

SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

DEVIL'S BASIN RESEARCH NATURAL AREA

MENDOCINO NATIONAL FOREST

TEHAMA COUNTY, CALIFORNIA

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

Prepared by Cate Phillips For Ayn J. Martin Date July 3, 1995
Ayn J. Martin, Range Conservationist, Pacific Southwest Forest
and Range Experiment Station, and Range and Watershed Management,
Pacific Southwest Region

Recommended by Jim Giachino Date 7/19/95
Jim Giachino, Distict Ranger, Corning Ranger District

Recommended by Daniel K. Chisholm Date 8/7/95
Daniel K. Chisholm, Forest Supervisor, Mendocino National Forest

Concurrence of James C. Space Date 8/29/95
JAMES C. SPACE, Station Director,
Pacific Southwest Forest and Range Experiment Station

Established by James A. Lawrence Date 10/12/95
for G. LYNN SPRAGUE, Regional Forester
Pacific Southwest Region



United States
Department of
Agriculture

Forest
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Route To:

Date: SEP 28 1995

Subject: Establishment of Devil's Basin Research Natural Area

To: Regional Forester, R5

I have reviewed the enclosed Establishment Record and I concur with the establishment of the Devil's Basin Research Natural Area on the Mendocino National Forest. The land allocation and NEPA decision for this Research Natural Area were included in the Record of Decision for the Mendocino National Forest Land and Resource Management Plan.

It is my pleasure to support this establishment of a new RNA.


JAMES C. SPACE
Station Director

Enclosures

cc:
David Diaz, R5 RNA Coordinator, TM
Connie Millar, PSW RNA Coordinator
C. Phillips, RNA Ecologist

ES
RECEIVED R5

SEP 26

FOREST MANAGEMENT



Caring for the Land and Serving People



RECORD OF DECISION

FINAL ENVIRONMENTAL IMPACT STATEMENT LAND AND RESOURCE MANAGEMENT PLAN

MENDOCINO NATIONAL FOREST USDA-FOREST SERVICE

Colusa, Glenn, Lake, Mendocino, Tehama, and Trinity Counties, California

This document presents the decision regarding the selection of a Land and Resource Management Plan for the National Forest land within the Mendocino National Forest. It summarizes the reasons for choosing the Preferred (PRF) Alternative as the basis for the Forest Plan which will be followed for the next 10 to 15 years. Estimates of the long-term environmental and economic consequences contained in the Final Environmental Impact Statement were considered in this decision.

compared to 12,300 AUMs in the 1989 base year and approximately 6,000 AUMs during the current grazing season. The success of permittee livestock management, improvements, and application of grazing systems in meeting utilization standards and desired conditions will determine actual annual grazing outputs for each permit.

Timber: The Plan provides that 61,000 acres of suitable forest land is available for scheduled timber harvest. The maximum average annual allowable sale quantity (ASQ) in the Plan is 12.2 MMBF. The average annual harvest over the past decade has been steadily declining from 84 MMBF in the early 1980's to 2 MMBF in 1994.

The ASQ results from a combination of even-aged and uneven-aged silvicultural systems consistent with multiple use objectives and desired conditions of the Forest. The Plan includes 580 acres annually of reforestation, and 2,000 acres annually of timber stand improvement including precommercial thinning, release and weeding.

Selection of site-specific silvicultural prescriptions at the project level will be based on analysis of current conditions, requirements and regulations, and desired future conditions.

Green tree retention (GTR) will be the primary method of regeneration harvest used under the Plan. Utilizing the GTR regeneration method, both large and small trees are retained on a site to provide for dispersal of numerous organisms, future snags and coarse woody debris, and vertical and genetic diversity.

Recreation: With planned rehabilitation of existing facilities and construction of new facilities, developed recreation opportunities will be adequate to meet projected demand over the next 5 decades. Recreation use is estimated to increase by 32 percent from current levels in the next decade. Needed rehabilitation of existing facilities will be accomplished during the first decade, and new sites will be constructed to meet projected demand within available funding levels.

The Plan permits Off Highway Vehicle (OHV) use on designated roads and trails only. OHV trails will increase by 55% by the end of the fifth decade. Foot and horse trails will increase by 37% by the end of the fifth decade, and new trail construction will not occur in designated wilderness areas.

Soils: Maintenance of long-term soil productivity is given a high priority in the Plan. Minimizing reduction in long-term productivity from erosion, nutrient loss, displacement, and compaction are emphasized. Provisions are made for rehabilitation and improvement measures where needed.

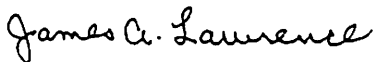
Research Natural Areas: In addition to the Frenzel Creek Research Natural Area (RNA) previously established, this Plan allocates 3,211 acres of National Forest lands in four areas to the RNA management prescription, Rx 11. The three areas formally established as RNAs by this Record of Decision are Doll Basin, Hale Ridge, and Devil's Basin. Wilder Ridge will be formally established at a later date.

Wild and Scenic Rivers: A total of 221 streams, nearly 900 miles, were considered for eligibility to the National Wild and Scenic Rivers system. This Plan recommends Congressional designation of 40.3 miles of three rivers and streams to the National Wild and Scenic River System. The rivers include the Middle Fork of the Eel River within the Yolla Bolly-Middle Eel Wilderness,

No decisions on site specific projects are made in this document, although a number of projects are identified. Those projects identified in various parts of the Plan or final EIS are only included in order to clarify discussions, illustrate a point, or to show that Forest Plan goals and objectives can be achieved.

Final decisions on site-specific projects will be made during Forest Plan implementation after appropriate analysis and documentation meeting NEPA requirements.

VI. SIGNATURE AND DATE.


G. LYNN SPRAGUE
Regional Forester


7-7-95
Date

TITLE PAGE

Establishment Record for Devil's Basin
Research Natural Area within Mendocino
National Forest, Tehama County, California
Tehama County, California.

A. INTRODUCTION

The Devil's Basin Research Natural Area (DBRNA) lies within the Corning Ranger District, Mendocino National Forest (Maps 1 and 2). The California black oak (Quercus kelloggii¹) stands and surrounding areas of Devil's Basin were first reconnoitered in 1984 (Henry 1984), and subsequently proposed as a representative of the California Black Oak Woodland type (Holland 1986). An ecological survey of the basin was completed in 1987 (Newton 1987). Unless otherwise noted, information contained in this Establishment Record is based on this ecological survey. The DBRNA has had no history of intensive use such as logging or grazing. The DBRNA is entirely under public ownership with the Mendocino National Forest.

1) Land Management Planning

The establishment of Devil's Basin RNA is recommended and evaluated in the Mendocino National Forest Land and Resource Management Plan (LRMP 1995) and the Environmental Impact Statement and Appendices for the LRMP (U.S.D.A. Forest Service 1995a-c). The land allocation for the Devil's Basin RNA was decided by the signing of the Record of Decision (ROD) for the LRMP by the Regional Forester (1995). The establishment of the DBRNA is completed upon signature of this Establishment Record with concurrence of the Station Director. The area lies within the Research Natural Areas Management Area #5 allocated to Management Prescription #11 which emphasizes the preservation of natural conditions and the protection of features for which the RNA was established (Appendix 3).

B. OBJECTIVES

The primary purpose for establishment of the DBRNA is to preserve a representative of a Black Oak Woodland ecosystem and its associates in a condition minimally modified by humans within the North Coast Physiographic Province for their scientific value and educational importance. The DBRNA will provide onsite educational opportunities, serve as a baseline for measuring long-term ecological changes, and function as a control area for comparing results from manipulative research and monitoring.

The Black Oak Woodland is one of 13 botanical elements presently targeted for RNA representation within this province. In addition, establishment of the DBRNA will contribute to the genetic diversity of the National Forest resource base.

1 Scientific names referenced in this text are in accordance with Little (1979) for tree species, and Munz (1968) for all other plants. Vegetation types follow the nomenclature of Holland (1986).

C. JUSTIFICATION FOR ESTABLISHMENT

California black oak has broad distribution in California (Griffin and Critchfield 1972). Within the DBRNA, a wide elevational zone of the species (2500 feet, 762 m), as well as a gamut of seral stages are represented, providing opportunities for the study of succession and long-term ecological changes. The pure oak stand that embodies the bulk of the area is large, facilitating the continuance of current ecological conditions. Biological diversity is enhanced with the occurrence of common associates of the type throughout the remaining area (Map 3) (Henry 1984).

Additionally, oak habitats are important for wildlife species. Nearly 110 avian species use California oaks (Quercus spp.) during the breeding season for foraging, nesting, or perching (Verner 1979). Many persistent, sub-climax California black oak stands are found on lower elevations in the DBRNA and form an important part of the winter range for wildlife species. Kerns (1979) found that of the California black oak and "edge" habitats he sampled, mature California black oak stands provided the most valuable habitat for wildlife. The second most important oak habitat was determined to be the edge between mature oak stands and young oak stands. The edge between mature oak and conifer stands was the third most important. Many studies investigate the value of oak habitat for wildlife and the DBRNA provides an important location to pursue these and other wildlife habitat relationships further.

One listed species, the foothill yellow-legged frog, was observed in the RNA. This frog is a Federal Category 2 and California species of special concern. The area contains potential habitat for the California red-legged, a proposed endangered species.

D. PRINCIPAL DISTINGUISHING FEATURES

Overlooking the perennial Thomes Creek, on the north slope of Log Springs Ridge, the DBRNA covers an area of 671 acres (272 hectares) and is centered around a large flat on the toe of an old land failure. The area features a diverse mixture of vegetation types, including (Map 3): Black Oak Woodland (Holland 1986), Coast Range Mixed Conifer Forest, Blue Oak Woodland, Canyon Live Oak Forest, and Northern Mixed Chaparral. Within the DBRNA, California black oak can be found in a continuum of stages, from a large, persistent sub-climax stand, to non-persistent seral stands of black oak forests or mixed evergreen forests.

E. LOCATION

1) The DBRNA is located within the North Coast Range Physiographic Province in the Mendocino National Forest, Corning Ranger District (Map 1).

2) The center of the DBRNA lies at 122° 43' west longitude and 39° 51' north latitude.

3) The DBRNA includes all or parts of the following National Forest System lands:

T. 23 N., R. 8 W., Mount Diablo Meridian;
E1/2 Section 14, SE1/4 SE1/4 Section 11, SW1/4 SW1/4 Section 12, and
Section 13 (Map 3).

The northern boundary of the DBRNA follows Thomes Creek from a point 0.1 mile (0.2 km) southeast of its confluence with Horse Trough Creek to its confluence with an unnamed tributary 1.1 mile (1.8 km) downstream to the southeast. The boundary then follows the ridgeline west of this unnamed tributary in a southwesterly direction for approximately 0.7 mile to the southern section line of section 13. The southern boundary of the DBRNA follows this section line due west for approximately 0.6 mile, and then turns due north at the western section line of section 13. The boundary then follows said section line 0.5 mile (0.8 km) due north, then 0.25 mile (0.4 km) due west, and finally 0.5 mile (0.8 km) due south to juncture with the southern section line of section 14. Here, the boundary runs due west along said section line for 0.3 mile (0.5 km) to the ridgetop above the unnamed east fork of Horse Trough Creek. Following this ridgetop north for 0.5 mile (0.8 km), and then northeast for 0.6 mile (1.0 km), the boundary returns to its starting point at Thomes Creek (Maps 2 and 3).

4) Total acreage of the DBRNA is 671 acres (272 hectares).

5) The DBRNA rises from an elevation of 1400 feet (427 meters) at its northeast corner to 3660 feet (1116 meters) at its southeast corner. Steep slopes to 60% rise to the east and west, while slopes to the south are less steep (30-60%).

6) Map 2 illustrates the best access route to the DBRNA. From Corning on Interstate 5, take the Corning Road (A9) to Paskenta (about 31 miles, 49.9 km) west to its intersection with Forest Service Road 23N02. This is a hard surfaced road also delineated as M4. Yearlong access is provided by 23N02 from the town of Paskenta to Hall Ridge. Just south of Hall Ridge (at about 7 miles, 11.3 km), turn north onto dirt road 23N70 at the "plantation" gate and follow this road for one mile (.6 km) to the Louisiana Pacific (L-P) gate. Through this gate, the road becomes accessible only by 4-wheel drive vehicle. Keys are available from the Corning Ranger District office. The L-P road runs the length of a 80-acre

(32 ha) L-P parcel into the DBRNA and stops at a slide located above the inner gorge of Thomes Creek. A right-of-way agreement is currently being developed between L-P and the Forest Service to ensure that no conflicts develop over access across private land. It is recommended to walk the 4-wheel drive road, which will require approximately 30 minutes going down the steep slope into the unit, and one hour returning. The dirt road (23N70) and 4-wheel drive road are inaccessible by vehicle during wet months (normally November-April), when walking is the best mode of travel to and from paved road 23N02. The western and eastern boundaries of the site can be accessed by traversing the slopes from the flat in the center of the unit.

F. AREA BY COVER TYPE

SAF TYPES (Eyre 1980)	acres	hectares
California Black Oak (246)	436	177
Pacific ponderosa pine-Douglas-fir (244)	43	18
Blue oak-Digger pine (250)	23	9
Canyon live oak (249)	85	34
Unclassified	84	34
TOTALS	671	272
KUCHLER TYPES (Kuchler 1966)	acres	hectares
Components of Mixed Conifer and California Mixed Evergreen Forests (K-5 and K-25)	436	177
Mixed Conifer Forest (K-5)	43	18
California Mixed Evergreen Forest (K-25)	85	34
California Oakwoods (K-26)	23	9
Chaparral (K-29)	84	34
TOTALS	671	272
HOLLAND TYPES (Holland 1986)	acres	hectares
Black Oak Woodland (71120)	436	177
Coast Range Mixed Conifer Forest (84110)	43	18
Blue Oak Woodland (71140)	23	9
Canyon Live Oak Forest (81320)	85	34
Northern Mixed Chaparral (37110)	84	34
TOTALS	671	272

G. PHYSICAL AND CLIMATIC CONDITIONS

The DBRNA is located on the east side of the California Coast Ranges. It encompasses Devil's Basin, which is enclosed on the west by Horse Trough Ridge, on the south by Log Springs Ridge and Hall Ridge, and on the north by Thomas Creek. Characterized by northeasterly-facing slopes, the rugged topography of the DBRNA ranges from 30% slopes in the southern quarter, to 60% slopes toward the east and west. Devil's Basin itself forms a flat in the center of the RNA (Map 3).

The climate of the area is predominately Mediterranean, but somewhat montane at the higher elevations. Winters are typically cold and wet, with the majority of the precipitation falling between November and March. Some snow falls at higher elevations. Summers are usually hot and dry, and little to no precipitation falls between May and September.

No permanent weather recording devices exist near the DBRNA. Limited weather data for the summer months from May to October are available for the towns of Covelo, and Alder Springs, and year-round weather data is available for Paskenta and Stonyford. Weather data records from all four stations have been kept from 1967 through the present. Covelo is located on the west side of the Coast Ranges, is influenced by maritime weather, and hence data from this location is the least applicable to the DBRNA site.

The climate at the upper elevations of the DBRNA is probably most similar to Alder Springs, located on the east side of the Coast Ranges at similar elevations. Alder Springs is situated 14 aerial miles (23 km) southwest of Devil's Basin. Based on weather data between 1976 and 1985, average annual precipitation at Alder Springs is 34.70 inches (88.14 cm) (U.S. Forest Service, unpublished data).

Conversely, the climate at the lower elevations of the DBRNA is probably most like Paskenta and Stonyford, which are both located at low elevations on the east side (Map 1). Paskenta is the nearest station, located approximately ten aerial miles (16 km) east of Devil's Basin at an elevation of 750 feet (229 m). Stonyford is located approximately 34 aerial miles (55 km) southeast of Devil's Basin at an elevation of 1200 feet (366 m).

Table 1 summarizes ten years of precipitation data for Paskenta and Stonyford. Average annual precipitation for ten years between 1976 and 1985 was 27.06 inches (689 mm) for Paskenta, and 23.95 inches (609 mm) for Stonyford. Minimum average precipitation occurred during the month of July, and maximum average precipitation occurred during January (U.S. Forest Service unpubl. data). It is interesting to note that, although Paskenta is at a lower elevation than Stonyford, average precipitation values over the ten years between 1976 and 1985 were higher for Paskenta in eight out of twelve months. This probably indicates the influence of

topography and exposure, which should be considered when extrapolating data to the DBRNA site for research purposes. Table 2 presents temperature and relative humidity data for Stonyford. Temperatures are relatively high in the summer, often reaching 100°F (38°C) or more. Winter occasionally brings temperatures below 32°F (0°C) and temperatures at the higher elevations of the DBRNA would be expected to drop below freezing more often than at Stonyford.

TABLE 1: Rainfall Patterns for Paskenta and Stonyford, California between 1976 and 1985 in inches (mm in parentheses) *.

PASKENTA

	<u>JULY</u>	<u>AUG</u>	<u>SEPT</u>	<u>OCT</u>	<u>NOV</u>
1985	0.00	0.02 (0.51)	2.48 (63.10)	1.13 (28.75)	3.45 (87.79)
1984	0.00	0.18 (4.58)	0.10 (2.54)	1.71 (43.51)	8.12 (206.62)
1983	0.30 (7.63)	0.00	1.91 (48.60)	0.65 (16.54)	8.43 (214.50)
1982	0.00	0.00	0.80 (20.36)	1.42 (36.13)	4.40 (111.96)
1981	0.00	0.00	0.55 (13.99)	3.05 (77.61)	5.35 (136.13)
1980	0.00	0.00	0.38 (9.67)	1.13 (28.75)	0.30 (7.63)
1979	0.00	0.00	0.64 (16.28)	2.72 (69.21)	4.83 (122.90)
1978	0.00	0.00	0.84 (21.37)	0.00	1.91 (48.60)
1977	0.08 (2.04)	0.00	0.84 (21.37)	0.12 (3.05)	2.71 (68.96)
1976	0.10 (2.54)	0.76(19.34)	0.73 (18.58)	0.21 (5.34)	1.00 (25.45)

10-yr X	0.05 (1.27)	0.10 (2.54)	0.93 (23.66)	1.21 (30.79)	4.05 (103.05)
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	<u>DEC</u>	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>
1985	2.71 (68.96)	5.31 (135.11)	10.52(267.68)	5.04 (128.24)
1984	2.58 (65.65)	0.47 (17.81)	0.00	1.24 (31.55)
1983	0.00	0.25 (6.36)	1.50 (38.17)	1.19 (30.28)
1982	0.89 (22.65)	7.61 (193.64)	7.42 (188.80)	12.85(326.97)
1981	4.71(119.59)	3.77 (95.93)	2.40 (61.07)	4.44 (112.98)
1980	4.18(106.36)	9.96 (253.44)	1.98 (50.38)	4.68 (119.08)
1979	3.84 (97.71)	3.14 (79.90)	9.61 (244.53)	1.79 (45.55)
1978	0.01 (0.25)	5.94 (151.15)	4.57 (116.28)	3.51 (89.31)
1977	5.82 (148.09)	13.18(335.37)	6.70 (170.48)	5.13 (130.53)
1976	0.34 (8.65)	1.72 (43.77)	1.25 (31.81)	2.73 (69.47)

10-yr X	3.51 (89.31)	5.14 (130.79)	4.60 (117.05)	4.26 (108.40)
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	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>ANNUAL TOTALS</u>
1985	1.11 (28.24)	0.26 (6.62)	0.00	32.03 (815.01)
1984	0.30 (7.63)	0.00	0.00	14.70 (374.05)
1983	1.27 (32.32)	0.00	0.12 (3.05)	25.62 (651.91)
1982	3.79 (96.44)	1.04 (26.46)	8.18 (208.14)	48.40 (1231.55)
1981	1.21 (30.79)	0.15 (3.82)	1.27 (32.32)	26.90 (684.48)
1980	1.94 (49.36)	1.46 (40.71)	0.00	25.71 (654.20)
1979	1.15 (29.26)	0.37 (9.41)	0.64 (16.28)	28.73 (731.04)
1978	1.46 (40.71)	0.30 (7.63)	0.00	18.27 (464.89)
1977	2.78 (70.74)	0.08 (2.04)	0.00	37.44 (952.67)
1976	0.48 (12.21)	3.23 (82.19)	0.00	12.55 (319.34)

10-yr X	1.55 (39.44)	0.69 (17.56)	1.02 (25.95)	21.04 (688.04)
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continued--

TABLE 1: (continued) Rainfall in inches (mm in parentheses).

STONYFORD

	<u>JULY</u>	<u>AUG</u>	<u>SEPT</u>	<u>OCT</u>	<u>NOV</u>
1985	0.00	0.10 (2.54)	0.88 (22.39)	0.77 (19.59)	2.93 (74.55)
1984	0.00	0.23 (5.85)	0.22 (5.60)	0.57 (14.50)	6.96 (177.10)
1983	0.00	0.92 (23.41)	0.26 (6.62)	0.57 (14.50)	9.51 (241.98)
1982	0.06 (1.53)	0.18 (4.58)	0.52 (13.23)	1.73 (44.02)	4.86 (123.66)
1981	0.00	0.00	0.45 (11.45)	1.61 (40.97)	4.40 (111.96)
1980	0.00	0.00	0.32 (8.14)	0.30 (7.63)	0.25 (6.36)
1979	0.00	0.23 (5.85)	0.13 (3.31)	2.15 (54.71)	2.45 (62.34)
1978	0.00	0.00	0.63 (16.03)	0.00	1.27 (32.32)
1977	0.00	0.00	0.47 (11.96)	0.40 (10.18)	2.42 (61.58)
1976	0.10 (0.25)	0.71 (18.07)	0.61 (15.52)	0.41 (10.43)	0.53 (13.49)

10-yr $\bar{X}$	0.01 (0.25)	0.24 (6.11)	0.45 (11.45)	0.85 (21.63)	3.56 (90.59)
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	<u>DEC</u>	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>
1985	2.51 (63.87)	5.60 (142.49)	10.46 (266.16)	4.95 (125.95)
1984	1.94 (49.36)	0.34 (8.65)	1.24 (31.55)	1.88 (47.84)
1983	0.96 (278.88)	0.57 (14.50)	1.46 (37.15)	1.07 (27.23)
1982	2.16 (54.96)	6.22 (158.27)	8.44 (214.76)	9.00 (229.01)
1981	4.15 (105.60)	3.94 (100.25)	1.43 (36.39)	4.05 (103.05)
1980	4.40 (111.96)	7.10 (180.66)	1.32 (33.59)	2.42 (61.58)
1979	6.05 (153.94)	4.29 (109.16)	9.69 (246.56)	1.86 (47.33)
1978	0.08 (2.04)	8.65 (220.10)	5.51 (140.20)	2.55 (64.89)
1977	5.03 (127.99)	11.71 (297.96)	7.53 (191.60)	4.16 (105.85)
1976	0.66 (16.79)	1.61 (40.97)	1.23 (31.30)	2.50 (63.61)

10-yr $\bar{X}$	3.79 (96.44)	5.00 (127.23)	4.83 (122.90)	3.44 (87.53)
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	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>ANNUAL TOTALS</u>
1985	0.50 (12.72)	0.00	0.00	28.70 (730.28)
1984	0.31 (7.89)	0.00	0.00	13.69 (348.35)
1983	0.42 (10.69)	0.05 (1.27)	0.00	25.79 (659.03)
1982	3.58 (91.09)	0.70 (17.81)	0.33 (8.40)	37.78 (961.32)
1981	1.93 (49.11)	0.00	0.77 (19.59)	22.73 (578.37)
1980	1.03 (26.21)	0.19 (4.83)	0.00	17.33 (440.97)
1979	2.16 (54.96)	0.56 (14.25)	0.12 (3.05)	29.69 (755.47)
1978	1.32 (33.59)	0.80 (20.36)	0.00	20.09 (511.20)
1977	1.27 (30.53)	0.00	0.01 (0.25)	33.00 (839.69)
1976	0.14 (3.56)	1.56 (39.69)	0.00	9.97 (253.69)

10-yr $\bar{X}$	1.27 (30.53)	0.39 (9.92)	0.12 (3.05)	23.87 (607.38)
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TABLE 2: Climate Data for 1983 at Stonyford, California. Temperatures in °F (°C in parentheses). Relative humidity is in percent. *

	<u>JAN</u>	<u>FEB</u>	<u>MAR</u>	<u>APR</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	<u>NOV</u>	<u>DEC</u>
Dry Bulb Temp $\bar{X}$	54 (12)	54 (12)	56 (13)	54 (12)	75 (24)	84 (29)	74 (23)	86 (30)	85 (29)	76 (24)	57 (14)	50 (10)
$\bar{X}$ MAX	62 (17)	61 (16)	62 (17)	65 (18)	79 (26)	93 (34)	93 (34)	95 (35)	96 (36)	84 (29)	66 (19)	59 (15)
$\bar{X}$ MIN	34 (1)	40 (4)	40 (4)	39 (4)	46 (8)	54 (12)	53 (12)	60 (16)	54 (12)	46 (8)	44 (7)	44 (7)
EXT LOW	25 (-4)	30 (-1)	29 (-2)	30 (-1)	32 (0)	44 (7)	43 (6)	53 (12)	48 (9)	40 (4)	34 (1)	32 (0)
EXT HI	78 (26)	70 (21)	72 (22)	80 (27)	101 (38)	102 (39)	109 (43)	110 (43)	106 (41)	95 (35)	80 (27)	66 (19)
RELATIVE HUMID. $\bar{X}$	60	70	62	55	54	27	27	32	30	40	60	70
$\bar{X}$ MAX RH	99	97	94	93	87	70	74	78	81	89	90	92
$\bar{X}$ MIN RH	47	55	50	42	29	20	20	20	22	28	45	53

H. DESCRIPTION OF VALUES

1) Flora

The flora of the DBRNA includes at least 145 taxa of vascular plants, none of which has been listed as rare, endangered or threatened plants by the CNPS (Skinner and Pavlik 1994) or sensitive by the Forest Service.

Brodiaea coronaria ssp. rosea, a CNPS list 1B species and State-listed endangered subspecies, has been reported from surrounding areas. All but one of the recorded Brodiaea populations within the RNA have been found to contain either a non-rosy variety of Brodiaea or no Brodiaea at all. The closest recorded site is on private land, and the site has not been examined for Brodiaea recently. Additionally, conditions favorable for the occurrence of the Forest Service sensitive species Epilobium nivium occur in the Buttermilk Springs Management Area, but its occurrence on the DBRNA is unlikely due to the elevation and aspect of the DBRNA. Appendix 1 lists the plant species found within the DBRNA during the ecological survey.

Map 3 illustrates the major vegetation types occurring on the DBRNA, using Holland's (1986) classification with Kuchler (1966) and SAF (Eyre 1980) equivalents indicated. Following is a description of these major plant communities. Numbers following the plant community names are Holland (1986) type codes.

(a) Black Oak Woodland (71120). This is the most abundant vegetation type found in the area. It is generally located on the poorer gravelly soils of colluvial origin on lower benches. Black Oak Woodland sites are composed of either persistent, sub-climax stands, or of non-persistent seral stages of Black Oak Woodland collectively forming a continuum of seral stages developing toward a climax Mixed Conifer Forest. Most individual stands are even-aged. Additionally, on better sites, California black oak can act as a nurse crop for conifer species, recovering quickly following major perturbations such as fire.

The persistent sub-climax stands of black oak have a variable canopy layer from 50-90% cover, dominated by oak with lesser amounts of ponderosa pine (Pinus ponderosa) and Douglas-fir (Pseudotsuga menziesii). Reproduction of all canopy species is present, although California black oak dominates and may be as high as 20% in cover. Basal area values for these sub-climax stands vary from 63-360 square feet per acre (14-83 sq. m/ha), and ages range from 70-120 years or more (8-30", 20-76 cm dbh).

The shrub layer of the persistent sub-climax stands of California black oak varies from 5-20% in cover and is generally more diverse than in younger stands. The constituent species are poison oak (Rhus diversiloba) and squaw bush (Rhus trilobata). Redbud (Cercis occidentalis), mountain mahogany (Cercocarpus betuloides), and Sierra

gooseberry (Ribes roezlii) are present in lower proportions. Water is relatively abundant in spring and summer, giving rise to a dense, diverse population of annual and perennial grasses and forbs. Total herbaceous cover is consistently 60% and dominated by California fescue (Festuca californica). Other abundant species include starflower (Trientalis latifolia), sweetroot (Osmorhiza chilensis), soft chess (Bromus mollis), and Collinsia sparsifolia.

Occasional species on these sites include Bolander's bedstraw (Galium bolanderi), Monardella villosa, Lemmon's needlegrass (Stipa lemmonii), pussy ears (Calochortus spp.), mule-ears (Wyethia angustifolia), Shelton's violet (Viola sheltonii), milkweed (Asclepias cordifolia), red-flowering larkspur (Delphinium nudicaule), Dichelostemma multiflora, and wild hyacinth (Arbrodiaea pulchella).

The young seral stands of Black Oak Woodland have an average canopy cover of 60% dominated by California black oak with occasional Douglas-fir and canyon live oak (Quercus chrysolepis). Unlike the persistent sub-climax stands, reproduction in the young stands of the California black oak and Douglas-fir is low primarily due to a heavy duff layer and heavy crown cover (Henry 1984). Basal area values range from 100-130 square feet per acre (23-30 sq.m/ha), and ages range from 60-70 years (4-8 inches, 10-20 cm dbh). Young conifers do not appear to be converting the area to a conifer-hardwood type, but are maintaining the existing conifer component at a steady low level (Henry 1984).

The shrub layer of these seral stands varies from 10-20% cover and is dominated by poison oak, redbud and squaw bush. The herbaceous layer ranges from 15-30% cover, and commonly contains California fescue, bedstraw (Galium triflorum), wild pea (Lathyrus nevadensis), California catchfly (Silene californica), and soap root (Chlorogalum pomeridianum).

(b) Coast Range Mixed Conifer Forest (84110). This type is found only at the highest elevations on the southern boundary of the area and on the better soils. The upper canopy layer is open (20% cover) and is dominated by Douglas-fir with small amounts of ponderosa pine and knobcone pine (Pinus attenuata). The lower canopy layer, however, averages 70% cover, ranges from 50-90 feet (15-27 m) in height, and contains California black oak. Basal area is approximately 220 square feet per acre (51 sq. m/ha), and ages range from 150-200 years, with some trees over 300 years old. Reproduction of California black oak and Douglas-fir is low.

The shrub layer is either low in total cover or absent, and species include Sierra gooseberry and poison oak. The herbaceous layer is

also low in total cover, averaging 10%, but is somewhat diverse and dominated by barberry (Mahonia dictyota). Other common species include hound's tongue (Cynoglossum grande), sweetroot, bedstraw, Shelton's violet, and snowberry (Symphoricarpos mollis). Occasional species include starflower, pipsissewa (Chimaphila menziesii), and California fescue.

(c) Blue Oak Woodland (71140). This type is found on the western edge of the site on deeper soils. It forms a savannah with an open canopy (5% cover) dominated by 100 year-old blue oak (Quercus douglasii) with some Oregon white oak (Quercus garryana). Basal area is approximately 40 square feet per acre (9 sq. m/ha) and heights reach 50 feet (15 m). No shrub species are present.

The diverse herbaceous layer, generally totalling 100% cover, is dominated by grass species. Lemmon's needlegrass is the dominant species, and other abundant grass species include hairgrass (Aira caryophyllea), wild oats (Avena barbata), soft chess, foxtail chess (Bromus rubens), onion grass (Melica harfordii), and annual fescue (Vulpia microstachys var. ciliata, and Vulpia myuros var. hirsuta). Other abundant species include poison oak, buckwheat (Eriogonum nudum), larkspur (Delphinium hesperium var. hesperium), hedge-parsley (Torilis arvensis), fringe-pod (Thysanocarpus curvipes), clover (Trifolium albopurpurem), and hairy clover (Trifolium ciliolatum).

(d) Canyon Live Oak Forest (81320). On the steep slopes of the eastern edge of the DBRNA, with shallow or no soil, Canyon Live Oak Forests occur. The canopy layer of canyon live oak is approximately 60 feet (18 m) in height and the trees often have multiple trunks, probably from crown-sprouting following fire. Saplings and seedlings of canyon live oak and California bay (Umbellularia californica) are sparse.

The shrub layer ranges from 10-70% cover, and 5-30 feet (2-9 m) in height. California buckeye (Aesculus californica) and poison oak are the dominant species, while mountain mahogany and wild walnut (Juglans

hindsii) are occasionally present. Cover of herbaceous plants varies from less than 5% to as much as 90% depending on the sparsity of the canopy and shrub layer, and the amount of moss coverage and soil development. Bolander's bedstraw and twining brodiaea (Dichelostemma volubilis) are the most common herbaceous species. Grass species similar to those found beneath the Blue Oak Woodland dominate in some areas that have deeper soils. Stonecrop (Sedum spp.) favors outcrops and is confined to this vegetation type on the DBRNA. Some rocky outcrops also are densely covered in bryophytes.

(e) Northern Mixed Chaparral (37110). This type occupies the steep, rocky, unstable slopes along Thomes Creek. The canopy of foothill pine (Pinus sabiniana), California black oak, and canyon live oak, when present, reaches only 5% in cover and 50 feet (15 m) in height. Saplings of oak species are present and compose a component of the shrub layer.

The shrub layer is very dense, averaging 90% cover, and dominated by scrub oak (Quercus dumosa). Other abundant species are California buckeye, mountain mahogany, and poison oak. Present in lesser amounts are squaw bush, chamise (Adenostoma fasciculatum), deer brush (Ceanothus integerrimus), and toyon (Heteromeles arbutifolia). Cover

of herbaceous plants is generally less than 5%, and is dominated by California fescue, starflower, and twining brodiaea. A more diverse herbaceous layer develops on slides and slumps where the shrub layer has been removed. In these areas, the herbaceous vegetation resembles that of the Blue Oak Woodland.

2) Fauna

The DBRNA is within a transition range and a major migration route between summer and winter range for black-tailed deer (Odocoileus hemionus columbianus). Portions of the RNA are also within the Thomes Creek key winter range for this species. Parts of the RNA are also included within a Late Successional Reserve (LSR RC313) and contain dispersal and critical northern spotted owl habitat and dispersal habitat for goshawk, marten and fisher. Thomes Creek provides an important rainbow trout fishery. Appendix 2 lists those wildlife species likely to be found within the DBRNA. Species observed during the 1987 Ecological Survey are marked on this list and the habitat in which it was seen is annotated. Foothill yellow-legged frog is the only observed species with Federal or State listing. It is a Federal Category 2 species and California species of concern. The area contains potential habitat for the California red-legged frog, a proposed endangered species.

3) Geology

The Franciscan Formation, a core, eugeosynclinal complex covering much of the North Coast Range region dating from the late Jurassic or the early Cretaceous, forms the bedrock of the DBRNA (Gowen 1967). The Franciscan Formation is a vast, diverse assemblage of marine sedimentary, volcanic, and metamorphic rocks with local intrusions of serpentine, all of which have experienced unsystematic disturbance. Sandstone, primarily graywacke, is the dominant rock type of the Franciscan assemblage, and shale may amount to 10% of the Franciscan sedimentary rocks, occurring as intercalations between graywacke beds and as thicker units that locally predominate over other rock types (Page 1966).

Schistose meta-sedimentary rock (predominately micaschist) is the dominant rock of the DBRNA. There is considerable evidence of instability in the form of slumps and stream erosion on the lower slopes of the site that consist of colluvium. There is also colluvial movement of soil and rock on the steep slopes and rocky ridgelines throughout the area, especially beneath the rocky outcrops common on the eastern edge of the unit.

4) Soils

Four soil series characterize the DBRNA (Map 4). The Tyson and Sheetiron series are the two dominant soil types, the Tyson occurring on the poorer, and the Sheetiron on the better sites. Hulls gravelly loam underlies the brushland on the extreme northern corner of the area, and the Laughlin series is found only in the area containing Blue Oak Woodland. Overall, soils are derived from the highly fractured metasedimentary parent material, and are 24-36 inches (61-91 cm) deep (State Coop. Soil-Veg.

Survey 1962). Colluvial material from above the central flat is common throughout the area (Henry 1984).

The Tyson series coincides with the Canyon Live Oak Forest and Black Oak Woodland vegetation types. It is characterized by moderately shallow, slightly acid gravelly loams with moderate permeability and good drainage. Generally of north aspects, these soils are commonly found on steep to very steep (30-70%) canyon slopes.

The upper slopes of the DBRNA, clothed in Black Oak Woodland or Coast Range Mixed Conifer Forest, are characterized by the Sheetiron soil series. In fact, the Coast Range Mixed Conifer Forest is restricted to this soil series. A shallow to moderately shallow, moderately acid gravelly loam, the Sheetiron series has moderate permeability and good drainage. Topography is gentle to steep (10-70% slopes), and generally of north aspect.

Hulls series soils, on the northern corner of the area on moderately steep slopes, are shallow, moderately acid clay loams with moderate permeability and good drainage.

Found only in the Blue Oak Woodland, Laughlin series soils are shallow, slightly acid gravelly to silty loams on very steep (80%) east-facing slopes. Permeability is moderate, and drainage is good.

Remaining areas within the DBRNA are either residual metasedimentary rockland with slopes of 50-100%, or colluvial metasedimentary rock. Rocklands include steep bluffs, ridgetops, or outcrops where exposures of sandstone, shale, schist, or greenstone cover more than 50% of the surface. These areas are usually devoid of vegetation or sparsely vegetated with canyon live oak, shrubs, grasses and forbs. Colluvial lands

vegetated with canyon live oak, shrubs, grasses and forbs. Colluvial lands are excessively drained steep-sided slopes (to 75%) formed by soil material and rubble of various rocks. These areas support scattered canyon live oak, foothill pine (Pinus sabiniana), brush, grasses and forbs.

On the lower slope adjacent to Thomes Creek, bank erosion contributes to slope instability, and consequently grasses, forbs, and brush (notably poison oak) predominate, with a few scattered California black oaks and canyon live oaks.

5) Lands

All lands within the DBRNA are controlled by the Mendocino National Forest. No lands presently within the DBRNA boundaries have been acquired, are reserved, or have outstanding rights. Thomes Creek has been identified in the Mendocino National Forest Land and Resources Management Plan as eligible for National Wild and Scenic River status. The suitability evaluation leading to classification recommendation will be completed within two years of Forest Plan approval.

An 80-acre (32 ha) land parcel owned by L-P in the E1/2 of the SE1/4 of section 14 is surrounded on three sides by the DBRNA (Map 3). L-P has recently proposed the parcel for possible land exchange, however, the priority for acquiring the parcel has not been determined.

Another private landholding borders the DBRNA to the southeast (Map 2).

6) Cultural

Little is known of the cultural values of the DBRNA due to the undeveloped character of the area, and the project-oriented nature of cultural resource compliance activities. There is evidence of heavy use of the south aspect of Thomes Creek by Native Americans, however little use of the north aspect has been detected.

I. IMPACTS AND POTENTIAL CONFLICTS

1) Mineral Resources

There are no known mineral deposits, nor evidence of former mining claims within the DBRNA (R.Teixeira pers. com.). Hence, conflicts due to withdrawing the area from mineral entry are not anticipated.

2) Grazing

The DBRNA is contained within the Hall Ridge grazing allotment. A total of 55 cow/calf pairs are permitted for National Forest lands within this allotment. However the RNA is generally inaccessible to livestock and significant utilization of the forage within the DBRNA by cattle is not

expected (Molly Fuller, pers. com.). The steep slopes and the dominance of Stipa lemmonii (a highly palatable native perennial) in the Blue Oak Woodland further suggest that this area does not contribute significantly to the forage base of the Hall Ridge allotment. This level of cattle use in the RNA is not thought to compromise the objectives for which the RNA is to be established.

3) Timber

The area contained within the DBRNA has been classified as unsuitable for timber production in the Mendocino National Forest Land and Resource Management Plan. Hence, no timber value is foregone with establishment of the DBRNA. Coast Range Mixed Conifer Forest occurs on 43 acres (18 ha) of the DBRNA, but cover is only 20 percent.

4) Watershed Values

Thomes Creek, along the northern boundary of the area, is a major perennial stream with important fisheries values. The Thomes Creek watershed as a whole, with an estimated yield of 334,125 ac-ft/yr (411,976,130 m³/yr), provides water for domestic uses to the community of Paskenta. The establishment of DBRNA will help to maintain water quality by maintaining vegetation cover to steep slopes adjacent to Thomes Creek. An unknown risk of wild fire does exist within the DBRNA and if the area should burn, sedimentation in the creek would be expected. The cumulative impacts of timber harvest, road construction and prescribed burning in other parts of the watershed must be considered in conjunction with activities within the DBRNA when evaluating impacts on watershed values.

5) Recreation Values

Light dispersed recreation may occur within the DBRNA, and management direction emphasizes improving fishing access to Thomes Creek while maintaining the undeveloped character of much of the roadless area. There is limited access to the DBRNA due its remoteness and the presence of locked gates along Forest Service and private roads into the unit. The area has little recreational value, and no problems or conflicts are anticipated (Henry 1984).

6) Wildlife Values

The undeveloped nature of the DBRNA enhances wildlife values through the protection of key oak habitat. Establishment of the DBRNA will not conflict with Wildlife values within the area.

7) Special Management Areas

The DBRNA lies within or adjacent to the Thomes Creek Backcountry Area and a late successional reserve (RC309). Thomes Creek has been identified in the Mendocino National Forest Land and Resource Management Plan as eligible for National Wild and Scenic River status. Evaluation for classification has not yet been completed.

8) Transportation Plans

Located at the end of a private 4-wheel drive road, with no current plans for timber harvesting in the unit, establishment of the DBRNA will have no effect on current or proposed Forest Service transportation systems.

J. MANAGEMENT PRESCRIPTION

Management direction for the DBRNA calls for protection of the natural integrity of the area for non-manipulative scientific and educational purposes. Specific management direction and associated standards and guidelines for Research Natural Areas on the Mendocino National Forest are itemized in Appendix 3.

1) Management Plan

Following direction in FSM 4063, a RNA management plan will be developed by the Mendocino National Forest in consultation with the Pacific Southwest Forest and Range Experiment Station. The plan will outline specific management practices, project prescriptions, use, and monitoring of activities to achieve specific objectives for the DBRNA.

K. ADMINISTRATIVE RECORDS AND PROTECTION

The District Ranger of the Corning Ranger District (PO Box 1019, Corning, CA., 96021, (916)824-5196), is responsible for administration, protection and management of the DBRNA in accordance with approved plans and prescriptions. Responsibility for approving management implementation plans and for overseeing and coordinating approved research on the DBRNA lies with the Director of the Pacific Southwest Forest and Range Experiment Station (PO Box 245, Berkeley, CA., 94701 (510)559-6300).

L. ARCHIVES

The Director of the Pacific Southwest Forest and Range Experiment Station is the research coordinator, and is responsible for maintaining a file of research data.

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DEVIL'S BASIN ESTABLISHMENT RECORD
APPENDICES

APPENDIX 1

Compiled plant species list for Devil's Basin

APPENDIX 2

Compiled wildlife species list for Devil's Basin

APPENDIX 3

The following pages, pertinent to the Devil's Basin RNA, are taken from the Mendocino National Forest Land and Resource Management Plan, the Final Environmental Impact Statement and Appendices (1995).

APPENDIX 1: COMPILED PLANT SPECIES LIST FOR DEVIL'S BASIN

(An asterisk indicates the plant was seen during the May site visit.)

ACERACEAE:

*Acer macrophyllum

AMARYLLIDACEAE:

*Allium amplexans

*Dichelostemma multiflora

*Dichelostemma pulchella

*Dichelostemma volubilis

ANACARDIACEAE:

*Rhus trilobata

*Toxicodendron diversilobum

APIACEAE:

*Daucus pusillus

*Lomatium californicum

*Osmorhiza chilensis

*Sanicula bipinnatifida

*Sanicula graveolens

*Torilis arvensis

APOCYNACEAE:

*Apocynum sp.

ASCLEPIADACEAE:

*Asclepias cordifolia

ASPIDIACEAE:

*Polystichum munitum

ASTERACEAE:

*Achillea sp.

*Agoseris heterophylla

*Agoseris retrorsa

*Centaurea melitensis

*Cirsium sp.

*Eriophyllum lanatum

*Hieracium albiflorum

Luina hypoleuca

*Madia gracilis

*Micropus californicus

*Rigiopappus leptocladus

*Wyethia angustifolia

BERBERIDACEAE:

*Mahonia dictyota

BETULACEAE:

Alnus oregona

BORAGINACEAE:

Amsinchia intermedia

PLANT SPECIES LIST CONTINUED

BORAGINACEAE (CONTINUED):

- *Cynoglossum grande
- *Plagiobothrys sp.

BRASSICACEAE:

- Athysanus pusillus
- *Rorippa curvisiliqua
- *Thysanocarpus curvipes

CAMPANULACEAE:

- *Campanula sp.

CAPRIFOLIACEAE:

- *Symphoricarpos mollis

CARYOPHYLLACEAE:

- Cerastium viscosum
- *Silene californica
- Stellaria media

CORNACEAE:

- Cornus nuttallii

CRASSULACEAE:

- *Sedum sp.

CUCURBITACEAE:

- *Marah horridus

CUPRESSACEAE:

- *Calocedrus decurrens

CYPERACEAE:

- *Carex sp.
- *Carex multicaulis

FABACEAE:

- *Cercis occidentalis
- *Lathyrus nevadensis
- *Lathyrus tracyi
- *Lotus humistratus
- Lupinus sp. (annual)
- *Lupinus adsurgens
- *Lupinus albifrons
- *Trifolium albopurpureum
- *Trifolium ciliolatum
- *Vicia sp.
- Vicia americana

FAGACEAE:

- *Quercus douglasii
- *Quercus dumosa
- *Quercus chrysolepis

PLANT SPECIES LIST CONTINUED

FAGACEAE (CONTINUED):

- *Quercus kelloggii
- *Quercus garryana

GERANIACEAE:

- Erodium cicutarium

HIPPOCASTANACEAE

- *Aesculus californica

HYDROPHYLLACEAE:

- *Hydrophyllum occidentale
- Nemophila heterophylla
- *Nemophila parviflora
- *Phacelia imbricata

IRIDACEAE:

- *Iris tenuissima

JUGLANDACEAE:

- *Juglans hindsii

LAMIACEAE:

- *Monardella villosa

LAURACEAE:

- *Umbellularia californica

LILIACEAE:

- *Calochortus sp.
- Calochortus coeruleus
- *Chlorogalum pomeridianum
- *Disporum hookeri
- Erythronium californicum
- *Fritillaria recurva

MALVACEAE:

- *Sidalcea hirsuta

ONAGRACEAE:

- *Clarkia gracilis
- *Clarkia purpurea ssp. quadrivulnera
- *Heterogaura heterandra

ORCHIDACEAE:

- *Piperia unalascensis

PINACEAE:

- *Pinus attenuata
- *Pinus lambertiana
- *Pinus ponderosa
- *Pinus sabiniana
- *Pseudotsuga menziesii

PLANT SPECIES LIST CONTINUED

PLANTAGINACEAE:

*Plantago hookeriana var. californica

POACEAE:

*Aira caryophylla

*Avena barbata

*Bromus mollis

*Bromus rigidus

*Bromus rubens

*Elymus glaucus

*Festuca californica

*Melica harfordii

*Poa pratensis

*Stipa lemmonii

*Vulpia microstachys var. ciliata

*Vulpia myuros var. hirsuta

POLEMONIACEAE:

*Collomia grandiflora

*Gilia capitata

*Linanthus ciliatus

Microsteris gracilis

*Phlox adsurgens

*Phlox gracilis

POLYGALACEAE:

*Polygala sp.

POLYGONACEAE:

*Eriogonium nudum

PORTULACEAE:

*Montia perfoliata

PRIMULACEAE:

*Dodecatheon hendersonii

*Trientalis latifolia

PYROLACEAE:

*Chimaphila menziesii

RANUNCULACEAE:

*Anemone quinquefolia

*Aquilegia formosa var. truncata

*Delphinium hesperium ssp. hesperium

*Delphinium hesperium ssp. pallens

*Delphinium nudicaule

*Delphinium patens ssp. patens

Ranunculus sp.

RHAMNACEAE:

*Ceanothus integerrimus

PLANT SPECIES LIST CONTINUED

ROSACEAE:

- *Adenostoma fasciculatum
- *Amelanchier alnifolia
- *Cercocarpus betuloides
- *Heteromeles arbutifolia
- *Osmaronia cerasiformis
- *Rosa pinetorum

RUBIACEAE:

- *Galium bolanderi
- *Galium triflorum

SAXIFRAGACEAE:

- *Lithophragma heterophylla
- Ribes cruentum
- *Ribes roezlii
- Saxifraga sp.

SCROPHULARIACEAE:

- *Castilleja applegatei
- *Castilleja pruinosa
- *Collinsia sparsiflora
- *Collinsia rattanii
- *Orthocarpus sp.
- *Tonella tenella
- *Veronica sp.
- *Veronica serpyllifolia var. humifusa

VALERIANACEAE:

- *Plectritis macrocera

VIOLACEAE:

- *Viola glabella
- *Viola sheltonii

APPENDIX 2: COMPILED WILDLIFE SPECIES LIST

The following lists contain species likely to be found within the Devil's Basin RNA; those with an asterisk were observed during the May field visit. For those species observed, the habitat in which the species was found is also listed: me=mixed evergreen forest, bo=California black oak forest, r=riparian, os=blue oak savannah, and t=throughout.

FISHES (Moyle 1976)

<u>Salmo gairdneri</u>	rainbow trout
<u>Coltus</u> spp.	sculpin
<u>Rhinichthys osculus</u>	speckled dace

AMPHIBIANS (Stebbins 1985)

* <u>Rana hoylii</u>	foothill yellow legged frog, r
<u>Taricha granulosa</u>	rough-skinned newt
<u>Taricha torosa</u>	California newt
<u>Batrachoseps pacificus</u>	Pacific slender salamander
<u>Hyla regilla</u>	Pacific tree frog

REPTILES (Stebbins 1985)

* <u>Sceloporus occidentalis</u>	western fence lizard, t
<u>Eumeces skiltonianus</u>	western skink
* <u>Gerrhonotus coeruleus</u>	northern alligator lizard, bo
<u>Diadaphis punetatus</u>	northern ringneck snake
<u>Coluber constrictor</u>	common racer
<u>Lampropeltis gentulus</u>	common kingsnake
<u>Lampropeltis gentulus</u> ssp. <u>californiae</u>	California kingsnake
<u>Thamnophis sirtalis</u>	common gartersnake
* <u>Thamnophis couchi</u> ssp. <u>hammondi</u>	two-striped garter snake, r
* <u>Crotalus viridis</u> ssp. <u>oreganus</u>	northern pacific rattlesnake (outcrop)

BIRDS (Peterson 1961)

* <u>Cethartes aura</u>	turkey vulture, t
<u>Accipiter striatus</u>	sharp-shinned hawk
<u>Accipiter cooperii</u>	Coopers hawk
<u>Buteo jamaicensis</u>	red-tailed hawk
<u>Buteo lineatus</u>	red-shouldered hawk
<u>Falco sparverius</u>	American kestrel
* <u>Dendragapus obscurus</u>	blue grouse, me
* <u>Lophortyx californicus</u>	California quail, t
* <u>Oreortyx pictus</u>	mountain quail, r, bo
* <u>Columba fasciata</u>	band-tailed pigeon, me, bo

BIRDS CONTINUED

* <u>Zenaidura macroura</u>	morning dove, os, bo
<u>Tyto alba</u>	common barn owl
* <u>Otus asio</u>	screech owl, me
<u>Bubo virginianus</u>	great horned owl
<u>Glaucidium gnoma</u>	pygmy owl
<u>Aegolius acadicus</u>	saw-whet owl
<u>Cypseloides niger</u>	black swift
<u>Calypte anna</u>	Anna's hummingbird
<u>Melanerpes lewis</u>	Lewis' woodpecker
* <u>Melanerpes formicivorus</u>	acorn woodpecker, os
* <u>Sphyrapicus varius</u>	red-breasted sapsucker, bo, me
<u>Picoides pubescens</u>	downy woodpecker
<u>Picoides villosus</u>	hairy woodpecker
* <u>Colaptes auratus</u>	common flicker, t
* <u>Dryocopus pileatus</u>	pileated woodpecker, bo
<u>Contopus sordidulus</u>	western wood-pewee
<u>Empidonax spp.</u>	empidonax flycatchers
<u>Myiarchus cinerascens</u>	ash-throated flycatchers
<u>Tyrannus verticalis</u>	western kingbird
<u>Iridoprocne bicolor</u>	tree swallow
* <u>Tachycineta thalassina</u>	violet-green swallow, t
<u>Stelgidopteryx ruficollis</u>	rough-winged swallow
<u>Riparia riparia</u>	bank swallow
<u>Petrochelidon pyrrhonota</u>	cliff swallow
* <u>Cyanocitta stelleri</u>	Steller's jay, t
<u>Aphelocoma coerulescens</u>	scrub jay
* <u>Parus refescens</u>	chestnut-backed chickadee, bo, me
<u>Parus inornatus</u>	plain titmouse
<u>Psaltiriparus minimus</u>	bushtit
<u>Sitta carolinensis</u>	white-breasted nuthatch
<u>Salpinctes obsoletus</u>	rock wren
* <u>Thryomanes bewickii</u>	Bewick's wren, r
<u>Troglodytes aedon</u>	house wren
<u>Cinclus mexicanus</u>	American dipper
<u>Polioptila caerulea</u>	blue-gray gnatcatcher
<u>Hylocichla ustulata</u>	Swainson's thrush
* <u>Turdus migratorius</u>	American robin, t
<u>Chamaea fasciata</u>	wrentit
<u>Toxostoma redivivum</u>	California thrasher
<u>Bombycilla cedrorum</u>	cedar waxwing
* <u>Vireo solitarius</u>	solitary vireo, bo, me
<u>Vireo huttoni</u>	Hutton's vireo
<u>Vireo gilvus</u>	warbling vireo
* <u>Vermivora celata</u>	orange-crowned warbler, os
* <u>Dendroica nigrescens</u>	black-throated gray warbler, me
<u>Geothlypis trichas</u>	yellow throat
<u>Wilsonia pusilla</u>	Wilson's warbler
* <u>Piranga ludoviciana</u>	western tanager, me, r
<u>Pheucticus melanocephalus</u>	black-headed grosbeak, me
<u>Passerina amoena</u>	Lazuli bunting
* <u>Pipilo erythrophthalmus</u>	rufous-sided towhee, t
<u>Pipilo fuscus</u>	brown towhee
<u>Chondestes grammacus</u>	lark sparrow

BIRDS CONTINUED

<u>Passerella iliaca</u>	fox sparrow
<u>Melospiza melodia</u>	song sparrow
<u>Zonotrichia atricapilla</u>	golden-crowned sparrow
<u>Zonotrichia leucophrys</u>	white-crowned sparrow
* <u>Junco hyemalis</u>	dark-eyed junco, me
* <u>Molothrus ater</u>	brown-headed cowbird, me
<u>Icterus galbula</u>	northern oriole
<u>Carpodacus purpureus</u>	purple finch
* <u>Carpodacus mexicanus</u>	house finch, me
* <u>Spinus psaltria</u>	Lesser goldfinch, me
<u>Hesperiphona vespertina</u>	evening grosbeak

MAMMALS (Chapman and Feldhamer 1982)

<u>Didelphis virginiana</u>	Virginia opossum
<u>Neotrichus gibbsii</u>	shrew mole
* <u>Seapanus latimanus</u>	broad-footed mole
<u>Eplesicus fuscus</u>	big brown bat
<u>Sylvilagus bachmoni</u>	brush rabbit
* <u>Lepus californicus</u>	black-tailed jact rabbit
<u>Aplodontia rufa</u>	mountain beaver
* <u>Spermophilus columbianus</u>	beechy ground squirrel
<u>Sciurus griseus</u>	western gray squirrel
* <u>Tamiasciurus douglasii</u>	pine squirrel
<u>Thomomys talpoides</u>	pocket gopher
<u>Microtus californicus</u>	California vole
* <u>Urocyon cinereoargenteus</u>	gray fox
* <u>Ursus americanus</u>	black bear
* <u>Procyon lator</u>	raccoon
<u>Mustela spp.</u>	weasel
<u>Felis concolor</u>	mountain lion
<u>Felis rufus</u>	bobcat
<u>Odocoileus hemionus columbianus</u>	black-tailed deer

APPENDIX 3

The following pages, pertinent to the Devil's Basin RNA, are taken from the Mendocino National Forest Land and Resource Management Plan, the Final Environmental Impact Statement and Appendices (1995).



United States
Department of
Agriculture

Forest Service

Pacific
Southwest
Region

February 1995



Land and Resource Management Plan

Mendocino National Forest



38. The need to identify typical examples of important botanical, aquatic, and geological types and protect them through establishment of Research Natural Areas, Special Interest Areas, or National Conservation Areas.

The Plan establishes four additional Research Natural Areas to preserve representative examples of specific botanical ecosystems and specifies the goals for their management. Forest standards and guidelines provide direction for the completion of a Forest-wide inventory to identify representations of the remaining biological component, as well as for the aquatic and geologic elements of the Research Natural Area system. The proposed Plan also provides for the evaluation of four candidate Special Interest Areas for designation.

MANAGEMENT DIRECTION-Forest Goals

IV - 3

RESEARCH NATURAL AREAS

Manage existing and recommended Research Natural Areas to preserve the specific botanical elements represented. Complete establishment reports for areas recommended for designation.

MANAGEMENT DIRECTION-Future Condition

IV - 7

RESEARCH NATURAL AREAS

Four additional Research Natural Areas, representing the knobcone pine, chamise chaparral, black oak, and mixed conifer ecosystems, will be established and managed for non-manipulative research, observation, and study.

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MANAGEMENT DIRECTION-Forest Goals

IV - 3

RESEARCH NATURAL AREAS

Manage existing and recommended Research Natural Areas to preserve the specific botanical elements represented. Complete establishment reports for areas recommended for designation.

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IV - 7

RESEARCH NATURAL AREAS

Four additional Research Natural Areas, representing the knobcone pine, chamise chaparral, black oak, and mixed conifer ecosystems, will be established and managed for non-manipulative research, observation, and study.

downhill skiing; however, snowmobiling and cross-country skiing are reasonably possible in the Mendocino Pass-Anthony Peak Plaskett Lakes, Hull Mountain, and Alder Springs areas.

As early as the 1960's, interest was expressed in, and studies begun on, development of the Anthony Peak area for downhill and Nordic skiing. Although there is still substantial interest from both Glenn and Mendocino counties, the potential is limited by the problem of access, which would require major reconstruction and paving of Forest Highway 7. Beyond that, any development must contend with the vagaries of the weather and spotty snowpack.

RESEARCH NATURAL AREAS

Research Natural Areas (RNAs) are areas set aside to preserve representative examples of specific botanic, aquatic, and geologic features, primarily for scientific and educational purposes.

The Mendocino National Forest has five designated RNAs. These areas on the Forest are:

1. Frenzel Creek (Sargent cypress, MacNabe cypress, and serpentine chaparral) - This 935 acre area is located approximately six miles south of Stonyford in the Frenzel Creek drainage, a small tributary to Little Stony Creek. The area also has several plant species listed Regionally as sensitive.
2. Hale Ridge (knobcone pine) - This 975 acre area includes dense stands of knobcone pine with several transitional zones to chamise chaparral, mixed hardwoods and chaparral, and mixed conifer types. The area occupies the entire watershed bounded by the Rice Fork of the Eel River and a fork of Salt Creek. It is dissected into numerous small fingers and subwatersheds, and all possible aspects are represented. Elevation ranges from 2,400 feet to 3,600 feet. Slopes range from 5% on the main ridgetops, to over 60% in some of the side drainages.
3. Wilder Ridge (chamise/chaparral) - Located on the eastern edge of the Forest, this 570 acre area has a prevailing easterly aspect which is moderately steep with slopes of 30% to 50%, and incised by several steep draws and intermittent stream courses, which result in very broken topography. Dense stands of chamise occur on approximately 340 acres.
4. Devils Basin (black oak) - Devils Basin is on the north slope of Log Springs Ridge along Thomes Creek. The heart of the basin is a large flat on the toe of an old land failure and is surrounded on three sides by moderately steep slopes. Elevations range from 1,500 feet to 3,850 feet. The area contains a large stand of black oak (420 acres) with adjacent stands of oak-savannah, mixed hardwood, conifer-hardwood, and mixed shrub types for a total of 671 acres.
5. Doll Basin (mixed conifer) - The area lies between Doll Ridge and Summit Ridge and contains five distinct drainages totaling approximately 995 acres. Vegetation ranges from Douglas-fir Ponderosa pine at the lower elevations to white fir Douglas-fir at the higher elevations. Sugar pine, incense cedar, and black oak are secondary species found through much of the area.

Additional inventories will be conducted to determine if there are opportunities for representation of additional targeted botanical, geological, and aquatic elements for the physiographic province.

RIPARIAN AREAS

Riparian areas include lands adjacent to perennial and intermittent streams and other bodies of water, wetlands, and floodplains. These areas support a variety of plant communities and habitat for many aquatic and terrestrial animals. The riparian areas serve to help protect water quality and fish habitat, by filtering run-off, maintaining channel stability, and providing shade to maintain water temperatures. These areas also contribute to the visual variety of the landscape and biodiversity of the Forest; they

Rx 11 - RESEARCH NATURAL AREA

Description: Protect and manage recommended and established Research Natural Areas as components of the Research Natural Area system, preserving the natural integrity of the area for non-manipulative scientific and educational purposes. These areas contribute to the preservation of examples of significant natural ecosystems, provide genetic diversity (gene pools), and protect, where appropriate, habitats of threatened and endangered, or sensitive plant and animal species.

Application: This prescription applies to all RNAs. These areas and the ecologic components represented by each are listed below:

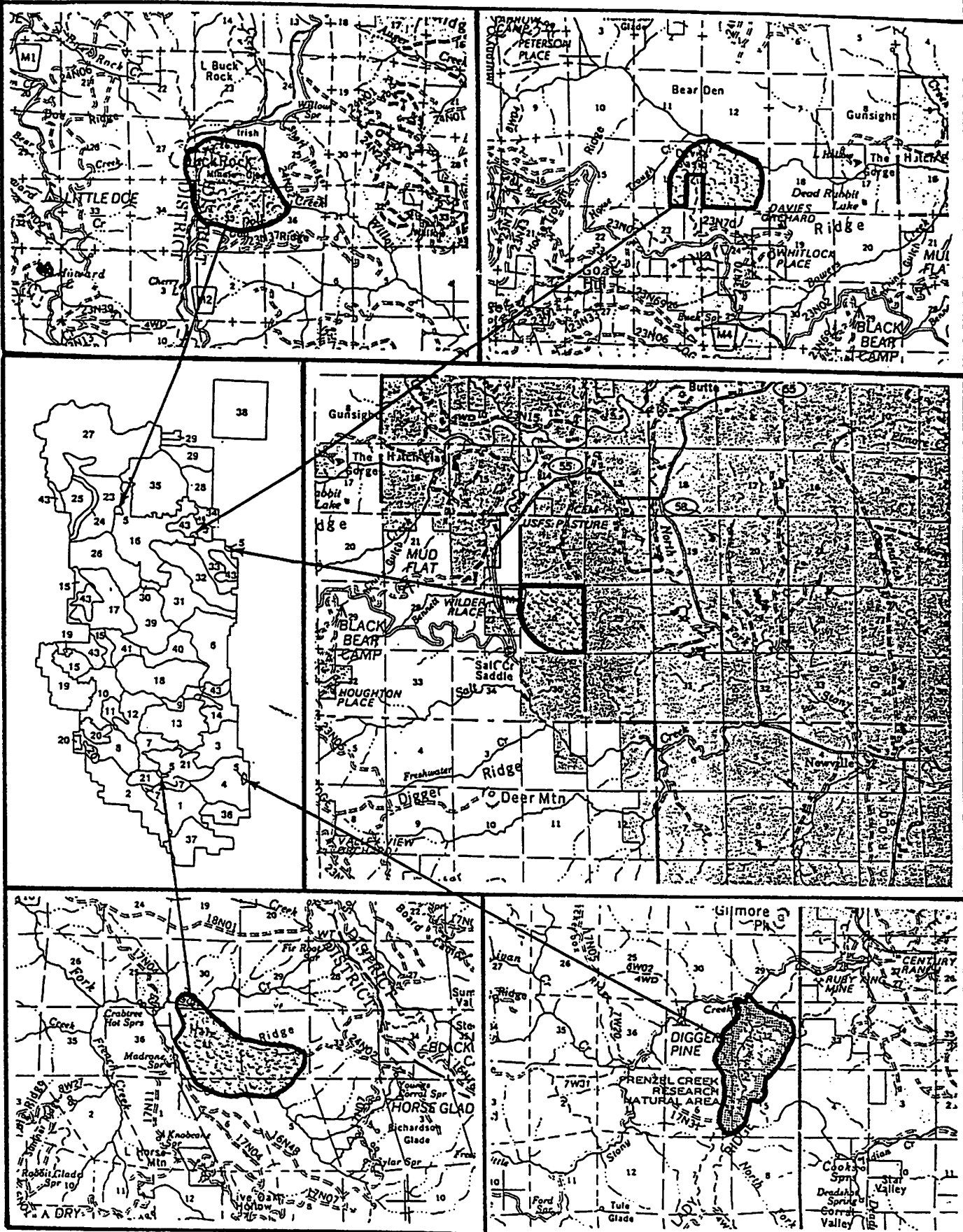
Frenzel Creek	Serpentine Chaparral, Macnab and Sargent Cypress
Hale Ridge	Knobcone Pine
Devils Basin	Black Oak
Doll Basin	Mixed Conifer
Wilder Ridge	Chamise Chaparral

Management Direction and Associated Standards and Guidelines:

1. Use special use permits or cooperative agreements to coordinate planned research activities. These will be executed between the research proponent and the Pacific Southwest Station Director, with review and approval of the Forest Supervisor and District Ranger.
2. Request withdrawal from mineral entry for recommended RNAs.
3. Prohibit recreational uses that would contribute to modification of the area.
4. Permit grazing within established range allotments as long as that use preserves and does not detract from the values for which the RNA was established.
5. Prohibit timber harvesting unless necessary to meet RNA objectives.
6. Construct no new roads, and limit access on any existing roads into the areas. Existing trails may be retained or expanded if needed to provide access for research personnel or educational groups.
7. Normally meet a visual quality objective of retention within RNAs. Consider exceptions on a case-by-case basis where consistent with RNA management objectives.
8. Protect habitat for all species of wildlife, fish and plants present in their natural condition.

MANAGEMENT AREA #5

Research Natural Area



MANAGEMENT AREA #5

RESEARCH NATURAL AREAS

Total Acres 4,146
NF Acres 4,146

Research Natural Areas (RNAs) are areas managed to preserve representative examples of specific botanic, aquatic, and geological features, primarily for scientific and educational purposes. No roads are located within the RNAs. The Pacific Southwest Region has identified ecosystems within each physiographic province which are needed to complete a botanical target system of RNAs. The Mendocino National Forest is located in the North Coast Range physiographic province which has 13 botanical elements targeted. The Six Rivers National Forest is also located within this province.

Frenzel Creek RNA is the only established RNA on the Mendocino National Forest. It is located approximately six miles south of Stonyford in the Frenzel Creek drainage. It consists of approximately 935 acres and contains three botanical elements; Sargent cypress, MacNab cypress, and serpentine chaparral. This area also has good potential as a serpentine geologic type.

No federally listed threatened or endangered or Forest Service sensitive wildlife species occur in the Frenzel Creek area. The riparian vegetation along Frenzel Creek provides cover and forage for a variety of small mammals, reptiles, deer, and songbirds.

Frenzel Creek RNA contains several sensitive plant species, as well as several species of special interest. The listed species are: Astragalus clevelandii, Hesperolinon drymarioides, and Eriogonum nervulosum. Special interest species include: Asclepias solanoana, Mimulus brachiatus, Mimulus glaucescens, Nemacladus montanus, Senecio clevelandii, a subspecies of Streptanthus morrisonii, an apparently undescribed species of Allium, and an undescribed subspecies of the Castilleja miniata complex.

Four additional Research Natural Areas are recommended for establishment on the Mendocino National Forest. Their descriptions are as follows:

a. Hale Ridge (knobcone pine) - consists of 960 acres including dense stands of knobcone pine as well as several transitional zones to chamise chaparral, mixed hardwoods and chaparral, and mixed conifer types. The area occupies an entire watershed bounded by the Rice Fork of the Eel River and a fork of Salt Creek. It is dissected into numerous small fingers and subwatersheds, with all aspects represented. A portion of this area is within Late Successional Reserve and is also critical habitat for the northern spotted owl. A portion of this area was burned by wildfire in December, 1988. Because of the late season, the intensity of the fire varied greatly. Some areas did not burn, much of the area was lightly burned, and a few areas had intense ground fire with a few patches of crowning. No new tractor lines were constructed during firefighting operations within the area. However, an old tractor line in the western portion of the area is severely eroded and in need of treatment. Elevation ranges from 2,400 feet to 3,600 feet. This area contains no known sensitive plants.

b. Wilder Ridge (chamise chaparral) - includes 570 acres on the Eastern edge of the Forest. The prevailing eastern aspect is moderately steep with slopes of 30% to 50%, and is incised by several steep draws and intermittent streamcourses which result in very broken topography. Dense stands of chamise occur on approximately 340 acres. Elevations range from about 1,000 feet to just over 1,800 feet. The Wilder Ridge management area provides habitat for chaparral adapted species such as the California thrasher, but does not contain habitat for any federally listed threatened or endangered or Forest Service sensitive wildlife species. Eriastrum brandegeae, a sensitive plant, grows on this site. This site also contains suitable habitat for Antirrhinum subcordatum.

MANAGEMENT AREA #5

c. Devils Basin (black oak) - lies on the north slope of Log Springs Ridge above Thomes Creek. The heart of the basin is a large flat on the toe of an old land failure and is surrounded on three sides by moderately steep slopes. The area contains a large stand of black oak (420 acres) with adjacent stands of oak-savannah, mixed hardwood, conifer-hardwood, and mixed shrub types for a total of 671 acres. The Devils Basin area contains habitat for bear, deer and turkey. It is located within a Late Successional Reserve, and also provides critical habitat for the northern spotted owl. Elevations range from about 1,500 feet to 3,500 feet. This area contains no known sensitive plants.

d. Doll Basin (mixed conifer) - Vegetation ranges from Douglas-fir/ponderosa pine at the lower elevations to white fir/Douglas-fir at the higher elevations. Sugar pine, incense cedar, and black oak are secondary species found through much of the area. This extremely rugged area, totaling about 995 acres, lies between Doll Ridge and Short Ridge below Forest Service road 24N02. Five distinct, steep-walled drainages dissect the terrain. The Doll Basin area is located within a Late Successional Reserve, and it contains critical habitat for the northern spotted owl. The elevation range is 4,200-6,700 feet. This area contains no known sensitive plants.

MANAGEMENT PRESCRIPTION ALLOCATION

Management Prescription

Acres

Research Natural Areas 4,146

Management Direction

Management Direction for this management area is set forth in the Research Natural Area Management Prescription, described earlier in this chapter. This management area corresponds exactly to the area where that prescription applies. Further direction applicable to this management area can be found in the Forest-wide Standards and Guidelines.

Control erosion and restore soil stability along the old tractor line at the western edge of the proposed Hale Ridge RNA.

MANAGEMENT AREA #5

Key Wildlife Habitat

	<u>Species</u>	<u>Description</u>
Hale Ridge	Northern Spotted Owl	Entirely within LSR RC313
		Dispersal habitat
		Critical habitat
	Goshawk	Dispersal habitat
	Deer	Hale Ridge key winter range (entire area)
Devil's Basin	Northern Spotted Owl	Portion of LSR RC309
		Dispersal habitat
		Critical habitat
	Goshawk	Dispersal habitat
	Marten/Fisher	Dispersal habitat
	Deer	Portion of Thomes Creek key winter range
Doll Basin	Northern Spotted Owl	Late Successional Reserve
		Critical habitat
		Nesting habitat
	Goshawk	Denning habitat
	Marten/Fisher	Portion of Wells Cabin/Plaskett key summer range
	Deer	
Frenzel Creek	None	
Wilder Ridge	None	



United States
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Agriculture

Forest Service

Pacific
Southwest
Region

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Final Environmental Impact Statement

Land and Resource Management Plan
Mendocino National Forest



Research Natural Areas

1. Include specific recommendations for fire suppression in the management plan for each of the Research Natural Areas.

Research Natural Area Prescription

This prescription provides for the protection and management of Research Natural Areas, preserving the natural integrity of the area for non-manipulative scientific and educational purposes. These areas contribute to the preservation of examples of significant natural ecosystems, provide genetic diversity (gene pools), and protect, where appropriate, habitats of threatened and endangered, or sensitive plant and animal species.

RESEARCH NATURAL AREAS

Each of the alternatives call for the continued management of the Frenzel Creek Research Natural Area for its scientific and educational values. In addition, the Preferred, Current, RPA, and Amenity Emphasis alternatives, as well as the Citizens Forest Plan, establish four additional RNAs totaling approximately 3,200 acres.

- Research Natural Areas/Special Interest Areas

Four additional Research Natural Areas would be established under this alternative. The RNAs and ecosystems represented are:

<u>Area Name</u>	<u>Ecosystem</u>
Hale Ridge	Knobcone Pine
Wilder Ridge	Chamise Chaparral
Devils Basin	Black Oak
Doll Basin	Mixed Conifer

A Forest-wide inventory to identify suitable representations of the remaining botanical component, as well as for the aquatic and geologic elements of the Research Natural Area System would be completed prior to scheduled Plan revision. Areas found suitable would be designated during a Forest Plan amendment or during the scheduled Plan revision.

Four additional candidate Special Interest Areas would be evaluated as to their suitability for designation as Special Interest Areas. These areas are: Twin Rocks, Keller Lake, Blue Banks, and Anthony Peak. These areas would be protected from activities that could detract from their special characteristics until suitability evaluations have been completed. In addition, a Forest-wide inventory of potentially suitable Special Interest Areas would be completed prior to scheduled Plan revision and on a project-by-project basis during implementation of the Plan. All areas found suitable, either through the four specific suitability studies, or through the Forest-wide inventory, would be recommended for designation and protected pending final classification decisions.

- ~~Riparian Areas~~

~~Under this alternative, additional protection, maintenance, and restoration would be provided for riparian areas, riparian ecosystems, and stream channels by establishing 100 to 300 foot riparian reserves (RRs) along each side of all perennial, intermittent, and some ephemeral streams, lakes, ponds, reservoirs, and wetlands (See Chapter IV of the LRMP for a detailed description of riparian reserve widths). These zones are designed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them (FSEIS ROD, B-9). Timber harvest would be precluded from RRs, and they would be removed from the suitable timber landbase. All activities within the RRs would be designed to attain, or to not retard or prevent attainment of Aquatic Conservation Strategy objectives (FSEIS ROD, B-10).~~

- Roadless and Undeveloped Areas

Approximately 51,500 acres within seven inventoried (RARE II) roadless areas would be managed under the Backcountry Management Prescription, and an additional 671 acres would be managed as a Research Natural Area. Management under these prescriptions would maintain the diversity of plant and animal life, provide opportunities for the enjoyment of primitive and/or semi-primitive recreational activities, and preserve future management options by maintaining the undeveloped character of the area. In addition, road construction would be prohibited in 21,880 acres of inventoried roadless area within key watersheds. Road construction would also be prohibited within the entire Elk Creek roadless area, which includes 5,381 acres not managed under the Backcountry Management Prescription. Of the remaining 62,518 acres within inventoried roadless areas, approximately 34,697 acres would be within riparian reserves. The balance, 27,821 acres, would be managed for a full range of uses including the development of road and trail access, sustained timber yields, forest health, and improvement of wildlife and livestock forage and facilities.

TABLE 2-11
ACREAGE ALLOCATION BY MANAGEMENT PRESCRIPTION AND ALTERNATIVE

MANAGEMENT PRESCRIPTION	PRF	CUR	RPA	MKT	AMN	LBU	CFP
Wildlife Emphasis	59,690	102,536	102,536	103,608	115,626	102,536	26,396
Range Emphasis	0	15,131	15,131	14,053	4,035	11,823	0
Chaparral Management	106,991	110,485	110,336	98,691	36,048	110,485	40,000
Minimal Management	258,170	169,915	182,196	198,860	107,620	213,241	83,987
Recreation Area	1,863	1,763	1,863	1,763	1,863	1,763	1,788
Habitat Conservation Area	208,670*	196,740	196,740	196,740	196,740	196,740	26,607**
Timber Modified	61,000	58,615	86,263	29,510	149,140	79,902	19,533
Timber Intensive	0	92,614	52,734	107,785	0	79,902	0
Wilderness	137,787	137,787	137,787	137,787	137,787	137,787	137,787
Wild & Scenic River	4,667	4,667	4,667	4,667	4,667	4,667	4,667
Research Natural Area	4,146	4,146	4,146	935	4,146	935	4,146
Backcountry	51,415	0	0	0	136,718	0	141,950
Wilderness Recovery	0	0	0	0	0	0	407,448
Total Acres	894,399	894,399	894,399	894,399	894,399	894,399	894,399

* For the Preferred alternative, the acreage shown are Late Successional Reserve acreage.

** 170,133 acres included in the Wilderness Recovery prescription since it is the more restrictive prescription.

RANGE

Transitory rangelands are managed at a low level of intensity under all alternatives. The Market Emphasis alternative provides for the most intensive management within annual and perennial grasslands, of any of the alternatives considered. The Preferred, Current, and RPA alternatives call for somewhat less intensive management of these areas, whereas the Amenity Emphasis and Low Budget alternatives only provide for a low level of management on all rangelands. The Citizens Forest Plan phases out livestock grazing after the first decade.

The Current, RPA, Low Budget, and Market Emphasis alternatives meet or exceed the 1990 RPA Program target for all decades. The Preferred alternative is below the targeted outputs in all decades by 4,300 AUMs. The Amenity Emphasis alternative falls short of the year 2000 target by about 6,600 AUMs, and it falls short

Mendocino counties, the potential is limited by the problem of access, which would require major reconstruction and paving of Forest Highway 7. Beyond that, any development must contend with the vagaries of the weather and spotty snowpack.

RESEARCH NATURAL AREAS

Research Natural Areas (RNAs) are areas set aside to preserve representative examples of specific botanic, aquatic, and geologic features, primarily for scientific and educational purposes.

The Mendocino National Forest presently has one designated RNA, Frenzel Creek. It is located approximately six miles south of Stonyford in the Frenzel Creek drainage, a small tributary to Little Stony Creek and is approximately 935 acres. The targeted ecosystems represented are Sargent cypress, MacNab cypress, and serpentine chaparral. It also has several plant species listed Regionally as sensitive.

The Pacific Southwest Region has identified specific targeted elements within each physiographic province which are needed to complete the botanical component of the RNA system. The Mendocino, Six Rivers, and Trinity National Forests are located in the North Coast Ranges physiographic province. To date five areas on the Mendocino National Forest have been given consideration for inclusion in the RNA system.

These areas on the Forest are:

1. Hale Ridge (knobcone pine) - This 975 acre area includes dense stands of knobcone pine with several transitional zones to chamise chaparral, mixed hardwoods and chaparral, and mixed conifer types. The area occupies the entire watershed bounded by the Rice Fork of the Eel River and a fork of Salt Creek. It is dissected into numerous small fingers and subwatersheds, and all possible aspects are represented. Elevation ranges from 2,400 feet to 3,600 feet. Slopes range from 5% on the main ridgetops, to over 60% in some of the side drainages. An ecological survey of the area completed in 1987, concluded this area is a viable candidate for inclusion in the RNA system.

2. Wilder Ridge (chamise chaparral) - Located on the eastern edge of the Forest, this 570 acre area has a prevailing easterly aspect which is moderately steep with slopes of 30% to 50%, and incised by several steep draws and intermittent stream courses, which result in very broken topography. Dense stands of chamise occur on approximately 340 acres. An ecological survey of this area was completed in 1991.

3. Twin Rocks (foothill woodland) - This area lies on the south side of Twin Rocks Ridge and includes 393 acres, of which 290 acres are typed as mixed hardwood. The area includes several species of deciduous and evergreen oaks and other species associated with this type. Elevation ranges from 1,700 feet to 3,400 feet and slope ranges from 10% to 60%. The Black Butte River borders the south/southwest side. Based on the ecological survey completed in 1987, it has been determined that this area does not adequately represent the blue oak/gray pine foothill woodland community of the North Coast Range physiographic province, and has been dropped from further consideration as a Research Natural Area. No other satisfactory representatives of this community have been found on the Forest.

4. Devils Basin (black oak) - Devils Basin is on the north slope of Log Springs Ridge along Thomes Creek. The heart of the basin is a large flat on the toe of an old land failure and is surrounded on three sides by moderately steep slopes. Elevations range from 1,500 feet to 3,850 feet. The area contains a large stand of black oak (420 acres) with adjacent stands of oak-savannah, mixed hardwood, conifer-hardwood, and mixed shrub types for a total of 671 acres. An ecological survey completed in 1987 concluded this area is a viable RNA representing the black oak vegetative community.

5. Doll Basin (mixed conifer) - The area lies between Doll Ridge and Summit Ridge and contains five distinct drainages totaling approximately 995 acres. Vegetation ranges from Douglas-fir Ponderosa pine at the lower elevations to white fir Douglas-fir at the higher elevations. Sugar pine, incense cedar, and

black oak are secondary species found through much of the area. An ecological survey completed in 1986 concluded this area is a very good representation of the North Coast Range mixed conifer type.

Additional inventories will be necessary to determine if there are opportunities for representation of additional targeted botanical elements for the physiographic province. Development of the aquatic and geologic elements of the Research Natural Area System has been deferred under the Regional Guide for the Pacific Southwest Region. No inventory for candidate aquatic or geologic elements of the RNA system have been conducted for the Mendocino National Forest.

RIPARIAN AREAS

Riparian areas include lands adjacent to perennial and intermittent streams and other bodies of water, wetlands, and floodplains. These areas support a variety of plant communities and habitat for many aquatic and terrestrial animals. The riparian areas serve to help protect water quality by filtering run-off, maintaining channel stability, and providing shade to maintain water temperatures. These areas also contribute to the visual variety of the landscape and biodiversity of the forest; they provide water oriented recreational opportunities and forage, cover, and dispersal habitat for both wildlife and livestock; and they contain valuable timber resources.

Typical riparian vegetation normally associated with these moist sites is often lacking along the major stream courses such as the Middle Fork of the Eel River. This condition is due, at least in part, to the scouring effect of high peak flows during periods of flooding such as those which occurred during 1964 and during the high flows of the early 1970's. Where the typical riparian vegetation does occur, it is most often found in narrow bands or patches along stream courses, with alder and maple being the major species.

Wetlands include swamps, marshes, bogs, wet meadows, and natural ponds. There are some larger wet meadows like Kingsley Glade, bogs like Lower Letts Valley, and ponds like Alder Creek Pond and numerous landslide slump ponds that meet the wetland definition.

While most of the true floodplains are outside the Forest boundary, there are minor amounts within the Forest. Flooding occurs along steep narrow mountain canyons of the Middle Fork of the Eel River, Black Butte River, Grindstone Creek, and Thomas Creek. The Middle Creek Campground, Bear Creek Campground, and Road 20N01 across Gravelly Valley are all built on floodplains. Although the flood of 1964 approached these facilities, they remained above the high water mark.

Protection and management of riparian areas on the Forest is a significant public and resource management issue. The major areas of conflict in management of these areas has focused on timber harvest, road construction, livestock grazing, and, to a lesser extent, certain forms of recreation, primarily OHV use.

Current management within riparian areas emphasizes the prevention and improvement of increases in water temperature, sedimentation, or channel blockages and protection of the plants and animals dependent on these areas. This is accomplished through the implementation of improvement projects, approved Best Management Practices, and on-site examination of conditions within proposed project areas to identify appropriate mitigation measures. These areas receive further protection through Streamside Management Zones, Riparian Reserves, Riparian Management Zones, Minimum Management Requirements, and/or Forest-wide standards and guides.

RESEARCH NATURAL AREAS

The following discussion focuses on those major ecosystems needed to complete the Mendocino National Forest portion of the botanical element of the Research Natural Area network for the North Coast Range physiographic province.

Inventories to identify potential RNAs for the aquatic and geologic elements of the Research Natural Area network will be completed during implementation of the Forest Plan.

Assumptions Important to this Discussion Are:

- The existing Frenzel Creek RNA will continue to be managed as a RNA under all alternatives.

Activities Having a Major Effect on Research Natural Area Objectives Are:

- **Designation or Non-Designation**

An objective of the RNA System is to include in the RNA System suitable representation of each of the targeted elements for each physiographic province. Each of the areas considered here have been selected from a number of potential areas as being the best representative of the particular element. Thus, designation or non-designation becomes the most significant action in accomplishment of the RNA System objectives.

- **Wildfire**

Although wildfire may be considered a natural part of the ecology of certain vegetative communities, uncontrolled fire also has the potential to consume the values which led to an area being reserved through RNA classification. The potential risk of loss of RNA values is considered to be proportional to the total acreage lost to wildfire within the Forest.

PREFERRED, CURRENT, RPA, AND AMENITY EMPHASIS ALTERNATIVES

These alternatives designate four RNAs which include representation of the knobcone pine, chamise chaparral, black oak, and mixed conifer ecosystems. Additional inventories to identify representatives of the remaining botanical elements, as well as representation of the aquatic and geologic elements of the Research Natural Area System, are provided for under each of these alternatives.

Forest-wide losses from wildfire are expected to average about 2,027 acres per year under these alternatives.

MARKET AND LOW BUDGET ALTERNATIVES

No additional RNAs are designated under this alternative. As these areas are managed for other purposes, their value for scientific study, education, and research will be reduced or lost. No additional inventories to identify potential areas would be undertaken under either of these alternatives.

CITIZENS FOREST PLAN

This alternative designates four RNAs which include representation of the knobcone pine, chamise chaparral, black oak, and mixed conifer ecosystems. Additional inventories to identify representatives of the remaining botanical elements, as well as representation of the aquatic and geologic elements of the Research Natural Area System, are provided for under this alternative. With the exception of potential loss from wildfire, the risk of disturbance resulting from management activity or other uses would be less than under the other alternatives.

Forest-wide, wildfire is expected to burn an average of about 2,814 acres per year.

RIPARIAN AREAS

This assessment of the environmental consequences is based on the extent and intensity of management activities occurring within riparian areas, as defined below, under each alternative.

Assumptions Important to this Discussion Are:

- Riparian areas are defined as geographically delineated areas, with distinctive resource values and characteristics. They are comprised of the aquatic and riparian ecosystems, floodplains, and wetlands. The protection buffer widths and activities permitted or restricted within the buffers vary by alternative.
 - All Management Indicator Species (MIS) may depend upon riparian areas.
 - Riparian areas provide habitat elements such as snags, downed logs, hardwood tree species, herbaceous forage, and vegetative diversity important to numerous wildlife and fish species.
 - Riparian areas provide important travel corridors for many vertebrate species.
 - The diverse vegetation and large down logs often found within riparian areas provide important sources of cover and food, and they moderate high summer water temperatures for resident fish.
 - Riparian vegetation acts as a buffer limiting sediment inflow to streams.
-
- Timber management activities within riparian zones generally reduce the overall quality of riparian habitat for wildlife.



United States
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Forest Service

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Region

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Final Environmental Impact Statement

Appendices

Mendocino National Forest



APPENDIX H

RESEARCH NATURAL AREAS

This appendix contains an evaluation of the suitability of each of the Research Natural Areas (RNA) considered for inclusion in the National Research Natural Area System.

DEVILS BASIN RNA

The Devils Basin Research Natural Area contains approximately 670 area is representative of the black oak vegetative type. An ecological survey was completed in 1987.

The area is situated on the north slope of Log Springs Ridge and has a north easterly aspect. The "Devils Basin" is a flat at the heart of the area and is surrounded by steep slopes (up to 60%) on the east and west. The slope on the south side is less steep (30-40%) and provides the only vehicular access. Elevations range from about 1,500 feet at the northeast corner along Thomes Creek to approximately 3,850 feet at the extreme southeast corner.

The area is composed primarily of a large (420 acres) stand of black oak about 60-70 years in age and 4" to 8" in diameter, with adjacent stands of black oak-savannah (90-100 years old); mixed hardwoods (90+ years old); conifer hardwoods (60-90 years old); and mixed shrubs-low hardwoods, located along Thomes Creek on steep rocky slopes. Throughout the the main black oak stand and the conifer hardwood stands are groups of isolated ponderosa pine and Douglas-fir. These groups are commonly 150-200 years old but some individuals are estimated at 350-400 years. Young conifers (4-20 feet in height) occur in spots within the black oak stand but do not appear to be increasing in area. There are also small groups or individual mature (120+ years old and 12-20" in diameter) black oak scattered within the area. Regeneration of black oak is almost non-existent due primarily to a heavy duff layer and the heavy crown cover inhibiting sprouting.

Acreage by major vegetative type within the area is as follows:

Conifer Hardwood	15 Acres
Hardwood	530 Acres
Shrubs	85 Acres
Grass	<u>40 Acres</u>
	670 Acres

There have been no intensive uses (i.e.; logging or grazing) within the area. There has been some logging and roading on both National Forest and private lands in the uppermost reaches of the watershed. However, less than 5% of the watershed has been affected and none of the area within the area has been affected.

The area has an excellent blend of accessibility and remoteness. The area is accessed from the upper portion of the watershed from Forest Service Road 23N02 via four wheel drive road during the period of April through November. During the balance of the year, the area can be reached on foot in about 1/2 hour from Road 23N02.

Wildlife use in the area is typical of that found in the hardwood zones of the Forest.

This area is an excellent representative of the California Black Oak type as described by McDonald in "Western Forest Cover Types". A wide elevational range (approximately 2,500 feet) is represented and

the more commonly associated species, such as, ponderosa pine, Douglas-fir, poison oak, and Oregon white oak occur throughout the area. The description of the area as being in a persistent sub-climax stage is appropriate. The oak stand is well stocked and vigorous. The conifer component is spotty and is not overtaking the oak component. The very large size of the almost pure oak stand allows for the maintenance of essentially unmodified conditions.

Manageability of the area is good from the standpoint that there are no existing or planned uses within or adjacent to the area which would be in conflict with management of the area as a Research Natural Area.

DOLL BASIN RNA

The Doll Basin Research Natural Area contains approximately 995 acres and is located on the Coming Ranger District in T.24 N., R.10 W., Sections 25, 26, 35, and 36. This area represents the mixed conifer vegetative type, and an ecological survey was completed in 1986.

The area lies on the east slope of the Coast Range and is adjacent to the summit area where true fir stands dominate. Elevations range from 4,200 feet at the eastern end (in Doll Creek) to 6,200 feet on the west. The general aspect is east but ranges from southeast to northeast. The lower portion is rugged terrain, with many well-defined drainages and narrow ridges. On the upper slopes, drainages are still numerous, but smaller. Small (1/2 to 2 acres) meadows are scattered along the upper slopes parallel to Road 24N02. There are no existing improvements within the area but there are plans for a let-down fence around Irish Glade.

The area consists primarily of mixed conifer stands, ranging from a Douglas-fir/ponderosa pine/hardwood mixture along the lower elevations to white fir/Douglas-fir mixture at the higher elevations. Sugar pine and incense cedar are scattered throughout. California black oak is common and live oak or brewer oak dominates on harsh and rocky sites. Species composition of the mature timber is approximately 35% ponderosa pine, 10% sugar pine, 30% Douglas-fir, 20% white fir, and 5% incense cedar. Stand ages range from about 60 years to more than 250 years with approximately 35% of the stands being 150 years or older. Site productivity is very good, with an average Dunning Site Class II.

The area lies between Doll Ridge and Summit Ridge with five distinct drainages within. There are also numerous smaller drainages as the area is moderately unstable. Rocky outcrops occur throughout and slopes are generally 25% to 65%. There are also numerous small flats and ridges. Drainages are quite steep along the streambeds.

Access to the area is limited by winter conditions. The winter snow conditions allow access for only five to six months per year. When roads are open, a 1-1/2 to 2 hour drive on a good dirt road from the nearest town, will put users at the top of the area.

Lands adjacent to the area have been affected by management activities. Timber harvesting has taken place along Doll Ridge as recently as 1978. The area above Road 24N02 shows signs of heavy OHV use and past overgrazing by sheep.

Doll Basin is in an active cattle grazing allotment and cattle from the adjacent District (Covelo) historically stray into the area as well. The small peat bog meadows below Road 24N02 (within the area) are heavily impacted, as the cattle are not controlled and they tend to congregate in these areas. Irish Glade, which is also an archaeological site, is scheduled to be fenced (let-down fence) in the near future for protection from cows. Fencing is difficult, as the meadows have numerous fingers and snow loads are sometimes very heavy. Grazing has a localized impact and has little effect on the core mixed conifer areas.