UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

DESIGNATION ORDER
DECISION NOTICE
AND
FINDING OF NO SIGNIFICANT IMPACT

CUB CREEK RESEARCH NATURAL AREA
Tehama County, California
Lassen National Forest
Pacific Southwest Region

Based on the analysis in the environmental assessment, it is my decision to adopt Alternative #2 and establish the Cub Creek Research Natural Area of 1,621 hectares (4,005 acres). The predominant type in this area is the Mixed Conifer Forest (SAF Type 243, Kuchler Type 5). However, the area also includes six other major vegetation types which in total support more than 230 different plant species. In addition, the diverse community patterns and mixed arrangements of the communities taken as a whole make this area a good representative of the unique and diverse vegetational patterns that occur in the Cascade Range physiographic province in California.

The environmental assessment indicates that this action will have no significant effect upon the quality of the human environment. Therefore, I find that an environmental impact statement is not needed.

By virtue of the authority vested in me by the Secretary of Agriculture under regulations 7 CFR 260(a) and 36 CFR 251.23, I hereby designate the lands described in the Establishment Report by the Forest Supervisor, Lassen National Forest, dated 7/1/81, as the Cub Creek Research Natural Area. These lands shall hereafter be administered as a research natural area subject to the said regulations and instructions thereunder.

OCT 8, 1981 (Date)

for Chief Douglas Leisz Rwsurus

ESTABLISHMENT REPORT

CUB CREEK RESEARCH NATURAL AREA

LASSEN NATIONAL FOREST

APPROVED: William Swanson DATE: 6-25-81

WILLIAM SWANSON
District Ranger
Almanor Ranger District

for DAVID M. JAY DATE: 7/1/81
Forest Supervisor
Lassen National Forest

for Robert W. Cermak DATE: 7/14/81
ZANE G. SMITH
Regional Forester
Pacific Southwest Region

for David Chadwick DATE: 7/17/81
ROBERT Z. CALLAHAN
Director
Pacific Southwest Station

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ESTABLISHMENT REPORT FOR THE CUB CREEK RESEARCH NATURAL AREA
WITHIN THE
LASSEN NATIONAL FOREST, TEHAMA COUNTY, STATE OF CALIFORNIA

I. INTRODUCTION

The Cub Creek Research Natural Area (RNA) lies within the Almanor Ranger District. The RNA is zoned General Forest in the Ranger District Multiple Use Plan. However, no land management or development activities have occurred on the area.

II. JUSTIFICATION FOR ESTABLISHMENT

The Cub Creek RNA will add a vegetative type (Mixed Conifer, SAF 243) needed to assist in completing the RNA system for the Pacific Southwest Region. (Reference FSM 4063.41, R-5 Supplement #3.) It would also add 130 hectares of Red Fir Forest (SAF 207) and 438 hectares of White Fir Forest (SAF 211) to the National RNA system. The former is currently unrepresented, and the latter has only 134 hectares represented Nationally.

No threatened, endangered, or unique species of plants or animals are known to exist in the RNA (Section VII B).

III. PRINCIPLE DISTINGUISHING FEATURES

The area includes all of the Cub Creek watershed, which is a typical example of many others in the Cascade Range physiographic province.

IV. LOCATION

A. All lands in the RNA and immediately adjoining areas are administered by the Lassen National Forest. The RNA is located 90 kilometers (55 miles) southwest ~~west~~ east of Redding. (See Maps B and C.)

B. The center of the area lies within latitude 40° 11' north and 121° 28' west.

C. Description of Area

1. The area falls all or partially within Sections 13, 14, 15, 22, 23, 24, and 25, T. 27 N., R. 4 E.; and Sections 17, 18, 19, 20, 30, and 31, T. 27 N., R. 5 E., MDM.

2. The boundaries of the RNA are coterminous with the ridge lines defining the Cub Creek watershed. After designation, the boundaries will be signed.

   Following is a description of the boundaries. Reference the topographic map (Map E) which is a part of this report.

Beginning at the confluence of Cub Creek and Deer Creek in the southern portion of Section 10, T. 27 N., R. 4 E., MDM, the Cub Creek Research Natural Area boundary runs southwesterly for 0.21 kilometers (0.13 miles) to a rock knob, crossing the section line between Sections 10 and 15; thence southerly along a ridge separating Cub Creek from an unnamed minor tributary to Deer Creek to Bench Mark 5231, continuing along the ridge crossing the section line between Sections 15 and 22 to a point 0.93 kilometers 0.58 miles) south of B.M. 5231; thence southeasterly along the ridge separating Cub Creek and Rattlesnake Creek, crossing the section line between Sections 22 and 23, to B.M. 5982, then crossing the section line between Sections 23 and 24, the section line between Sections 24 and 25, to B.M. 6322, then crossing the section line between Sections 25 and 30, T. 27 N., R. 5 E., and the section line between Sections 30 and 31 to a point where the watershed of Cub Creek, Willow Creek, and Butt Creek converge; thence northerly to B.M. 6520 along the ridge separating Butt Creek and Cub Creek, coincident with the boundary between Plumas and Tehama Counties, crossing the section line between Sections 31 and 30, continuing northerly crossing the section lines between Sections 29 and 30, 30 and 19, and 19 and 20 to B.M. 6534; thence northwesterly crossing the section lines between Sections 17 and 20, 17 and 18 to B.M. 6664 where the watersheds of Butt Creek, Cub Creek, and Elam Creek converge; thence westerly along the ridge separating the Cub Creek and Elam Creek watersheds to B.M. 6703; thence northwesterly along the ridge separating the Cub Creek watershed from an area drained by several unnamed tributaries to Deer Creek, crossing the section line between Sections 18 and 13, T. 27 N., R. 4 E., continuing along said ridge to the northern portion of Section 13 where the direction turns westerly, crossing the section line between Sections 13 and 14 to a small rock bluff; thence southwesterly, through a saddle to a ridgetop in the NW¼ of Section 14; thence northwesterly crossing the section lines between Sections 14 and 15 and Sections 15 and 10 to the point of beginning.

D. Size of Area

The area contains 1,621 hectares (4,005 acres).

E. Elevations

Elevations range from approximately 1,136 meters to 2,044 meters (3,725 feet to 6,703 feet) above sea level.

F. Access to Area

There are no roadways or maintained trails within the RNA. A primitive four-wheel-drive trail that formerly accessed the 6,000-foot elevation has been blocked and closed. The most commonly used access is from State Highway 32, where Cub Creek flows into Deer Creek. Deer Creek must be forded to enter the area. Other access is provided by a low standard, unsurfaced Forest Service road ending at the northern edge of the RNA; an unsurfaced Forest Service road passing within one-half mile of the southeastern edge; and an unsurfaced road running within one-half mile of the southern boundary. All roads are useable by standard vehicles but are seasonally impassable. The Pacific Crest Trail provides access to the high elevation, eastern boundary.

The town of Chester, location of the Ranger District headquarters, is approximately 32.2 kilometers (20 miles) northeast of the area via State Highways 32 and 36.

V. AREA BY COVER TYPES 1/

Vegetation Type	% of Total Area	Hectares	Acres
Pacific Ponderosa Pine - Douglas Fir (SAF 244)	4%	65	160
Ponderosa Pine - Sugar Pine - Fir (SAF 243)	23%	373	921
Young White Fir (SAF 211)	27%	438	1,081
Montane Chaparral	25%	405	1,002
Red Fir (SAF 207)	8%	130	320
Rocky Herbaceous Communities	12%	194	481
Meadows	1%	16	40
TOTAL		1,621	4,005

See Forest Type and Stand Classification Map (Map F).

1/ From Ecological Survey, Wm. Taylor, and David C. Randall.

VI. PHYSICAL AND CLIMATIC CONDITIONS

A. Physiography

Cub Creek drains 1,621 hectares (4,005 acres) ranging in elevation from 1,136 meters (3,725 feet) at the junction with Deer Creek to nearly 2,000 m. at its headwaters 2 km. (1.24 miles) north of Humboldt Summit (see Map D). The highest point on the basin rim is the unnamed summit on the northeast boundary at 2,044 m. (6,703 ft.). Cub Creek has a gradient of 111 m/km (364 ft/mi) averaged over its 7 km. (4.35 mi.) length. The U.S. Geological Survey map for the area (15' Jonesville Quadrangle, 1958) indicates the slopes of the Cub Creek basin to be uniformly steep ($25\text{-}40^{o}$). The topography is more rugged than that indicated on the map. This rugged topography results from numerous cliffs of less than 20 m. (66 ft.) vertical relief, which form because of unequal weathering of the various layered volcanic flows in the basin.

B. Climate

Precipitation comes primarily in the form of snow. Spring and fall rains, plus occasional summer thunderstorms, create the rest of the precipitation received. Snow can be expected any time after November 1 and can stay on the ground until May 1. The snowpack will vary from a few feet at the lower elevations to 3.05 to 4.58 m. (10 to 15 ft.) at the higher elevations.

Summer temperatures range from 4.5 to 37.6 degrees Celsius (40-100 degrees Fahrenheit). Long stretches of near or below freezing weather occur during winter months. The Ecological Survey Report covers climatic conditions in greater detail.

There is no recording weather station in the Cub Creek drainage or vicinity. The nearest comparable U.S. Weather Bureau station is located at Mineral, California, 19 km. (12 mi.) to the north northwest. This station has been maintained by the National Park Service since 1929. Table 1 provides a climatic summary for this station and a calculated seasonal water balance based on the Thornthwaite Model (a simple evapotranspiration model). A diagram showing this water balance model for Mineral is given below Table 1, and it shows the summer-dry, winter-wet pattern typical of inland California stations. Precipitation increases with altitude on the west slope of the southern Cascades and northern Sierra Nevada mountain ranges.

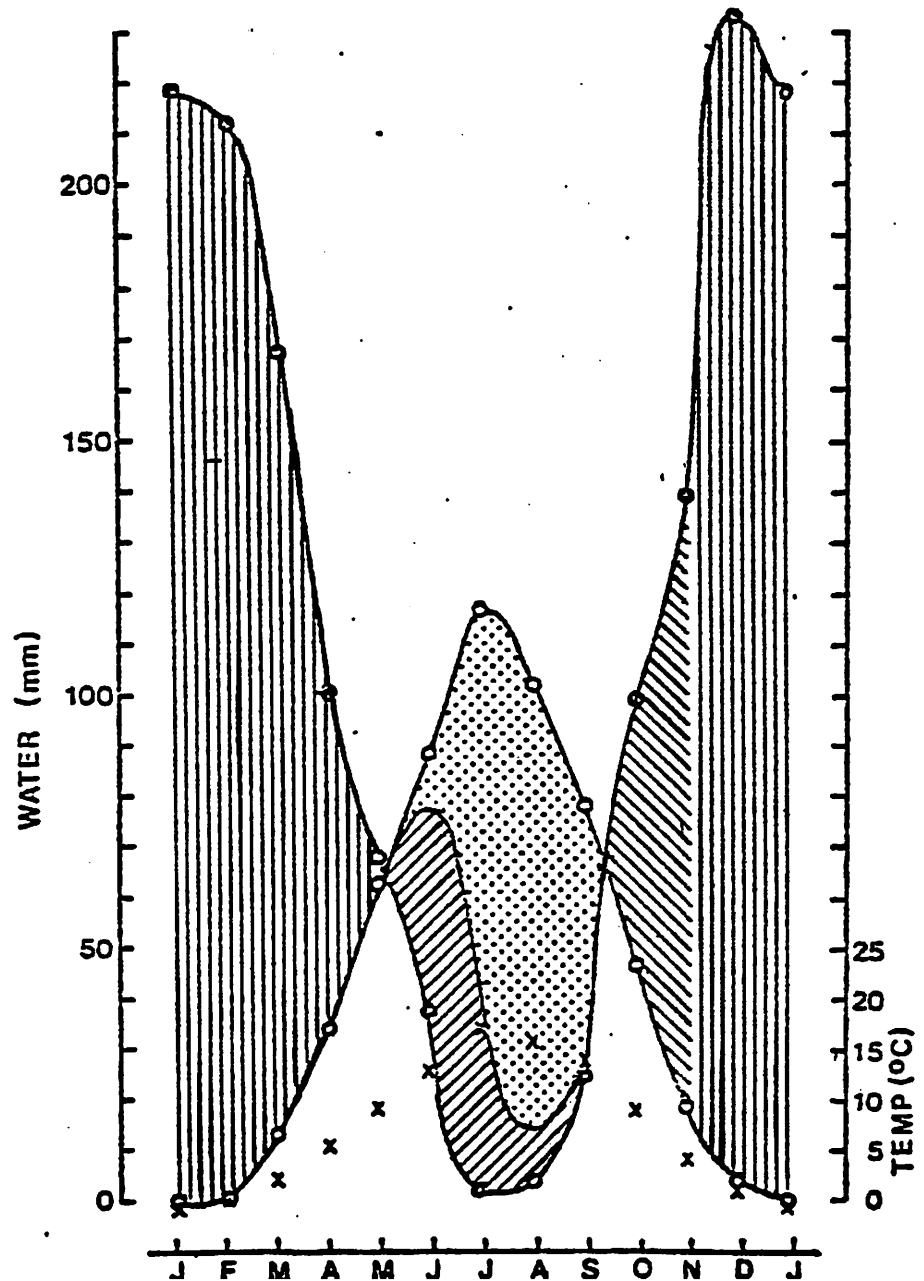
At Mineral, the magnitude of summer water deficit (defined as Precipitation - Potential Evapotranspiration) is on the order of 225 mm. (8.86 inches) (Table 1). The Cub Creek watershed spans the critical portion of the elevation gradient in this region

TABLE I

Mineral, California; Mean Monthly Water Balance

[Based on Thornthwaite (1948) Ann. Assoc. American Geographers]

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Year	
Temp	-0.8	0.2	2.3	5.6	9.3	13.2	17.2	16.2	14.0	9.1	4.0	0.9	7.6	°C
PET	0	1	14	35	64	89	118	103	79	48	19	4	573	mm
Ppt	219	212	168	101	69	38	2	4	25	99	139	233	1309	mm
SStg	100	100	100	100	100	59	18	7	4	56	100	100		mm
AET	0	1	14	35	64	79	43	16	28	48	19	4	350	mm
Def						11	74	87	51				223	mm
Surp	219	210	154	66	5					0	76	228	958	mm



Temp = Temperature °C
PET = Potential Evapo-transpiration mm
Ppt = Precipitation mm.
SStg = Soil Water Storage in mm.
AET = Actual Evapotranspiration mm.
Def = Water Deficit mm.
Surp = Water Surplus mm.

o—o Potential Evapotranspiration

o—o Precipitation

x x Temperature

Water Surplus

Water Deficit

Soil Moisture Utilization

Soil Moisture Recharge

where water stress is becoming less with altitude, but cold-temperature stress is increasing (snow pack depth, snow load on trees, etc.). Avalanche paths are evident on the highest ridges of the basin.

VII. DESCRIPTION OF VALUES

A. Flora [1/]

The Cub Creek RNA includes both old growth and young stands of Pacific Ponderosa Pine - Douglas Fir (SAF 244), Ponderosa Pine - Sugar Pine - Fir (SAF 243), and Red Fir (SAF 207). Extensive young stands of Abies concolor occur, as well as montane chaparral in various stages of succession to conifer forest. Small mature stands of A. concolor are found, as are A. magnifica mixed with A. concolor stands. Shallow soil sites, on ridgetops and elsewhere, support several herbaceous plant associations. Meadows with grasses and sedges are not extensive. Most of the forested terrain is steep, with 25-40^{0} slopes. Very little coniferous forest occurs on flat sites. (Description excerpted from Ecological Report. See report for a more detailed description.)

B. Fauna

A species list has not been developed for wildlife inhabiting the area. However, the following list has been developed to indicate those species for which the habitat is suitable. No rare or endangered species have been observed.

List of Species that have Potential for Inhabiting the Area

Birds		Status and Comments
Goshawk	Accipiter gentilis	Sensitive
Peregrin Falcon	Falco peregrinus	Endangered; would be a transient in compartment
Blue Grouse	Dendragopus obscurus	Harvest
Spotted Owl	Strix occidentalis	Sensitive; has potential to breed here
Pileated Woodpecker	Dryocopus pileatus	Special interest
Williamson's Sapsucker	Sphyrapicus thyroideus	Maintenance

1/ See Ecological Survey Report for detailed descriptions of flora. Also see Forest Type and Stand Classification Map on inside front cover (Map F).

Birds		Status and Comments
Brown Creeper	Certhia familiaris	Maintenance
Hermit Warbler	Dendroica occidentalis	Maintenance
Western Tanager	Piranga ludoviciana	Maintenance
Evening Grosbeak	Hesperiphona vespertina	Maintenance
Red Crossbill	Loxia curvirostra	Maintenance
Fox Sparrow	Passerella iliaca	Maintenance
Mammals		
Vagrant Shrew	Sorex vagrans	Maintenance
California Myotis	Myotis californicus	Maintenance
Snowshoe Hare	Lepus americanus	Harvest
Northern Flying Squirrel	Glaucomys sabrinus	Special interest
Coyote	Canis latrans	Harvest
Raccoon	Procyon lotor	Harvest
Marten	Martes americana	Special interest
Fisher	Martes pennanti	Special interest
Mountain Lion	Felis concolor	Special interest
Black-Tailed Deer	Odocoileus hemionus columbianus	Harvest
Reptiles		
Western Fence Lizard	Sceloporus occidentalis	Maintenance
Northern Alligator Lizard	Gerrhonotus coeruleus	Maintenance
Rubber Boa	Charina bottae	Maintenance
Western Aquatic Garter Snake	Thamnophis couchi	Maintenance

Amphibians		Status and Comment
Long-toed Salamander	Ambystoma macrodatylum	Maintenance
Ensatina	Ensatina eschscholtzi	Maintenance
Pacific Tree Frog	Hyla regilla	Maintenance
Cascades Frog	Rana cascadae	Maintenance

Reference:

Prepared by Dan Airola, Wildlife Biologist, Almanor Ranger District from: Verner, J. and A.S. Boss. (Tech. Coor.) 1980. California Wildlife and Their Habitats: Western Sierra Nevada. Gen. Tech. Rep. PSW-37 439p and illus. Pac. S.W. For. and Range Exp. Sta., Forest Service, U.S. Dept. Agric., Berkeley, CA.

C. Soils and Geology

The Cub Creek drainage is composed of andesitic and basaltic volcanic breccia and mudflow material of the Tuscan formation, which flowed in the Pliocene epoch of the Tertiary period (approximately 2.5-7 million years ago). Slopes range from 30-70%. The soils which occur in the watershed are described in the Tehama County Soil Survey.

The McCarthy series is a moderately deep, well-drained sandy loam occurring along the southern sideslopes (50-70%) of the lower portion of the drainage. It supports a mixed conifer and Douglas-fir/dogwood vegetation. On the northern side of the drainage, a stony phase of this soil occurs. The subsoil of this series is a stony or gravelly sandy loam.

The Cohasset soil series occurs along the gentler slopes (30-50%) and ridgetops of the lower portion of the drainage. This soil is a deep (0.92-1.83 m., or 3-6 ft.), well-drained, stony loam with a highly acid clay loam subsoil. It supports a denser mixed conifer vegetation than the McCarthy soil.

The Windy series occurs on the higher elevation ridgetops and sideslopes. It is a deep, sandy loam in which stones comprise up to 80% of the profile. This soil supports mostly dense stands of shrubs. A good portion of the northern slopes of the Cub Creek drainage is composed of an eroded, moderately deep, rocky phase of this series.1/ (See soil map in Environmental Assessment.)

1/ Soils description written by L. Stehle, Soil Scientist, Lassen National Forest

D. Impacts and Possible Conflicts

An Environmental Assessment for the project is appended to this report.

1. Cultural Values

An archaeological inventory (i.e., overview and field reconnaissance) was performed in 1979 to assess the cultural resource potential of Forest Service lands in the southeast portion of the Almanor District, Lassen National Forest. The inventory consisted of a 20% random sample of Forest lands within selected drainages. Cub Creek was one of the selected drainages. No cultural properties were found within approximately 324 ha. (800 acres) inspected in the drainage.

Jim Johnston, Lassen National Forest Archaeologist, has stated that present evidence suggests few, if any, cultural properties are likely to exist within the Cub Creek drainage. In addition to the lack of cultural remains found within the drainage, the archaeological inventory indicates that limited historic and prehistoric activities took place in areas of similar drainage in surrounding areas.

2. Mineral Values

No known locatable minerals exist on the RNA or on adjoining areas. Mineral information developed for the Roadless Area Review and Evaluation II rated geothermal as the only potential mineral/energy resource. On a scale of 0-100, the area rated 88, a high potential. Because there is no surface evidence of geothermal activity within 32.2 km. (20 miles), it is not felt that there will be a demand for the relatively small RNA area for geothermal development. After establishment, steps will be taken to withdraw the area from mineral entry.

3. Grazing

The area has no suitable grazing areas.

4. Timber

The following commercial species of trees grow on the area.

Ponderosa pine (Pinus ponderosa), sugar pine (Pinus lambertiana), white fir (Abies concolor), red fir (Abies magnifica), and Douglas-fir (Pseudotsuga menziesii). See map for Forest Type and Stand Classification.

Because of the steep slopes, the area is listed as marginal component in the Forest Timber Management Plan. Because of this designation, its potential yield was not used in calculating the Forest's standard allowable harvest target.

Should means to harvest and regenerate the area be determined, a potential yield of about 680 MBF/year would be available. (The 2,482 forested acres times Forest 1/ average yield of 274 BF/acre.) The potential yield for the Forest is approximately 150 MMBF/year; thus the small lost potential timber yield from the RNA would not be significant.

5. Watershed Values

Cub Creek drains into Deer Creek which in turn joins the Sacramento River approximately 64.4 km. (40 miles) to the west. Deer Creek primarily traverses undeveloped areas. Because no dams or other impairments exist in the stream, it provides habitat for anadromous fish.

6. Recreation Values

Recreation use is limited to a few deer hunters and fishermen on the lower portion of Cub Creek. The newly-constructed Pacific Crest Trail is adjacent to, but outside of, the eastern boundary of the RNA.

7. Wildlife Values

The area furnishes habitat for black-tailed deer, bear, and various other forest-oriented wildlife. A limited trout fishery exists at the lower end of Cub Creek.

8. Wilderness

The Cub Creek RNA was part of the Cub Creek 3,695-ha. (9,100-acre) inventoried area (05094) for the Roadless Area Review and Evaluation II. The outcome of the RARE II process was a Forest Service recommendation of non-wilderness management for the area. No other special management designations have been studied, or suggested.

9. Transporation Plans

The Forest Transportation Plan calls for construction of roads in the area only if access is needed to harvest timber within the drainage. The establishment of the RNA will preclude road construction. This will not interfere with the development of access roads to other public or privately owned areas.

1/ Lassen National Forest Timber Management Plan

F. Administration Records and Protection

The official responsible for administration and protection of the RNA will be the Almanor District Ranger, P.O. Box 767, Chester, California 96020. There are no anticipated needs for special protection measures or increased law enforcement actions.

The research coordinator will be the Director, Pacific Southwest Forest and Experiment Station, 1960 Addison Street, Box 245, Berkeley, California 94701. He/she will be responsible for approval and coordination of observational or applied research, will maintain the file of research data, and will be the curator of the herbarium and species samples collected on the area.

G. References

Information regarding the area has come from discussions with various resource specialists of the Lassen National Forest and Regional Office, Pacific Southwest Region.

An ecological survey of the vegetation of the Cub Creek watershed by Dean Wm. Taylor and David C. Randall, Botany Department, University of California at Davis, California, is the primary source of information. (This report is enclosed as an appendix to the Environmental Assessment.)

H. Appendix

Environmental Assessment, Cub Creek Research Natural Area, Lassen National Forest, prepared by the Forest Supervisor, September 1979.

ENVIRONMENTAL ASSESSMENT

Cub Creek Research Natural Area

Lassen National Forest

Prepared By: Forest Supervisor
Lassen National Forest
September 1979

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ENVIRONMENTAL ASSESSMENT
CUB CREEK RESEARCH NATURAL AREA
LASSEN NATIONAL FOREST

I. INTRODUCTION

The proposed Cub Creek Research Natural Area is located in Tehama County in the State of California. It is administered by the Almanor Ranger District of the Lassen National Forest, Pacific Southwest Region. The area was proposed on October 1, 1975, to the Regional Forester and was given favorable consideration by the PSW/R-5 Research Natural Area Committee on February 11, 1976.

In 1976 an ecological survey was made by the Botany Department, University of California in Davis, under a contract issued by the U.S. Forest Service (see appendix). Informal review of the area has been made by the Botany Department of Chico State University at Chico. Analysis indicates that the area is suitable and would satisfy a portion of the need for research areas in California. The establishment of this area as a Research Natural Area is supported by a number of written and verbal communications received from the public. Most of the support has come from individuals and organizations in the Chico area, the site of Chico State University.

II. AFFECTED ENVIRONMENT

Cub Creek is a tributary of Deer Creek which drains into the Sacramento River in the upper Sacramento Valley. The proposed area encompasses the Cub Creek watershed. Elevations range from approximately 1,136 meters (3,800 feet) to nearly 2,000 meters (6,500 feet). Slopes are steep, ranging from 30%-70% or steeper.

The timber stand has a variety of plant species common to the westside Sierra. The non-timbered areas are barren or brush covered. White fir with ponderosa pine, sugar pine, and Douglas-fir make up the major commercial species. Pages 19-26 of the ecological survey lists the other species of trees, shrubs, forbs, and grasses found during the survey. No rare or endangered species were located. The area is a habitat area for blacktail deer, bear, and various other wildlife. Cub Creek has a limited trout fishery which is utilized in the lower portions of the creek.

The area is zoned General Forest in the Almanor Ranger District Multiple Use Plan. It is classified as Marginal Component in the Lassen National Forest Timber Management Plan because of steep slopes.

The proposed research area was inventoried in the 1977 Roadless Area Review and Evaluation (RARE II) as a part of the Cub Creek area #5094 of 3,764 hectares (9,100 acres). This evaluation process determined

that the unit should be managed as a non-wilderness area. The rationale for this decision is documented in the Final Environmental Statement, Roadless Area Review and Evaluation, U.S.D.A. Forest Service, January 1979.

Access to the area is by State Highway #32 where persons have to cross Deer Creek without the aid of a bridge, or other crossing by: a low standard Forest Service dirt road to the north edge; an unsurfaced county road within one-half mile of the southeast edge; and an unsurfaced Forest Service road within one-half mile of the south edge. There are no roadways or maintained trails within the area. The Pacific Crest Trail forms approximately three miles of the east boundary.

Precipitation comes primarily in the form of snow. Spring and fall rains, plus occasional summer thunderstorms, create the rest of the precipitation received. Snow can be expected anytime after November 1 and can stay on the ground until May 1. The snowpack will vary from about a meter (3 feet) at the lower elevations to 3.0 to 4.6 meters (10 to 15 feet) at the higher elevations.

Summer temperatures range from 4-38 degrees Celsius (40-100 degrees Fahrenheit) in the summer with long stretches of near or below freezing during winter months. The Ecological Survey Report covers climatic conditions in greater detail.

Present uses consist of a minor amount of fishing and deer hunting. A potential use is timber harvesting. There are no other resource uses which would conflict with the research program. The area is not part of a grazing allotment.

The Cub Creek drainage is composed of andesitic and basaltic volcanic breccia and mudflow material of the Tuscan formation, which flowed in the Pliocene epoch of the Tertiary period (approx. 2.5 - 7 million years ago). Slopes range from 30-70%. The soils which occur in the watershed are described in the Tehama County Soil Survey.

The McCarthy series is a moderately deep, well-drained sandy loam occurring along the southern sideslopes (50-70%) of the lower portion of the drainage. It supports a mixed conifer and Douglas-fir/dogwood vegetation. On the northern side of the drainage, a stony phase of this soil occurs. The subsoil of this series is a stony or gravelly sandy loam.

Along the gentler slopes (30-50%) and ridgetops of the lower portion of the drainage, occurs the Cohasset soil series. This soil is a deep, 1 to almost 2 meters (3-6 feet), well-drained stony loam with a highly acid clay loam subsoil. It supports a denser mixed conifer vegetation than the McCarthy soil.

On the higher elevation ridge tops and sideslopes occurs the Windy series. It is a deep sandy loam in which stones comprise up to 80% of the profile. This soil supports mostly dense stands of shrubs. A good portion of the northern slopes of the Cub Creek drainage is composed of an eroded, moderately deep, rocky phase of this series. 1/

1/ Soils description written by L. Stehle, Soil Scientist, Lassen National Forest

Mineral information was developed as part of the RARE II Study. The only mineral value rated was Geothermal. On a scale of 0 to 100, the area was rated 88 or having a high potential. However, this rating is considered questionable. There is no surface evidence of thermal activity, and no lease applications have been received for the area. The southern most boundary of the Lassen Known Geothermal Resources Area is about 8 air miles north of the Cub Creek area. Because of the relatively small size of the area, any thermal resource could be utilized on adjoining lands. The steep terrain conditions are not suitable for geothermal exploration or development.

An archaeological inventory (i.e. overview and field reconnaissance) was performed in 1979 to assess the cultural resource potential of Forest Service lands in the southeast portion of the Almanor District, Lassen National Forest. The inventory consisted of a 20% random sample of Forest lands within selected drainage. Cub Creek was one of the selected drainages. No cultural properties were found within approximately 800 acres inspected in the drainage.

Jim Johnston, Lassen National Forest Archaeologist, has stated that present evidence suggests few, if any, cultural properties are likely to exist within the Cub Creek drainage. In addition to the lack of cultural remains found with the drainage, the archaeological inventory indicates that limited historic and prehistoric activities took place in areas of similar cultural and natural environment.

III. EVALUATION CRITERIA

A. Are the timber types or vegetative communities needed to meet targets for the Pacific Southwest Region Research Natural Area systems?

B. Would the establishment be consistent with the District Multiple Use Plan?

C. Does the area meet the requirements of a research natural area?

1. Have there been no major man-made disturbances during the last 50 years?

2. Are the boundaries suitable for description and control?

3. Can all uses be controlled within the watershed?

4. Is the area accessible to a road system to carry out research projects?

IV. ALTERNATIVES

The three alternatives were developed through staff discussion and public suggestions. Preliminary screening by the Regional Research Natural area committee showed that the Cub Creek area had enough

desirable charateristics to warrant a full ecological study. The members of the ecological contract field personnel indicated that an additional 1600 acres may be a viable addition to the original proposal. This action created the third alternative.

1. No-action, or non-establishment.

2. Establishment of an area encompassing the Cub Creek Drainage as proposed in the original proposal. The total area would be 4,250 acres, of which 3,750 are timbered and 500 acres non-timbered.

3. Establishment of an area encompassing the Cub Creek drainage (same as alternative #2) plus an additional 1600 acres. (See map in Appendix II.)

V. EFFECTS OF IMPLEMENTATION

A. Alternative 1 - No Action, or Non-Establishment

Non-establishment of a Research Natural Area would allow management of the area for resource uses in accord with the District Multiple Use Plan. The area is classified Marginal Component in the Lassen National Forest Timber Management Plan with an approximate 85 MMBF of timber volume present. Most of this volume can be harvested utilizing helicopters or cable system logging methods. Timber harvesting was considered for this area in the early 1970's, but analysis by Almanor Ranger District Foresters determined that the cost/benefit of harvest was not suitable at that time. With the increase in knowledge, technological advances, and experience, this ratio will probably be suitable in the near future. There is approximately 85 MMBF of timber growing on the proposed area. Should timber harvesting and road construction take place, the area's research values would be lost. It has been determined that the vegetative type represented in the area is needed for the Pacific Southwest Region RNA system (see appendix). Non-establishment would necessitate searching for another suitable area within the State of California.

B. Alternative 2 - Establishment of an Area Encompassing the Cub Creek Drainage as Proposed in the Original Proposal.

The establishment of the RNA as proposed would fulfill a need of the RNA system for National Forests in the Pacific Southwest Region for the Mixed Conifer (SAF 243) target element in the Cascade Range physiographic (geomorphic) province (see Appendix). In addition, the proposed area contains representation of Red Fir (SAF 207), White Fir (SAF 211), and Ponderosa Pine - Douglas-fir (SAF 244) types but would not adequately fulfill the RNA system needs for these targets elements.

Administration of the surrounding areas would be relatively unaffected because the entire watershed area is involved.

Special practices would not be necessary to protect the natural conditions within the watershed. Because of the sharply defined topographic features, the boundaries of the area are well defined. These features would assist in controlling access to the area.

The effect on resource outputs is minimal. The grazing, wildlife, and fishery resources will be unaffected. Some loss in timber output will take place. The loss in potential yield for the Lassen National Forest would be less than 1 MMBF per year.

C. Alternative 3 - Establishment of an Area Encompassing the Cub Creek Drainage (Same as Alternative #2) plus an Additional 1600 Acres.

An analysis of the area was made by L. E. Horton, Region 5 Ecologist, and member of the PSW/R5 Committee (see Appendix VII). He determined that the predominant timber stands on the proposed additional area are mixed conifers (SAF 243) rather than ponderosa pine - Douglas-fir (SAF 244). Mixed conifer stands are well represented in the Cub Creek Drainage. He therefore suggested that the additional area is not needed to meet established State RNA targets.

The boundary of the area is not defined by topographic features. This could create an additional administrative expense to control access and eliminate off-site effects of adjacent management activities.

VI. EVALUATION OF ALTERNATIVES

Non-establishment of the RNA (Alternative #1) would continue to leave a gap in meeting established targets for the California RNA system. The Cub Creek drainage (Alternative #2) has vegetative types needed to fill gaps in the established targets of the California RNA system. The area can be defined on the ground and access and surrounding land management practices can be controlled to protect the natural conditions of these watersheds. [Timber values are present within Marginal Component lands, as defined in the Lassen National Forest Timber Management Plan.] Based upon the current timber management plan, there would not be a reduction in the Forest's timber production.

The additional 1600 acres suggested by the ecological survey team is not needed for RNA purposes.

VII. THE FOREST SERVICE PREFERRED ALTERNATIVE

Establishment of a Research Natural Area in the Cub Creek Watershed (Alternative #2) is the preferred action. The area is suitable for administration, has only minor effects on other resource management of the area, and meets all criteria of a RNA. The environmental analysis of the area did not disclose any special management requirements and constraints which are not covered by U. S. Forest Service policies or mandatory laws.

VIII. CONSULTATION WITH OTHERS

A. Dean Wm. Taylor and David C. Randall, Botany Department, University of California, Davis, California, made the ecological survey of the Cub Creek drainage.

B. Professor Wesley Demsey, Botany Department, Chico State University and member of California Native Plant Society, made the original proposal to the Forest Service to have the area established.

C. William S. Swanson, District Ranger, Almanor Ranger District, has discussed the area with Professor Demsey and other interested individuals and made recommendations in favor of the establishment.

D. Pacific Southwest Experiment Station, R-5 Research Natural Area Committee, has reviewed the establishment proposal and recommended that the area receive further study.

E. Northstate Wilderness Committee, Chico, California. Members of this group have made numerous inquiries and presented written comments in support of the RNA in various land management efforts, especially during the Roadless Area Review Evaluation process.

F. Yahi Group, Sierra Club, Chico, California. This group has presented written comments in support of the RNA during various land management planning efforts on the Forest.

APPENDIX

I. Identification of Interdisciplinary Team.

II. Topographic Map (see left cover).

III. Ownership Map.

IV. Soils Map.

V. Ecological Survey Report.

VI. Target Research Natural Area System.

VII. Memorandum by L. E. Horton.

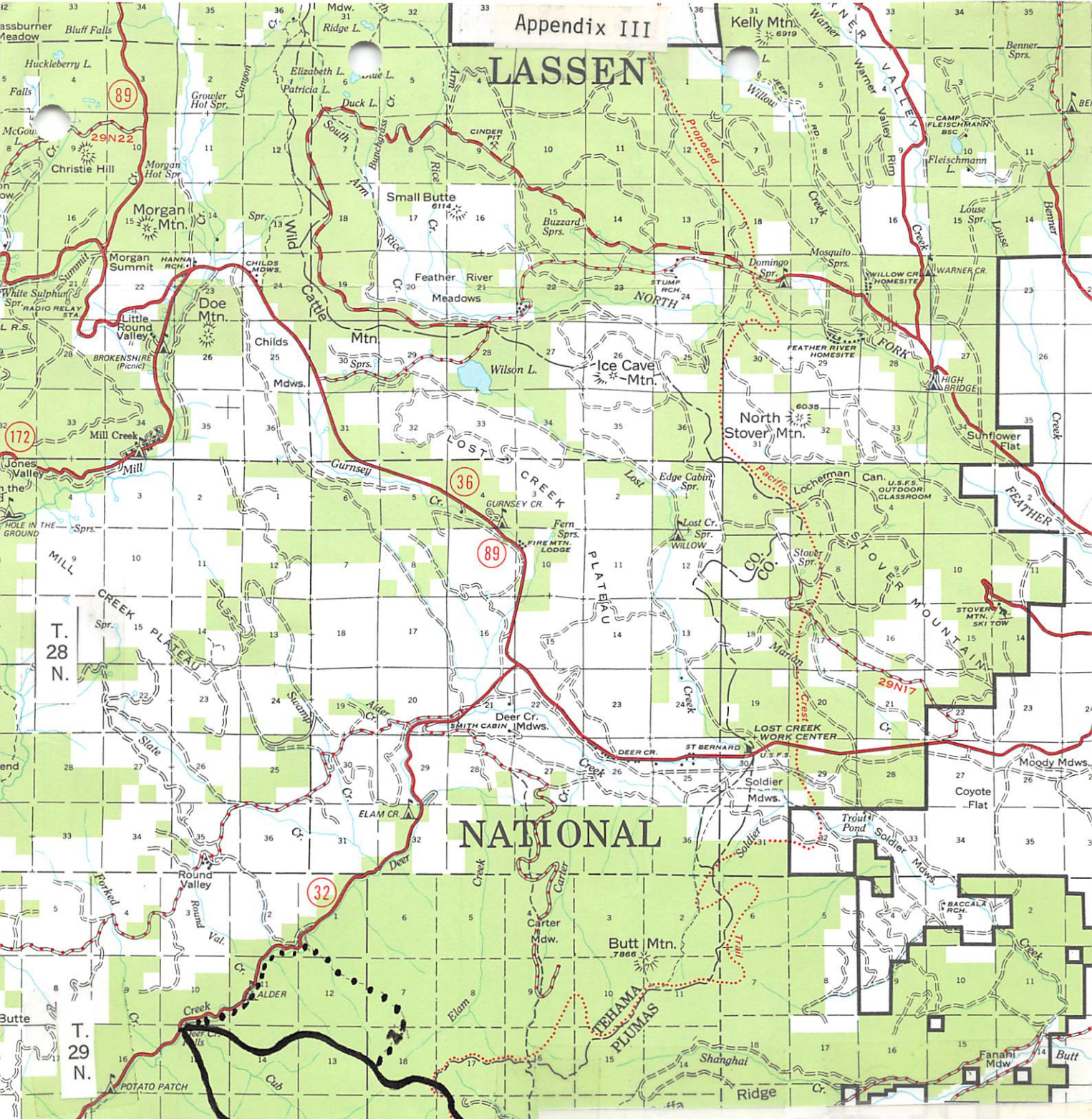
APPENDIX I

Identification of the Interdisciplinary Team

The discussion of the proposed Cub Creek Research Natural Areas has involved numerous individuals over a period of three years. The following Forest Service people have provided specific information. Many others were consulted at various times.

1. Ken Estes, Forest Silviculturist, Lassen National Forest.
2. C. H. Jacobson, Forest Environmental Coordinator, Author of "The Environmental Assessment" and Team Leader.
3. William Swanson, District Ranger, Almanor District, Lassen National Forest.
4. L. E. Horton, Region 5 Ecologist and Committee Member, PSW/R5 RNA Committee.
5. Lorrie Stehle, Soils Scientist, Lassen National Forest.

Appendix III



OWNERSHIP MAP

Proposed Cub Creek Research Natural Area

LASSEN NATIONAL FOREST

Legend:

———— - Boundary of RNA (Alter. #2)

. . . . - Boundary of proposed addition, (Alter. #3)

Green areas are National Forest Ownership

BUTTE CR.	14		●		P
CAVE	45	5	●	●	P
HAT CR.	87		●	●	P&F
HONN	8				P
OLD STATION		4			P
ROCKY	7				P
SANDY		3			P
SUBWAY CAVES		5			P
WILEY RANCH	12		●	●	P
WILLOW SPRS.	9		●	●	P

T. 36 N.

T. 35 N.

T. 34 N.

T. 33 N.

APPENDIX IV

S MAP- CUF CREEK RESEARCH NATURAL AREA

LASSEN NATIONAL FOREST

CgE COHASSET STONY LOAM 30-50% SLOPES

CkF COLLUVIAL LAND 50-65 % SLOPES

MkE MC CARTHY SANDY LOAM 30-50% SLO

MkF MC CARTHY SANDY LOAM.. 50-65 % SLOPES

MmF MC CARTHY STONY SANDY LOAM 50-65 % SLOPES

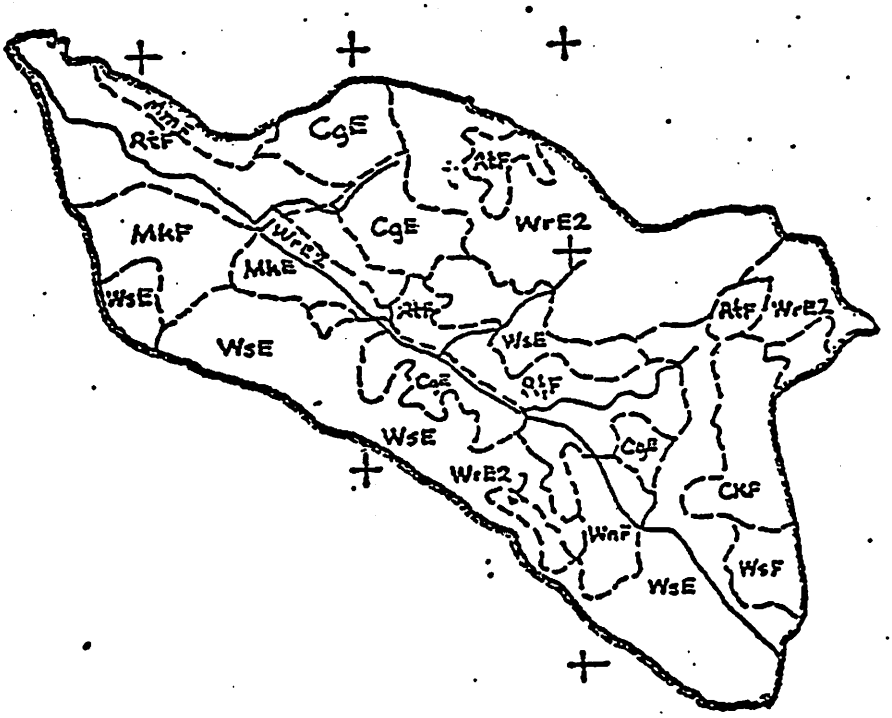
RtF VOLCANIC ROCKLAND 50-65% SLOPES

WnF WINDY ROCKY SANDY LOAM 50-65 % SLOPES

WrE2 WINDY ROCKY SANDY LOAM MODERATLY CEE! 10-50 % SLOPES, ERODED

WsE WINDY STONY SANDY LOAM 30-50 % SLOPES

WsF WINDY STONY SANDY LOAM 50-65 % SLOPES



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TAKEN FROM TEHAMA SOIL SURVEY REPORT

LEGEND:

——— STREAM COURSE (CUB CREEK)

------ SOIL TYPE BOUNDARY