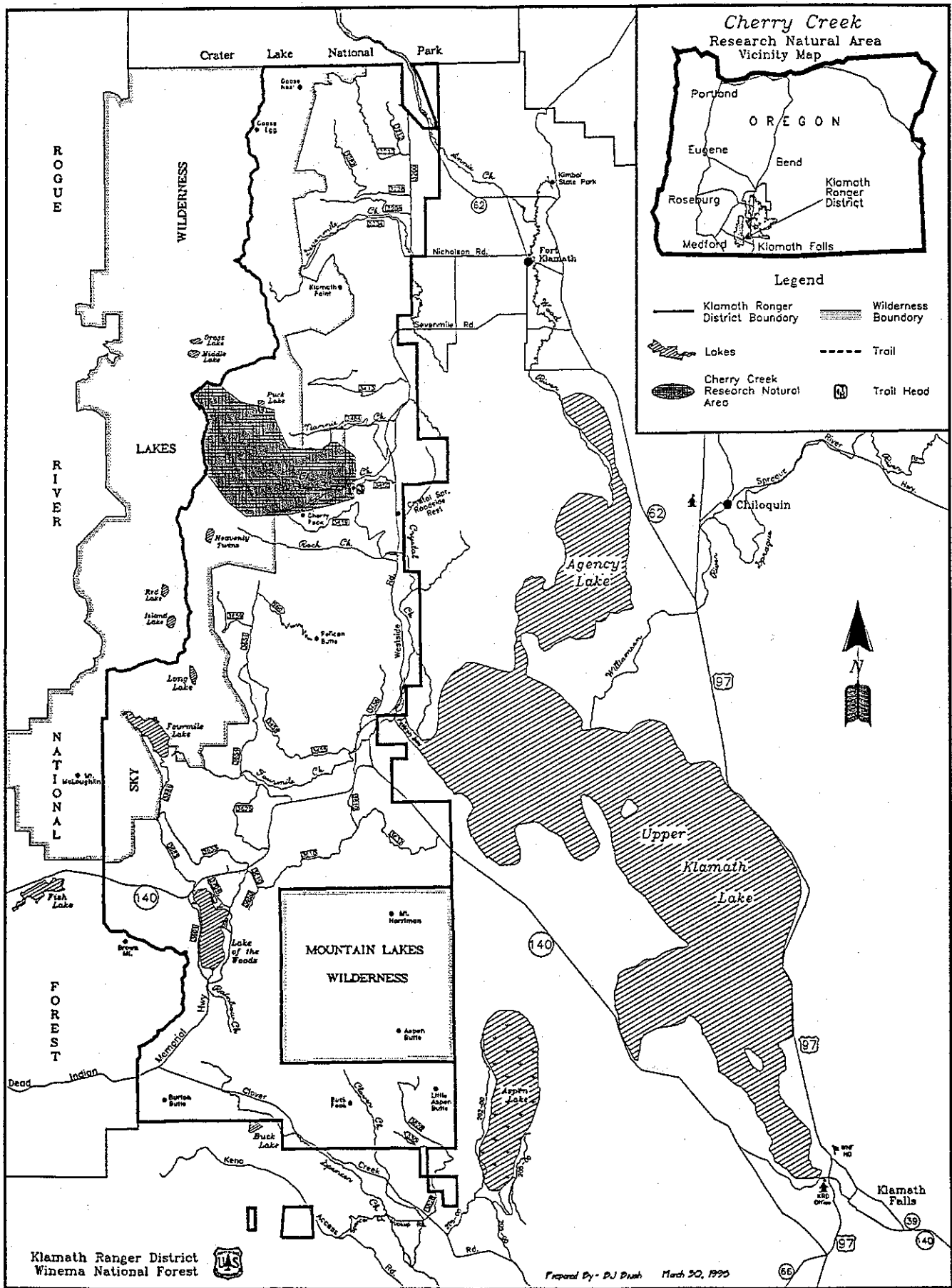
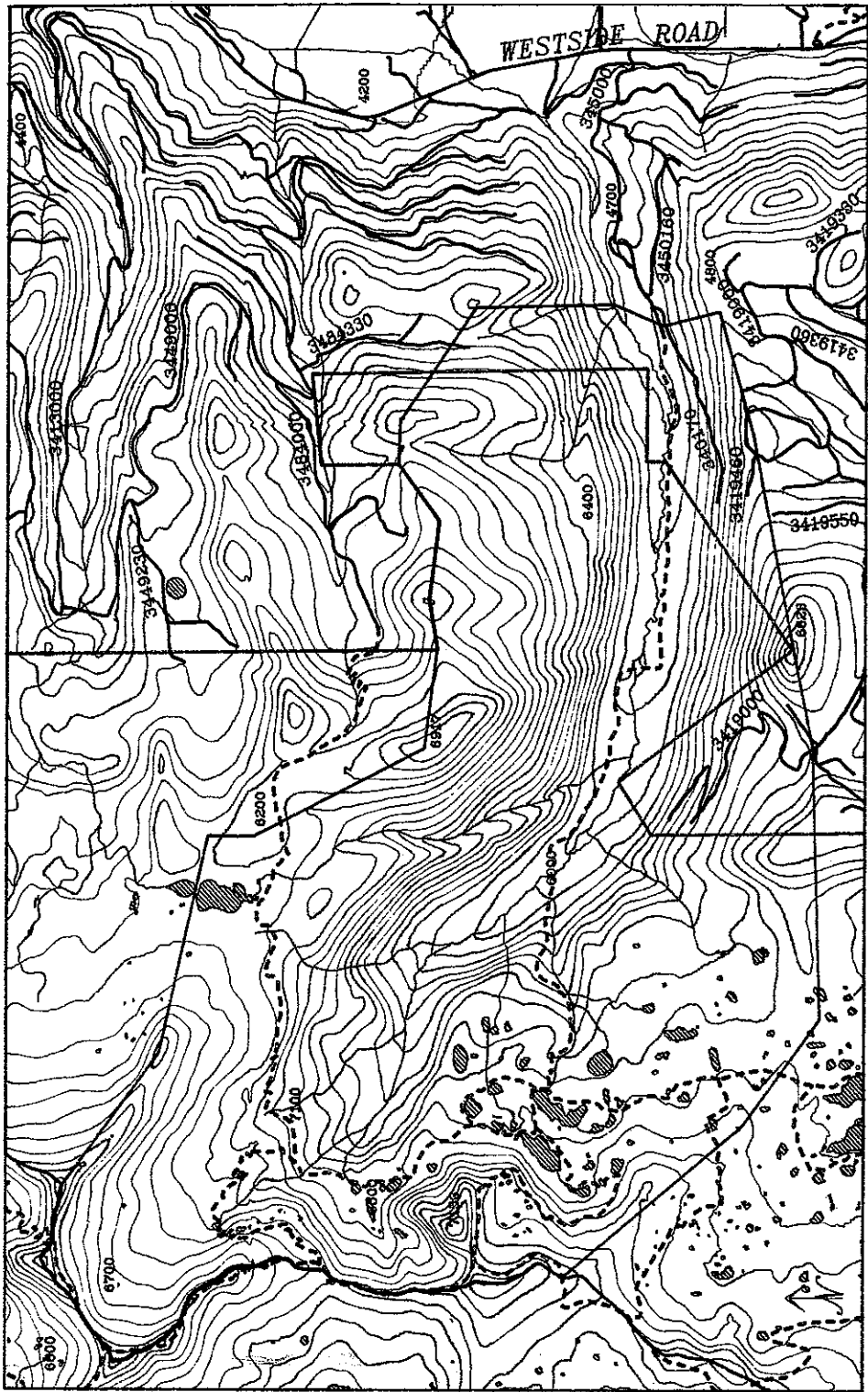


Figure 1. Location of the Cherry Creek Basin RNA

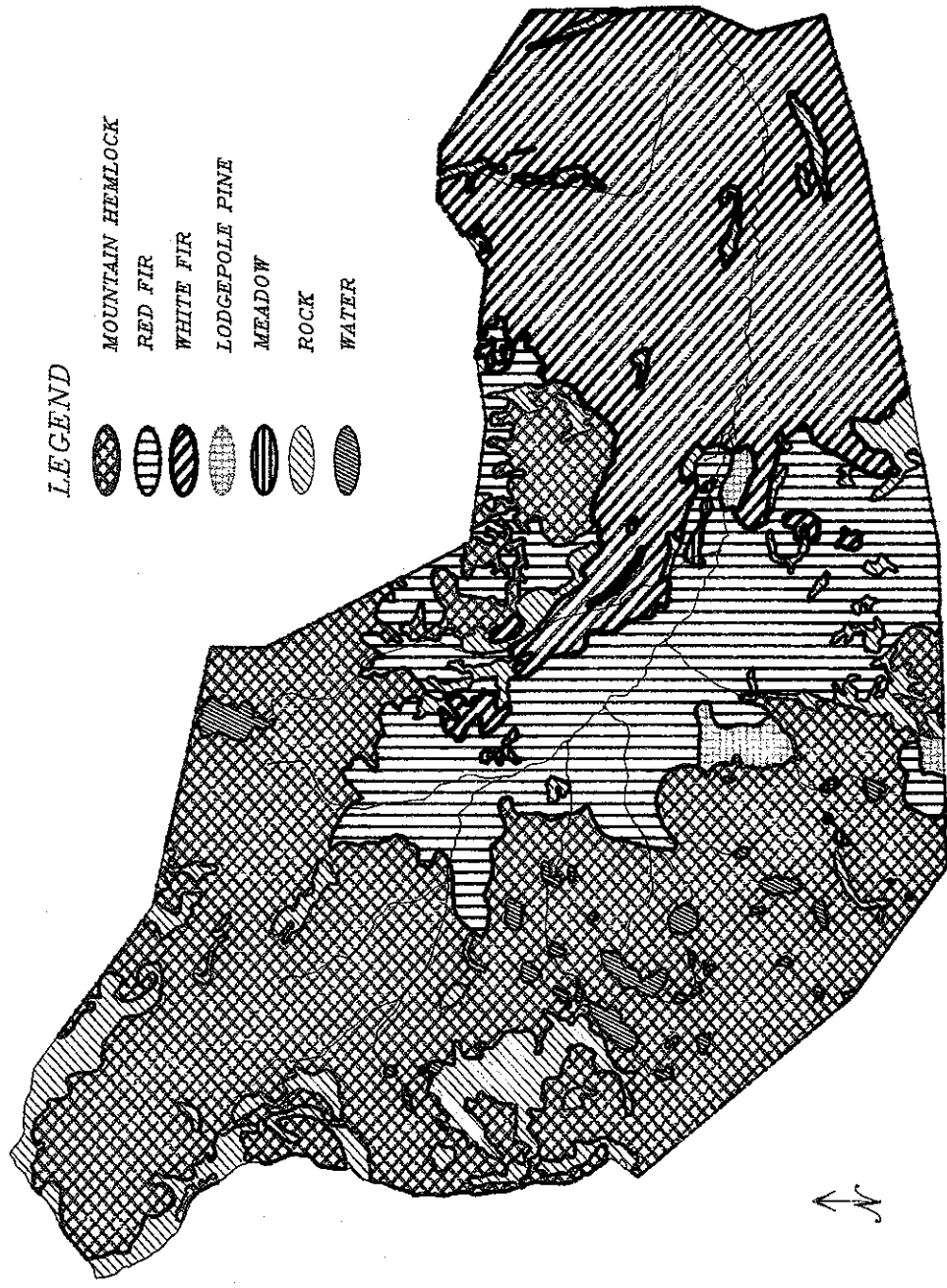


LEGEND

- STREAMS
- - - ROADS
- ▨ WATER
- - - TRAILS
- ▩ SKY LAKES WILDERNESS

Figure 2. Cherry Creek Basin RNA

Contour Interval = 100 ft.



LEGEND

- MOUNTAIN HEMLOCK
- RED FIR
- WHITE FIR
- LODGEPOLE PINE
- MEADOW
- ROCK
- WATER

Figure 3. Cover Types in the Cherry Creek Basin RNA