

DECISION NOTICE/DESIGNATION ORDER

Decision Notice
Finding of No Significant Impact
Designation Order

By virtue of the authority vested in me by the Secretary of Agriculture under regulations at 7 CFR 2.42, 36 CFR 251.23, and 36 CFR Part 219, I hereby establish the Agua Tibia Research Natural Area. It shall be comprised of lands described in the section of the Establishment Record entitled "Location."

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

The Agua Tibia Research Natural Area will be managed in compliance with all relevant laws, regulations, and Forest Service Manual direction regarding Research Natural Areas. It will be administered in accordance with the management direction/prescription identified in the Establishment Record.

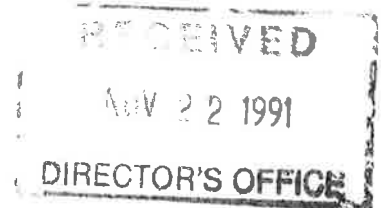
The Cleveland National Forest Land and Resource Management Plan is hereby amended to be consistent with the management direction identified in the Establishment Record and this Decision Notice/Designation Order. This is a non-significant amendment of the Cleveland National Forest Land and Resource Management Plan (36 CFR 219.10(f)).

The Forest Supervisor of the Cleveland National Forest shall notify the public of this decision and mail a copy of the Decision Notice/Designation Order and amended direction to all persons on the Cleveland National Forest Land and Resource Management Plan mailing list.

Based on the Environmental Analysis, I find that designation of the Agua Tibia Research Natural Area is not a major Federal action significantly affecting the quality of the human environment. (40 CFR 1508.27.)

This decision is subject to appeal pursuant to 36 CFR Part 217. A Notice of Appeal must be in writing and submitted to:

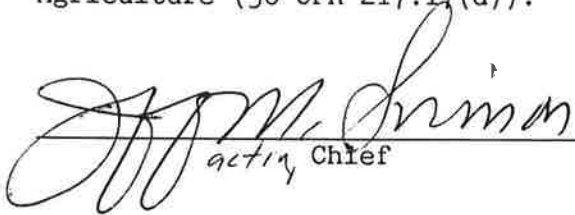
The Secretary of Agriculture
14th & Independence Ave., S.W.
Washington, D.C. 20250



and simultaneously to the Deciding Officer:

Chief (1570)
USDA, Forest Service
P.O. Box 96090
Washington, D.C. 20090-6090

The Notice of Appeal prepared pursuant to 36 CFR 217.9(b) must be submitted within 45 days from the date of legal notice of this decision. Review by the Secretary is wholly discretionary. If the Secretary has not decided within 15 days of receiving the Notice of Appeal to review the Chief's decision, appellants will be notified that the Chief's decision is the final administrative decision of the U.S. Department of Agriculture (36 CFR 217.17(d)).


acting Chief

11-14-91
Date

SIGNATURE PAGE

for

RESEARCH NATURAL AREA ESTABLISHMENT RECORD

Agua Tibia Research Natural Area

Cleveland National Forest

San Diego County, California

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

Prepared by Ayn J. Martin Date June 28, 1990
Ayn J. Martin, Range Conservationist, Pacific Southwest Forest
and Range Experiment Station and Pacific Southwest Region

Recommended by Dennis Orbus Date 7/5/90
Dennis Orbus, District Ranger, Palomar Ranger District, Cleveland
National Forest

Recommended by Michael Rogers Date 7/5/90
Michael Rogers, Forest Supervisor, Cleveland National Forest

Recommended by Paul F. Barker Date 7/13/90
for Paul F. Barker, Regional Forester, Pacific Southwest Region

Recommended by Ronald E. Stewart Date 7/26/90
Ronald E. Stewart, Station Director, Pacific Southwest Forest and
Range Experiment Station

TITLE PAGE

Establishment Record
for
Agua Tibia Research Natural Area
within
Cleveland National Forest
San Diego County, California

A. INTRODUCTION

The Agua Tibia Research Natural Area (ATRNA) was selected to represent the Bigcone Douglas-fir-Canyon Live Oak Forest¹ vegetation type for the Peninsular Ranges physiographic province. The ATRNA encompasses 480 acres (194 ha) within the Agua Tibia Wilderness on the Palomar Ranger District of the Cleveland National Forest. The area was nominated for Research Natural Area (RNA) designation by the Forest Supervisor, and an Ecological Survey of the unit was completed in 1989 (Frazier 1989). In August 1989, a fire swept through much of the Agua Tibia Wilderness. Forest Service fire crews mounted an intense effort to reduce the fire's impact on the ATRNA, but some areas of the ATRNA could not be completely protected from the fire's effects. The chaparral areas of the RNA were the most affected. The larger bigcone Douglas-fir (Pseudotsuga macrocarpa) were not affected, although some seedlings and saplings were consumed. After a post-fire reconnaissance of the area by Frazier (1989), the Regional Research Natural Area Committee concluded that the fire's effects on the values of the ATRNA were insignificant, and subsequently recommended its establishment in 1990.

Two plant species encountered on the ATRNA, laguna linanthus (Linanthus orcuttii ssp. pacificus) and Hall's monardella (Monardella macrantha ssp. hallii), are listed as Forest sensitive, and are on the California Native Plant Society (CNPS) list 1b, plants rare throughout their range. Two additional species, California honeysuckle (Lonicera hispidula) and Hall's brome (Bromus orcuttianus var. hallii), are considered rare in San Diego County by Beauchamp (1986). No federally or state listed plant species are known to occur within the ATRNA.

Lands within the ATRNA are publicly owned under the jurisdiction of the Cleveland National Forest. Unless otherwise noted, information contained in this Establishment Record was taken from the ecological survey by Frazier (1989).

1) Land Management Planning

The ATRNA is included in the Cleveland National Forest Land and Resources Management Plan as a recommended Research Natural Area (RNA) (U.S.D.A. Forest Service 1986). It is part of the RNA Management Area, which has a management emphasis stressing the maintenance of natural conditions, and the protection of features for which the RNA is established.

B. OBJECTIVES

Objectives for establishing the ATRNA are to preserve a representative area that typifies a Bigcone Douglas-fir-Canyon Live Oak Forest vegetation type in the Peninsular Ranges physiographic province, and to provide a reference area for the study of succession, the measurement of long-term ecological changes, and the monitoring of the effects of resource management practices. The ATRNA will maintain genetic diversity, provide educational opportunities, and serve as a control area for comparing results from manipulative research.

1 Vegetation types follow Holland (1986). In this text, "Bigcone Douglas-fir" is equivalent to Holland's "Bigcone Spruce". Scientific tree names follow Little (1979). All other plant names follow Munz (1968).

C. JUSTIFICATION FOR ESTABLISHMENT

Establishment of the ATRNA fulfills a need within the Regional RNA program for representation of the Bigcone Douglas-fir-Canyon Live Oak Forest target element in the Peninsular Ranges physiographic province. No other RNA has been nominated to represent this type in the Peninsular Ranges province, and the ATRNA represents the largest suitable area to represent this type on the Forest (U.S.D.A. Forest Service 1986). Bigcone Douglas-fir (BCDF) is a relict species and is endemic to Southern California (Griffin and Critchfield 1976, Minnich 1982). The BCDF population on the ATRNA is unique in its relatively great age, size, purity, placement near the southern extent of the species' range, and for its remoteness and lack of disturbance by man. The area includes one of the most impressive stands of BCDF known, and some individuals of the BCDF are likely to be as old as 600 years. Two separate stands of BCDF are included, which allows comparative, or replicated research on the target type.

Sizeable stands of associated vegetation types are also found within the ATRNA, including Montane Manzanita Chaparral, and Canyon Live Oak Forest.

The ATRNA contains other unique species, or species at the southernmost extent of their ranges. California honeysuckle, Hall's brome, and little prince's pine (*Chimaphila menziesii*) are common within the ATRNA, yet significantly less common to the south. Also notable is the occurrence of a stand of Pacific madrone (*Arbutus menziesii*), which is common farther north, yet rare in Southern California (Griffin and Critchfield 1976, Minnich 1987). Only one grove of Pacific madrone on Rodriguez Mountain, 10 miles (16 km) to the south, is known to be more southern than the stand at the ATRNA. Two other species, pine drops (*Pterospora andromedea*) and Yosemite stonecrop (*Sedum spathulifolium*) have not been reported elsewhere in San Diego County. Two other plant species encountered on the ATRNA, Laguna linanthus and Hall's monardella, are listed as Forest sensitive, and are on California Native Plant Society (CNPS) list 1b, plants rare throughout their range.

The ATRNA has additional research potential due to its location near two existing preserves dedicated to ecological research. California State University at San Diego administers both the Santa Margarita Station in the coastal mountains to the west, and the Sky Oaks Field Station on a large tract of chaparral and Coulter pine (*Pinus coulteri*) to the east. The ATRNA has been used in the past for research on BCDF (McDonald and Littrell 1976).

D. PRINCIPAL DISTINGUISHING FEATURES

The ATRNA contains three major vegetation types: BCDF-Canyon Live Oak Forest, Montane Manzanita Chaparral, and Canyon Live Oak Forest. The area contains two Forest sensitive plants, both of which are listed by the CNPS. Aside from BCDF, it contains 6 plant species at or near the southern extent of their range.

Research Natural Area Boundary Description

Agua Tibia RNA

An area within the Cleveland National Forest, San Diego County, California comprising portions of Sections 13, 14, and 15, T. 9 S., R. 1 W. SBM as shown on the attached map entitled "Agua Tibia RNA", said map being made herewith a part of this description, and said area being more particularly described as follows:

Section 15

NE 1/4 SE 1/4

S 1/2 SE 1/4;

Section 14

S 1/2

S 1/2 S 1/2 NE 1/4;

Section 13

NW 1/4 SW 1/4; T. 9 S., R. 1 W., SBM.

References to PLSS locations herein above were obtained by observations on the referenced map being a portion of Forest Service Primary Base Series Map "Vail Lake, California, 1953, photorevised 1988" at a scale of 1:24,000 in original. Reference Datum is NAD-27.

End of Description

I certify that the above boundary description of the Agua Tibia Research Natural Area was prepared by me or under my direct supervision.



Carlton Wayne Tompkins
Regional Land Surveyor
Pacific Southwest Region

08/13/91
Date

The ATRNA is located within the Congressionally designated Agua Tibia Wilderness, located in the southern portion of the Agua Tibia Mountains. Eagle Crag, the highest point in the Agua Tibia Mountains, is included within the boundaries of the RNA. Granodiorite and quartz diorite form the majority of the geologic foundation of the ATRNA, and the predominant soil types are of the Tollhouse and Crouch series.

E. LOCATION

1) The ATRNA is located on the Palomar Ranger District of the Cleveland National Forest.

2) The approximate center of the unit is at $116^{\circ}56'$ West Longitude, and $33^{\circ}22'30''$ North Latitude.

3) Boundary description (see certified description in forward section of this document):

An area within the Cleveland National Forest, San Diego County, California comprising portions of Sections 13, 14, and 15, T. 9 S., R.1 W. SBM as shown on the attached map entitled "Agua Tibia RNA", said map being made herewith a part of this description, and said area being more particularly described as follows:

Section 15

NE $1/4$ SE $1/4$

S $1/2$ SE $1/4$;

Section 14

S $1/2$

S $1/2$ S $1/2$ NE $1/4$;

Section 13

NW $1/4$ SW $1/4$; T. 9 S., R. 1 W., SBM.

References to PLSS locations herein above were obtained by observations on the referenced map being a portion of Forest Service Primary Base Series Map "Vail Lake, California, 1953, photorevised 1988" at a scale of 1:24,000 in original. Reference Datum is NAD-27.

4) The ATRNA includes 480 acres (194 ha).

5) Elevations range from 5077 feet (1547 m) at Eagle Crag, to 3240 feet (1311 m) at the bottom of Agua Tibia Creek on the southwestern corner of the ATRNA.

6) The most dependable public access is via Interstate Highway 15 to State Highway 79 east to Dripping Springs Station (Map 1). Turn south onto the spur to Dripping Springs Campground and trailhead, and follow the maintained Dripping Springs Trail (1W03) approximately 5 miles (8 km) to its intersection with the Magee Palomar Trail (2W01.3). Continue on this trail approximately 3 miles (5 km) to the southern boundary of the ATRNA.

An alternative route is via a 7 mile (11 km) dirt road, which allows motorized access from the Palomar Mountain Fire Station to the southern boundary of the

ATRNA (Map 1). This route crosses Palomar Observatory (Cal Tech), a private inholding and the Pala Indian Reservation. Access across the private inholding is currently limited to administrative Forest Service staff only. Blockage due to fallen trees or road washout is also likely.

Access is also possible via State Highway 79 to the Crosley/Cutca Road (8S06/8S08), which leads to a trailhead 2.5 miles (4 km) from the east side of the ATRNA (Map 1). It is approximately 8 miles (13 km) from highway 79 on the Crosley/Cutca Road to the Cutca Trailhead (1E01). This road also crosses private land, but it is well maintained and access is currently permitted with a Forest Service escort.

Within the RNA, the Magee Palomar Trail runs from the northern to the southern border of the ATRNA (Map 2). This trail was once a fire road (Palomar Divide Road), but is now limited to hiking. Cutca Trail (1E01) intersects the Magee Palomar Trail in the south central portion of the ARNA, runs northeast-southwest through Montane Manzanita Chaparral, intersects the eastern boundary of the RNA, and ends at a trailhead on the Crosley/Cutca Road. One unmapped and somewhat obscure trail leads from the intersection of the Magee Palomar Trail and the northern ATRNA boundary to Eagle Crag.

The western half of the area, including the stands of Pacific madrone, has no trails, has extremely dense brush and steep slopes, and is difficult to access.

F. AREA BY COVER TYPE

SAF (Eyre 1980) TYPE	TYPE CODE	ACRES	HECTARES
Canyon Live Oak	249	338	137
Unclassified		<u>142</u>	<u>57</u>
TOTALS		480	194

KUCHLER (1966) TYPE	TYPE CODE	ACRES	HECTARES
California Oakwoods	K-26	338	137
Chaparral	K-29	<u>142</u>	<u>57</u>
TOTALS		480	194

HOLLAND (1986) TYPE	TYPE CODE	ACRES	HECTARES
Bigcone Douglas-fir-Canyon Live Oak Forest	84150	192	78
Montane Manzanita Chaparral	37520	142	57
Canyon Live Oak Forest	81320	<u>146</u>	<u>59</u>
TOTALS		480	194

G. PHYSICAL AND CLIMATIC CONDITIONS

The ATRNA lies in the southern portion of the Agua Tibia Mountains, which run northwest-southeast. These mountains form the northwest head of the Palomar Mountain Range, which continues easterly and then trails into the Aguanga Mountains. The Agua Tibia Mountains divide generally separates the RNA into two faces, and Eagle Crag, a rock outcropping on the divide, is within the ATRNA boundaries. The west-facing slope of the ATRNA is less eroded, while the north-facing slope is cut by several minor drainages. None of the drainages within the ATRNA holds water year-round. The upper region of the ATRNA surrounding Eagle Crag itself is a gently sloping saddle with an average grade of about 30 percent. Areas below this region generally have slopes of 60-70 percent.

The general climate of coastal Southern California is characterized by moderate temperatures, with rain falling predominantly in winter, and annual rainfall varying widely between years. Thunderstorms may occur in the mountains. The current year (1990) marks the fourth year of a moderate to severe drought throughout Southern California.

No weather stations are located within the ATRNA. The climate of the ATRNA can be approximated by the climate at the Palomar Observatory, located 7 miles (11 km) directly southeast (elevation 5541 feet, 1689 m). Weather data from the observatory is complete at least back to 1966. Average monthly temperatures peak in the low 70s°F (21°C), and remain in the low 40s (4°C) from January through March (Close et al. 1970). Absolute maximum temperature at Palomar Observatory has reached 100°F (38°C), and absolute minimum temperature has been as low as 8°F (-13°C).

Average annual precipitation is 23 inches (585 mm), with only a trace amount falling from June until September. Forty one inches (1040 mm) of snow on the average falls per year at the Palomar Observatory, but only about half of this is likely to fall within the ATRNA based on its lower relative elevation. Less than 4 inches (100 mm) of snow is likely to fall on the lowest elevations of the RNA.

H. VALUES

1) Flora

The flora of the ATRNA includes at least 111 species of vascular plants, half of which have representative voucher specimens at the California State University at San Diego's Herbarium (Appendix A). Three major vegetation types are found in the ATRNA, including BCDF-Canyon Live Oak Forest, Montane Manzanita Chaparral, and Canyon Live Oak Forest. Scattered elements of Southern Riparian Forest, with such species as incense-cedar (Libocedrus decurrens), California boxelder (Acer negundo), coast live oak (Quercus agrifolia), black cottonwood (Populus trichocarpa), and California sycamore (Platanus racemosa), occur in several of the major drainages, but they were not treated as a separate vegetation type. Two plant species encountered on the ATRNA, Linanthus orcuttii ssp. pacificus and Monardella macrantha ssp. hallii,

are listed as Forest sensitive, and are on the California Native Plant Society (CNPS) list 1b, plants rare throughout their range. Two additional species, California honeysuckle (Lonicera hispidula) and Hall's brome (Bromus orcuttianus var. hallii), are considered rare in San Diego County by Beauchamp (1986). No federally or state listed plant species are known to occur within the ATRNA.

a) Bigcone Douglas-fir-Canyon Live Oak Forest (Holland (1986) type code 84150)

The eastern portion of the ATRNA is dominated by stands of BCDF-Canyon Live Oak Forest (Map 3). The best development of this type is on north-facing slopes. In upper elevations and on southern exposures, higher proportions of canyon live oak (Quercus chrysolepis) are found. Upper elevations also support higher proportions of Coulter pine. During June 1989, Frazier (1989) observed that most of the Coulter pines on slopes adjacent to the ATRNA, and a large proportion within the ATRNA, were infected by bark beetles. Many trees were dead, or beginning to turn brown. Frazier (1989) suggests that the stress of several years of drought has made the Coulter pines susceptible to attack by bark beetles. The BCDF seem to be free from attack.

Sampling within the ATRNA by Frazier (1989) showed that there were 20 times more canyon live oak seedlings present in this type than BCDF seedlings. Equal densities of mature BCDF and canyon live oak trees were found, although BCDF individuals tended to be much bigger than the oaks, and had 8 times more basal area. Tree ring counts of BCDF indicated a distribution of ages from 37 years (for a sapling with 2 inches (5 cm) diameter at breast height (dbh)) to over 250 years in trees with dbhs greater than 20 inches (50 cm). Several trees encountered had dbhs between 39 and 59 inches (100 and 150 cm), but could not be measured with the increment borer used at the time of the ecological survey. Extrapolation suggests that such trees may be as old as 500-600 years.

BCDF shows several adaptations to fire. Increased seedling densities after fire infer that seed germination may be stimulated by fire, or post-fire environments (Bolton and Vogl 1969). Mature trees have the ability to withstand fire due to their thick bark and inclination to resprout (Gause 1966, Bolton and Vogl 1969). Additionally, BCDF may be protected from fire by the nature of the community structure of the BCDF-Canyon Live Oak Forest. Minnich (1977) reports that BCDF forests had a greater chance of surviving fires than Coulter pine forests because the associated canyon live oak acts as a buffer against the spread of fire from adjacent chaparral. Hence, BCDF-Canyon Live Oak Forests have a longer fire frequencies, and a lesser chance of crowning fires than Coulter pine forests.

There is essentially no understory shrub cover beneath the BCDF. Occasionally in open areas, small stands of Eastwood manzanita (Arctostaphylos glandulosa) and chaparral whitethorn (Ceanothus leucodermis) are found. Herb cover is similarly depauperate due to shading

by the overstory species, and is generally less than 7 percent. Herb species include Chimaphilia menziesii, Erigeron foliosus, Hieracium albiflora, Linanthus floribundus, Monardella macrantha ssp. hallii, Osmorhiza chilensis, Silene lemmonii, Sedum spathulifolium, Toxicodendron diversilobum, and Carex sp. Fern species include Polystichum munitum, and Dryopteris arguta.

b) Montane Manzanita Chaparral (37520)

On the southwest-facing slope through which the Magee Palomar Trail passes, the BCDF-Canyon Live Oak Forest gives way to Montane Manzanita Chaparral (Map 3). Eastwood manzanita, pink-bracted manzanita (Arctostaphylos pringlei drupacea), chaparral whitethorn, canyon live oak, interior live oak (Quercus wislizeni), and chamise (Adenostoma fasciculatum) are the main components of this type. This stand extends up to 5000 feet (1540 m) elevation, where it then continues along the crest of the Agua Tibia divide. Coulter pines line the border between this type and the BCDF-Canyon Live Oak Forest, are dominant directly above Palomar Divide Road, and are found scattered within the chaparral. Their numbers are diminishing as bark beetle infestation takes its toll.

Sampling by Frazier (1989) showed that Eastwood manzanita made up almost 60 percent of the species composition of Montane Manzanita Chaparral. Chamise was the second most frequent species with 10 percent relative frequency. Chaparral whitethorn is clumped in small areas scattered throughout the chaparral, and canyon live oak is found in higher numbers near the edges of the chaparral type.

c) Canyon Live Oak Forest (81320)

The western half of the ATRNA is dominated by Canyon Live Oak Forest (Map 3). Stands of chaparral whitethorn or pink-bracted manzanita are found within this type. Vegetation is extremely dense with complete canopy closure, and the area is effectively impenetrable.

A small population of about 100 individuals of Pacific madrone is found at the base of the Canyon Live Oak Forest in the extreme western portion of the ATRNA (Map 3). Pacific madrone is uncommon this far south, although it is locally more common just south of the ATRNA on the Pala Indian Reservation. On the ATRNA, it occurs on level terrain mostly along the Agua Tibia drainage at the lowest elevations. Individuals of canyon live oak found with Pacific madrone are larger than on the slopes above, and reach heights of 60 feet (18 m). The Pacific madrone are equally as tall, and are scattered in clumps of individuals, each of which has several stems coming off the same root crown. Seedlings, saplings and mature individuals of Pacific madrone were all observed, indicating that normal regeneration of the stands is occurring. The largest dbh measured was 26 inches (65 cm). Coast live oak and California sycamore are also found in this locality.

Unlike in other areas of Canyon Live Oak Forest, the understory in the vicinity of the Pacific madrone is open and passable. Common species

include hairy ceanothus (Ceanothus oliganthus), snowdrop bush (Styrax officinalis), poison oak (Toxicodendron diversilobum), Ribes sp., Rubus sp., red-eyed tiger lily (Lilium ocellatum), and heart-leaved penstemon (Keckiella cordifolia).

d) Other Flora Meriting Attention

1) Although riparian vegetation was not mapped by Frazier (1989), it is found in several major drainages within the ATRNA. Dominant species, common to the Southern Riparian Forest vegetation type, include incense-cedar, California box-elder, coast live oak, black cottonwood, California sycamore, blackberry (Rubus ursinus), bitter gooseberry (Ribes amarum), poison oak, western azalea (Rhododendron occidentale), hoary nettle (Urtica dioica), and California fuschia (Zaucheria californica ssp. californica). Cover of riparian vegetation varies greatly between drainages and at different positions within a given drainage.

2) Vegetation along the Magee Palomar Road corridor also merits special attention since it is the only open, flat area in a region of high canopy closure. The dominantly herbaceous cover of this trail at the time of the ecological survey by Frazier (1989) was similar to what might be expected in a post-fire environment, or within clearings in the chaparral. Common species included Lotus sp., leafy daisy (Erigeron foliosus), summer snow (Linanthus floribundus), Phacelia sp., Castilleja sp., Lupinus sp., and Yosemite stonecrop. The rare Laguna linanthus was found within the ATRNA only along this trail. However, during the fire of August 1989, the Magee Palomar Trail was bulldozed into a fireroad. It is unknown if the populations of Laguna linanthus were affected. Since Laguna linanthus is generally a pioneer species following fire, it has the potential to show up elsewhere in those portions of the ATRNA burned by the 1989 fire.

2) Fauna

No complete wildlife surveys have been done specifically for the ATRNA. A list of birds seen or heard in the ATRNA during the ecological survey by Frazier (1989) is included in Appendix B. Lists of reptiles, amphibians and mammals which might occur on the ATRNA, and which are known to occur from the Palomar Mountain area in the represented habitat types is also included in Appendix B.

3) Geology

In general, the geology of interior San Diego County is dominated by the Peninsular Ranges batholith, a large body of intrusive igneous rock that is exposed from Riverside County to the tip of Baja California (Weber 1963). Granodiorite and quartz diorite are the most prevalent components of the batholith, and form the majority of the foundation of the ATRNA.

4) Soils

Two soil series are found within the ATRNA, both of which were formed in place from weathered granodiorite (Map 4) (U.S.D.A. Soil Survey 1973). On the west side of Eagle Crag, the predominant soil type is of the Tollhouse series and is described as a rocky, coarse, sandy loam. It is 5-20 inches (13-51 cm) deep

over hard rock, slightly eroded and covered to as much as 25 percent by large boulders and 10 percent by rock outcroppings.

To the east of Eagle Crag, soils are of the Crouch series. These soils are more acid, and deeper (36-58 inches; 92-148 cm) than Tollhouse soils. Rock outcroppings cover 10 percent of the surface, and stones and cobbles cover 25 percent of the soil surface. Slopes are steeper than to the west of Eagle Crag, and can approach 70 percent.

Both soil types have rapid to very rapid runoff, and erosion hazard is high to very high. Erosion is a distinctive feature of the ATRNA's physical profile, especially on the northeast-facing slopes, where BCDF is found. Erosion is most evident on the Magee Palomar Trail, and slides above this trail have almost blocked the trail in places, or have swept large chunks of the trail into the basin below.

5) Lands

All lands within the ATRNA are publicly owned and are contained within the Congressionally designated Agua Tibia Wilderness. No lands have been acquired, or have any outstanding rights.

6) Cultural Sites

Little is known of the early cultural history of the area (Schmechel 1977). Local Native American populations are currently found on many of the areas surrounding the Agua Tibia Wilderness. No archeological sites have been observed within the ATRNA, and it is unknown whether the area was used in the past by tribal groups.

7) Fire History

Available records show that the ATRNA and the surrounding Wilderness had not burned prior to the most recent fire of August 1989. The chaparral of the Agua Tibia Wilderness is noted for its age and unusually high development due to long fire intervals. Hence, the fuel load of the Wilderness as a whole is high, and the risk of catastrophic wildfire is correspondingly large.

In 1987, a dramatic man-caused fire swept through much of the Palomar Mountains and approached the ATRNA from the south. The fire was stopped by a heavy rain storm before it entered the RNA, reaching its closest point only 0.3 miles (0.5 km) from the Wilderness and ATRNA boundary in section 23. Much of the oak and conifer forests on the adjacent Pala Indian Reservation were destroyed by this fire.

The fire of August 1989 swept through much of the Agua Tibia Wilderness. Effects within the ATRNA include the widening of the Magee Palomar Trail into a fireroad, and the application of flame retardant onto the chaparral area surrounding Cutca Trail (1E01) (Map 3). While the flame retardant prevented the above ground portions of chaparral plants from burning, low ground-creeping fire served to detach many shrubs from their roots. Thus, the current physiognomy of some of the chaparral areas includes what appears to be a closed-canopy shrub cover that is actually completely dead and detached from the roots. Although the fire did sweep through the BCDF-Canyon Live Oak

Forest, the fire did not crown, and many of the larger BCDF were left relatively unaffected. Many seedlings and saplings were killed, as were many of the larger canyon live oak.

I. IMPACTS AND POTENTIAL CONFLICTS

1) Mineral Resources

The Agua Tibia Management Plan notes that there is no evidence of any economic mineral deposits within the Agua Tibia Wilderness (Schmechel 1977). Since 1983, the Wilderness and ATRNA have been closed to new mineral claims, and none are known to have been filed previously. No conflicts with mineral resources are anticipated with establishment of the ATRNA.

2) Grazing

No livestock grazing is currently permitted within the Agua Tibia Wilderness (U.S.D.A. Forest Service 1986). No conflicts are expected with the maintenance of these grazing guidelines upon establishment of the ATRNA.

3) Timber

The Agua Tibia Wilderness, including the ATRNA, was withdrawn from multiple use, and hence from the timber base, upon its designation. Due to the small extent of the timber resource on the Cleveland National Forest as a whole, and the low quality of lumber that would be produced from tree species found there, removal of trees in general is directed toward protection and development of natural ecosystems and amenity values rather than commodity production. Hence, although the ATRNA includes 192 acres (78 ha) of BCDF-Canyon Live Oak Forest, no value will be withdrawn with establishment of this RNA.

4) Watershed Values

In general, the Cleveland National Forest is an important source of water to residents of San Diego, Orange, and Riverside Counties. The most widespread water quality problem is excessive sediment production (U.S.D.A. Forest Service 1986). While there are many drainages within and bordering the ATRNA, none holds water year-round. By mid-August, only a few small pools of standing water remain. Since erosion hazard is high to very high within the ATRNA, maintenance of vegetative cover will help maintain watershed values through the prevention of increased sedimentation rates. The occurrence of the August 1989 fire in the area, although potentially increasing sedimentation rates in the short term, will reduce the risk of wildfire in the long-term, and in turn the great increase in sedimentation rates expected following fire.

5) Recreation Values

The ATRNA is classified within the Recreation Opportunity Spectrum (ROS) as Semi-Primitive Non-Motorized (U.S.D.A. Forest Service 1986). For the general public, the ATRNA is one of the most inaccessible areas of the County, usually requiring more than one day to approach and leave. The ATRNA lies astride a 25 mile (40 km) hiking trail from Dripping Springs to Aguanga (Map 1). However, visitor use is low due to the length and difficulty of the hike and the lack of campsites and reliable water sources. The dense vegetation and steep

topography limit access to the trail corridor, and much of the area remains little visited or disturbed. The major impact by visitors who do access the area is to raise the potential occurrence of man-induced fire.

6) Wildlife and Plant Values

Establishment of the ATRNA will serve to maintain habitat for two Forest sensitive plant species encountered there, Laguna linanthus (Linanthus orcuttii ssp. pacificus) and Hall's monardella (Monardella macrantha ssp. hallii), both of which are on the California Native Plant Society (CNPS) list 1b, plants rare throughout their range. Two additional species, California honeysuckle (Lonicera hispidula) and Hall's brome (Bromus orcuttianus var. hallii), are considered rare in San Diego County by Beauchamp (1986), and similarly will be protected with RNA establishment. Establishment of the ATRNA will further protect one of the most southernmost habitats of both BCDF and Pacific madrone. The ATRNA area has already been used for research on BCDF, and its value for future and continuing research will be maintained.

Wildlife habitat for many species of birds, reptiles, amphibians, and mammals observed or predicted to reside within the ATRNA will also be maintained with its establishment.

7) Special Management Area

The ATRNA is entirely within the Agua Tibia Wilderness, and its establishment will complement Wilderness management area direction in its preservation of Wilderness characteristics and values.

8) Transportation Plans

Establishment of the ATRNA will not impact current transportation plans, although it will limit construction of new roads and trails within the RNA unless they specifically contribute to the research objectives of the area. Based on the current limited use of the area, the steep slopes, and the often impenetrable vegetative cover, no conflicts are anticipated with future transportation plans upon establishment of the ATRNA.

9) Visual Resources

The adopted Visual Quality Objective (VQO) for the ATRNA is Preservation. Establishment of the ATRNA, through its maintenance of natural conditions and processes, will meet this objective.

J. MANAGEMENT PRESCRIPTION

The ATRNA is included in the RNA Management Area of the Cleveland National Forest. Management of RNAs on the Forest emphasizes protection and enhancement of features for which RNAs are established. Appendix C includes specific management direction for the ATRNA as stated in the Cleveland National Forest Land and Resources Management Plan and Final Environmental Impact Statement (U.S.D.A. Forest Service 1986).

1) RNA Management Plan

Following direction in FSM 4063, and the Cleveland National Forest Land and Resources Management Plan (p. 4-65), the Cleveland National Forest, in consultation with the Pacific Southwest Forest and Range Experiment Station, will prepare an RNA Management Plan which outlines site specific management direction, project prescriptions, uses, and monitoring for the ATRNA.

K. ADMINISTRATIVE RECORDS AND PROTECTION

The official responsibility for administration and protection of the ATRNA is with the District Ranger, Palomar Ranger District, 1634 Black Canyon Road, Escondido, California, (619) 788-0250.

The research coordinator is the Regional Forester, Pacific Southwest Region, 630 Sansome St., San Francisco, California, 94111. The Regional Forester is responsible for approving research in the area in conjunction with the Station Director, Pacific Southwest Forest and Range Experiment Station, Berkeley, California. The Station Director is responsible for maintaining a file of research data for the area.

L. ARCHIVING

The Pacific Southwest Forest and Range Experiment Station Director shall establish and maintain a system for archiving data and reports from the ATRNA in a manner that will facilitate the transfer of information among Stations, scientists, and managers. Fifty four voucher specimens collected during the ecological survey of the area by Frazier (1989) have been preserved at the San Diego State University Herbarium (Appendix A).

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APPENDICES

Agua Tibia Research Natural Area

Appendix A: Flora

Appendix B: Fauna

Appendix C: Management Direction for the ATRNA

APPENDIX A

FLORA

VASCULAR PLANTS OF THE PROPOSED
EAGLE CRAG RESEARCH NATURAL AREA
AGUA TIBIA

			1	HABITAT	2	COMMENTS
DICOTS						
ACERACEAE						
<i>Acer negundo</i>	L.	CALIFORNIA BOX-ELDER		MRV		Infrequent along streams. The RNA is slightly above usual altitude limit
ssp <i>californicum</i>	(T.&G.)Wesmael					
ANACARDIACEAE						
<i>Toxicodendron radicans</i>	(L.) Kuntze	POISON OAK		BCDF, MRV,MGV		Common, especially near canyon bottoms
ssp <i>diversilobum</i>	(T. & G.)Thorne					
APIACEAE						
<i>Osmorhiza chilensis</i>	H.&A.	MOUNTAIN SWEET-CICELY	*	BCDF		Commonly encountered on shaded slopes
<i>Tauschia arguta</i>	(T. & G.)Macbr.	SOUTHERN TAUSCHIA	*	BCDF		Occasional understory shrub
ASCLEPIADACEAE						
<i>Asclepias californica</i>	Greene	CALIFORNIA MILKWEED	@	MMC		A patch of this is found in Cutca Trail just below RNA boundary
ASTERACEAE						
<i>Agoseris retrorsa</i>	Benth. (Greene)	SPEAR-LEAF AGOSERIS	*	Tr		A few in Magee Palomar Trail
<i>Chaenactis artemisiaefolia</i>	(Harv. & Gray)Gray	ARTEMISIA PINCUSHION	*	MMC		Just at boundary of ECRNA and Cutca Trail
<i>Erigeron foliosus</i> var. <i>foliosus</i>	Nutt.	LEAFY DAISY	*	BCDF, Tr		Generally common in light gaps

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2 BCDF-Bigcon Douglas Fir-Canyon Live oak Forest MCF-Montane Coniferous Forest
CLOF-Canyon Live Oak Forest MMC-Montane Manzanita Chap
MGV-Madrone Grove Vegetation
MRV-Montane Riparian Vegetation
Tr-Magee palomar Trail

			1 HABITAT ²	COMMENTS
<i>Eriophyllum confertiflorum</i>	(DC.) Gray	GOLDEN YARROW	BCDF	Occasional
var. <i>confertiflorum</i>				
<i>Gnaphalium californicum</i>	DC.	CALIFORNIA EVERLASTING	* Tr	Just a few
<i>Gnaphalium microcephalum</i>	Nutt.	WHITE EVERLASTING	* MMC	Just a few in a sandy area at base of ECRNA and Cutca Trail
<i>Hieracium albiflorum</i>	Hook	HAWKWEED	* BCDF	Common understory plant
BORAGINACEAE				
<i>Cryptantha intermedia</i>	(Gray) Greene	NIEVITAS CRYPTANTHA	* MMC	Just a few in a sandy area at base of ECRNA and Cutca Trail
CAMPANULACEAE				
<i>Lobelia dunnii</i>	Greene	ROTHROCK'S LOBELIA	* MRV	Rare along Agua Tibia Creek near RNA boundary.
var. <i>serrata</i>	(Gray) McVaugh			
CAPRIFOLIACEAE				
<i>Lonicera hispidula</i>	(Lindl.) Dougl. ex T&G	CALIFORNIA HONEYSUCKLE	* MRV	Infrequent, but found along Agua Tibia creek & in BCDF bowl near the RNA
var. <i>vacillans</i>	Gray			
<i>Lonicera subspicata</i>	H. & A.	SAN DIEGO HONEYSUCKLE	MRV	Infrequent in drier zones near canyon bottoms
var. <i>denudata</i>	Rehd			
<i>Lonicera subspicata</i>	H. & A.	SOUTHERN HONEYSUCKLE	* MRV	Occasional along stream beds at lower elevations
var. <i>johnstonii</i>	Keck.			
CARYOPHYLLACEAE				
<i>Silene lemmonii</i>	Wats.	LEMMON'S PINK	* BCDF, Tr	Common ground cover
CISTACEAE				

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2 BCDF-Bigcon Douglas Fir-Canyon Live oak Forest MCF-Montane Coniferous Forest MGV-Madrone Grove Vegetation
CLOF-Canyon Live Oak Forest MMC-Montane Manzanita Chap MRV-Montane Riparian Vegetation
Tr-Magee palomar Trail

			1	HABITAT ²	COMMENTS
<i>Helianthemum scoparium</i> var. <i>aldersonii</i>	Nutt. (Greene)Munz	ROCK-ROSE	MMC		On the trail to Eagle cragg above Magee Palomar trail-open area
CRASSULACEAE					
<i>Dudleya pulcherrima</i>	(Nutt.)Britt. & Rose	CHALK LIVE-FOREVER	BCDF		One plant seen in bowl on east side
<i>Dudleya saxosa</i> ssp. <i>alboides</i>	(Jones)Britt. & Rose (Rose) Moran	DESERT SAVIOR	* MMC		Rocky, sandy area below corner RNA boundary along Cutca Trail.
<i>Sedum spathulifolium</i> ssp. <i>yosemitense</i>	Hook (Britt.)Clausen	YOSEMITE STONECROP	@ BCDF, Tr		Common on open slopes
ERICACEAE					
<i>Arbutus menziesii</i>	Pursh.	MADRONE	* MG, CLOF		Area somewhat chaparral, riparian, and oak forested Along Agua Tibia Creek
<i>Arctostaphylos glandulosa</i> ssp. <i>glandulosa</i>	Eastwood	EASTWOOD MANZANITA	MMC, CLOF		Dominant species
<i>Arctostaphylos pringlei</i> ssp. <i>drupacea</i>	Parry (Parry) Wells	CUYAMACHA MANZANITA	@ MMC, Tr, CLOF		Common arborescent species
<i>Chimaphila menziesii</i>	(R. Br. ex D. Don) Spreng	LITTLE PRINCES PINE	* BCDF		Fairly common understory species. Near southern range limit.
<i>Pterospora andromedea</i>	Nutt.	PINE-DROPS	* BCDF		Only seen at one location at 4200' about 100 m. north of Cuca Trail
<i>Rhododendron occidentale</i>	(T&G)Gray	WESTERN AZALEA	@ MRV		Fairly common at more moist sites
FABACEAE					
<i>Lathyrus laeiflorus</i> ssp. <i>alefeldii</i>	Greene (White)Brads.	SAN DIEGO SWEETPEA	@ Tr		Along Magee palomar Trail at northern RNA boundary

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2 BCDF-Bigcon : Douglas Fir-Canyon Live oak Forest MCF-Montane Coniferous Forest MG, Madrone Grove Vegetation
CLOF-Canyon Live Oak Forest MMC-Montane Manzanita Chap MRV-Montane Riparian Vegetation
Tr-Magee palomar Trail

		1	HABITAT ²	COMMENTS
<i>Lotus argophyllus</i>	(Gray)Greene			
ssp <i>argophyllus</i>		@ Tr		Common
<i>Lotus scoparius</i>	(Nutt. in T.&G.) Ortley			
ssp <i>brevialatus</i>	(Ortley)Munz	Ch		Near Cutca and Magee palomar Trail intersection
<i>Lotus strigosus</i>	(Nutt. in T.&G.)Greene	@ Tr		
var. <i>hirtella</i>	(Greene)Ortley			
<i>Lupinus concinnus</i>	Agardh	@ Tr		
ssp <i>obtus</i>	(C.P. Smith)D. Dunn			
<i>Lupinus excubitus</i>	Jones	@ BCDF, Tr		
var. <i>austromontanus</i>	(Heller) C. P. Sm.			
FAGACEAE				
<i>Quercus agrifolia</i>	Nees	MRV		Rare, only a few trees along east side drainages
var <i>agrifolia</i>				
<i>Quercus chrysolepis</i>	Liebm.	BCDF		Dominant species
<i>Quercus dumosa</i>	Nutt.			
<i>Quercus wislizenii</i>	A. DC.			
var. <i>frutescens</i>	Englem.	Ch		Scattered individuals
HYDROPHYLLACEAE				
<i>Phacelia distans</i>	Benth.			
<i>Phacelia imbricata</i>	Greene	MMC		
ssp <i>patula</i>	(Brand) Heckard	Tr		

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2 BCDF-Bigcon: Douglas Fir-Canyon Live oak Forest MCF-Montane Coniferous Forest MGv-Madrone Grove Vegetation
CLOF-Canyon Live Oak Forest MMC-Montane Manzanita Chap MRV-Montane Riparian Vegetation
Tr-Magee palomar Trail

			1	HABITAT ²	COMMENTS
<i>Phacelia parryi</i>	Torr.	PARRY'S PHACELIA		MMC	On a sandy slope at base of ECRNA and Cutca Trail
<i>Phacelia</i> SP.			*	MMC	
<i>Phacelia suffrutescens</i>	Parry	WILD-HELIOTROPE	*	MGV, MRV	At RNA boundary and Agua Tibia Creek. More common at lower
LAMIACEAE					
<i>Monardella macrantha</i>	Gray	HALL'S SCARLET MONARDELLA	*	BCDF	Occasional throughout area. None of the rare ssp. hallii was observed.
ssp macrantha hallii					
<i>Stachys rigida</i>	Nutt. ex Benth.	HEDGE-NETTLE	*	MRV	At RNA boundary and Agua Tibia Creek. More common at lower
ssp <i>rigida</i>					
ONAGRACEAE					
<i>Clarkia rhomboidea</i>	Dougl. ex Hook	DIAMOND CLARKIA	*	Tr, BCDF	Occasional and widespread
<i>Zauschneria californica</i>	Presl.	CALIFORNIA FUSCHIA	*	MRV	Occasional on drier sites
ssp <i>californica</i>					
PAPAVERACEAE					
<i>Dendromecon rigida</i>	Benth.	BUSH POPPY		CLOF	Only a few encountered, scattered on the west side slopes
ssp <i>rigida</i>					
PLATANACEAE					
<i>Platanus racemosa</i>	Nutt.	CALIFORNIA SYCAMORE		MRV	Occasional along stream beds
POLEMONIACEAE					
<i>Gilia capitata</i>	Sims	GLOBE GILIA		MMC	In a sandy area at base of ECRNA and Cutca Trail
ssp <i>abrotanifolia</i>	(Nutt. ex Greene) V. Grant				

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2 BCDF-Bigcone Douglas Fir-Canyon Live oak Forest MCF-Montane Coniferous Forest
CLOF-Canyon Live Oak Forest
MGV-Madrone Grove Vegetation
MRV-Montane Riparian Vegetation
Tr-Magee palomar Trail

		1. HABITAT ²	COMMENTS
<i>Gilia exilis</i>	Gray	NAMELESS GILIA	Seen near cutca trail where it comes out of the chaparral and meets the
<i>Linanthus floribundus</i>	(Gray) Greene ex Milken.	SUMMER SNOW	Common in dry areas just about everywhere
ssp <i>glabrus</i>	R. Patterson		
<i>Linanthus orcuttii</i>	(Parry & Gray) Jeps.	LAGUNA LINANTHUS	Only seen in trail near northern boundary of RNA. See text
POLYGONACEAE			
<i>Chorizanthe leptotheca</i>	Goodm.	RAMONA SPINE-FLOWER	In a sandy area at base of ECRNA and Cutca Trail
<i>Eriogonum fasciculatum</i>	Benth.	FLAT-TOPPED BUCKWHEAT	Occasional above Magee Palomar Trail
ssp <i>foliosum</i>	(Nutt.) S. Stokes		
PORTULACACEAE			
<i>Claytonia perfoliata</i>	Donn	NARROW-LEAF MINERS' LETTUCE	Moist areas
var. <i>parviflora</i>	(Dougl. ex Hook.) Torr. Hook.) Torr.		
<i>Claytonia spathulata</i>	Dougl. ex Hook	SERPENTINE MONTIA	Moist areas
var. <i>exigua</i>	(T&G) Piper		
RANUNCULACEAE			
<i>Aquilegia formosa</i>		CALIFORNIA COLUMBINE	Seen in dry stream bed
var. <i>truncata</i>			
<i>Delphinium patens</i>	Benth.	LIVER-LEAF LARKSPUR	On shades slope with Sedum and Collinsia
ssp <i>hepaticoides</i>	Ewan		
RHAMNACEAE			
<i>Ceanothus greggii</i>	Gray	CUPLEAF CEANOTHUS	Found only rarely in chaparral near the divide north of Eagle Cragg
ssp <i>perplexans</i>	(Trel.) Beauchamp		

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2 BCDF-Bigcon : Douglas Fir-Canyon Live oak Forest MCF-Montane Coniferous Forest
 CLOF-Canyon Live Oak Forest
 MG-V-Madrone Grove Vegetation
 MRV-Montane Riparian Vegetation
 Tr-Magee palomar Trail

			1 HABITAT ²	COMMENTS
<i>Ceanothus leucodermis</i>	Greene	CHAPARRAL WHITETHORN	MMC, CLOF	Patchily distributed in chaparral and Oak forest
<i>Ceanothus oliganthus</i>	Nutt. ex. T. & G.	HAIRY CEANOTHUS	* CLOF, MMC, BCDF	Occasional on east side above Magee Palomar Trail and on west side of
<i>Rhamnus californica</i>	Esch.	COFFEEBERRY	@ BCDF, CLOF, MMC, Tr,	Infrequent but well distributed
<i>Rhamnus tomentella</i>	(Benth.)C.B. Wolf		BCDF, CLOF, MGV	
<i>Rhamnus ilicifolia</i>	Kell.	HOLLY-LEAFED REDBERRY		
ROSA CEAE				
<i>Adenostoma fasciculatum</i>	H.&A.	CHAMISE	MMC	Occasional to common
<i>Adenostoma sparsifolium</i>	Torr.	RED SHANK	MMC	Infrequent
<i>Heteromeles arbutifolia</i>	(Ait.)M. Roem.	TOYON	MRV	Rarely found along streambeds
<i>Potentilla glandulosa</i>	Lindl.	STICKY CINQUEFOIL	BCDF	Infrequent
<i>Prunus ilicifolia</i>	(Nutt.)Walp.	HOLLY-LEAVED CHERRY	* MGV	A few individuals in chaparral like understory of madrones
<i>Rubus parviflorus</i>	Nutt.	THIMBLEBERRY	MRV	Infrequent at best. Only seen along stream bed S. of Cutca Trail near their
<i>Rubus ursinus</i>	Cham. & Schlecht	BLACKBERRY	* MRV, MGV	Abundant
RUBIACEAE				
<i>Galium angustifolium</i>	Nutt. es T&G	BEDSTRAW	BCDF, Tr	Occasional
<i>ssp angustifolium</i>				

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 CLOF-Canyon Live Oak Forest
 MGV-Madrone Grove Vegetation
 MRV-Montane Riparian Vegetation
 Tr-Magee palomar Trail

			1	HABITAT ²	COMMENTS
<i>Galium aparine</i>	L.	COMMON BEDSTRAW	BCDF	Infrequent	
SALICACEAE					
<i>Populus trichocarpa</i> <i>trichocarpa</i>	T&G	BLACK COTTONWOOD	* MRF	One tree seen in a canyon on the east side	
<i>Salix lasiolepis</i> var. <i>bracelinea</i>	Benth. Ball	BRACELIN'S WILLOW	MRF	Along canyon at base of bowl	
SAXIFRAGIACEAE					
<i>Ribes amarum</i>	McClat.	BITTER GOOSEBERRY	MRV	Not nearly as abundant as nevadense	
<i>Ribes nevadense</i>	Kell.	SIERRA CURRANT	MRV	Common along most canyons	
SCROPHULARIACEAE					
<i>Antirrhinum coulterianum</i>	Benth. in A. DC.	WHITE SNAPDRAGON	MGV	Just a few seen	
<i>Castilleja affinis</i> ssp <i>affinis</i>	H. & A.	COAST PAINT-BRUSH	@ Tr		
<i>Castilleja martinii</i> <i>martinii</i>	Abrams	MARTIN'S PAINTBRUSH			
<i>Collinsia heterophylla</i> var. <i>heterophylla</i>	Buist ex. Grah.	PURPLE CHINESE HOUSES	* Tr		
<i>Collinsia</i> SP.	?	BLUE-EYED MARY	BCDF	Most likely heterophylla, but could be concolor. Not collected	
<i>Cordylanthus filifolius</i>	Nutt. ex Benth.	DARK-TIP BIRD'S BEAK	* MMC	One patch in Cutca trail near RNA border	

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CLOF-Canyon Live Oak Forest MMC-Montane Manzanita Chap MRV-Montane Riparian Vegetation
Tr-Magee palomar Trail

			1	HABITAT ²	COMMENTS
<i>Diplacus aurantiacus</i>	(Curt.) Jeps.	SAN DIEGO MONKEY FLOWER	*	BCDF, MG	Along some canyon slopes
ssp <i>australis</i>	(McMinn) Beeks ex Thome				
<i>Diplacus longiflorus</i>	(Nutt.) Grant	SALMON MONKEY FLOWER		MMC	Amongst rocks of Eagle Cragg
ssp <i>longiflorus</i>					
<i>Keckiella cordifolia</i>	(Benth.) Straw.	HEART-LEAVED PENSTEMON	*	MRV, MG	
<i>Keckiella ternata</i>	(Torr. ex Gray) Straw	SUMMER BUSH PENSTEMON	*	BCDF, MG	
ssp <i>ternata</i>					
<i>Mimulus brevipes</i>	Benth.	WIDE-THROAT MONKEY FLOWER	*	MMC	Dry, open slopes
<i>Mimulus cardinalis</i>	Dougl. ex Benth.	SCARLET MONKEY FLOWER	*	MRV	Near base of RNA in Agua Tibia creek
<i>Mimulus guttatus</i>	Fisch. ex DC.	SEEP MONKEY FLOWER	*	MRV	Near base of RNA in Agua Tibia creek
ssp <i>guttatus</i>					
SQLANACEAE					
<i>Solanum douglasii</i>	Dunal in DC.	DOUGLAS' NIGHTSHADE		MRV	Lower elevations Agua Tibia Creek. Just barely extends into RNA
STYRACACEAE					
<i>Styrax officinalis</i>	L.	SNOWDROP BUSH	*	CLOF	Infrequent, shaded areas near Madrone groves.
ssp <i>fulvescens</i>	(Eastw.) Beauchamp ex Thome				
URTICACEAE					
<i>Urtica dioica</i>	L.	HOARY NETTLE		MRV	At junction of RNA boundary and Agua Tibia Creek
ssp <i>holosericea</i>	(Nutt.) Thome				
VISCACEAE					

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CLOF-Canyon Live Oak Forest
MGV-Madrone Grove Vegetation
MRV-Montane Riparian Vegetation
Tr-Magee palomar Trail

			1	HABITAT ²	COMMENTS
<i>Arceuthobium campylopodium</i>	Engelm. ex Gray	WESTERN DWARF MISTLETOE	*	MMC	On Coulter pine
<i>Phoradendron villosum</i>	(Nutt. ex T & G) Nutt.	HAIRY MISTLETOE	*	BCDF	On Canyon Live Oak
<u>CONIFERS</u>					
<u>CUPRESSACEAE</u>					
<i>Calocedrus decurrens</i>	(Torrey) Florin	INCENSE CEDAR		MRV	Scarce along canyon bottoms
<u>PINACEAE</u>					
<i>Pinus coulteri</i>	D. Don	COULTER PINE		MMC	Was common on flatter and higher chaparral areas. Severe bark beetle
<i>Pinus jeffreyi</i>	Grev. & Balf. ex A. Murr.	JEFFREY PINE		BCDF	Apparently only one tree at base of Cutca Tail and RNA boundary. P.
<i>Pseudotsuga macrocarpa</i>	(Vasey) Mayr	BIG-CONE DOUGLAS FIR		BCDF	Dominant species on east side (north facing slopes)
<u>FERNS</u>					
<u>ASPIDACEAE</u>					
<i>Dryopteris arguta</i>	(Kaulf.) Watt	WOODFERN	*	BCDF	Common
<i>Polystichum imbricans</i> ssp. <i>imbricans</i>	(D.C. Eaton) Wagner	SWORD FERN	*	BCDF	Fairly common
<u>PTERIDACEAE</u>					

1 An * indicates that a pressed specimen has been preserved at the San Diego State Herbarium

2 BCDF-Bigcone Douglas Fir-Canyon Live oak Forest MCF-Montane Coniferous Forest
CLOF-Canyon Live Oak Forest
MGV-Madrone Grove Vegetation
MRV-Montane Riparian Vegetation
Tr-Magee palomar Trail

	1	HABITAT ²	COMMENTS
<i>Cheilanthes covillei</i>	Maxon	COVILLE'S LIP FERN	
<i>Pellea mucronata</i>	(D.C. Eaton) Wagner	BIRD'S FOOT FERN	Amongst the granite rocks of Eagle Cragg in crevices On an open slope near base of ECRNA and Cutca Trail
MONOCOTS			
AGAVACEAE			
<i>Yucca whipplei</i> ssp <i>whipplei</i>	Torr.	OUR LORD'S CANDLE	Occasional along Cutca Trail
AMARYLLIDACEAE			
<i>Dichelostomum pulchella</i>	(Salisb.) Heller	BLUE DICKS	Locally common near bottom of bowl on east side
CYPERACEAE			
<i>Carex</i> sp.		SEDGE	* BCDF common in understory
LILLIACEAE			
<i>Lilium humboldtii</i> var. <i>ocellatum</i>	Roezl & Leichl. (Kell.) Elwes	RED-EYED TIGER LILLY	* MRV Along stream near Madrone groves.
POACEAE			
<i>Bromus orcutianus</i> var. <i>hallii</i>	Vasey Hitchc. in Jeps. L.	HALL'S BROME	* BCDF Occasional in understory. Palomar Mt. is southernmost range for ssp.
<i>Bromus tectorum</i> *		CHEAT-GRASS BROME	* Tr One of only two introduced species found in the ECRNA
<i>Vulpia myuros</i> var. <i>hirsuta</i>	L.(K.C. Gmelin) Hack.	FOXTAIL FESCUE	* Tr Brought up by hikers?

1 An * Indicates that a pressed specimen has been preserved at the San Diego State Herbarium

2 BCDF-Bigcone Douglas Fir-Canyon Live oak Forest MCF-Montane Coniferous Forest MG-V-Madrone Grove Vegetation
CLOF-Canyon Live Oak Forest MMC-Montane Manzanita Chap MRV-Montane Riparian Vegetation
Tr-Magee palomar Trail

APPENDIX B

FAUNA

CHECKLIST OF BIRDS IN THE
AGUA TIPIA
EAGLE CRAG RESEARCH NATURAL AREA

Compiled by Nils Warnock and Chris Frazier

Common Name	Scientific Name	Page#1	OBSERVED OR	
			HABITAT ²	PREDICTED
Turkey Vulture	<i>Cathartes aura</i>	182	A	O
Golden Eagle	<i>Aquila chrysaetos</i>	184	A,F	P
Sharp-shinned Hawk	<i>Accipiter striatus</i>	190	O,F	P
Broad-winged Hawk	<i>Buteo platypterus</i>	192	F	P
Red-tailed Hawk	<i>Buteo jamaicensis</i>	194	A	O
Prarie Falcon	<i>Falco mexicanus</i>	204	A	O
California Quail	<i>Callipepla californica</i>	218	CB	O
Mountain Quail	<i>Oreortyx pictus</i>	218	CB	O
Band-tailed Pidgeon	<i>Columba fasciata</i>	224	F	O
Spotted Owl	<i>Strix occidentalis</i>	240	F	
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	246	O,F	O
Anna's Hummingbird	<i>Calypte anna</i>	258	CH	O

Allen's Hummingbird	<i>Selasphorus sasin</i>	260	OB	O
Northern Flicker	<i>Colaptes auratus</i>	264	OB	O
Acorn woodpecker	<i>Melanerpes formicivorus</i>	266	OB	O
Nuttall's Woodpecker	<i>Picoides nuttallii</i>	272	OB	O
Ash-Throated Flycatcher	<i>Myiarchus cinerascens</i>	282	CHCB	O
Olive-sided Flycatcher	<i>Contopus borealis</i>	284	CHCB	O
Western Wood-PeeWee	<i>Contopus sordidulus</i>	284	CHCB	O
Violet-Green Swallow	<i>Tachycineta cyaneoviridis</i>	296	A	O
Scrub Jay	<i>Apelocoma coerulescens</i>	300	CH	O
Stellar's Jay	<i>Cyanocitta stelleri</i>	302	OB	O
Plain Titmouse	<i>Parus inornatus</i>	308	CHF	O
Wrentit	<i>Chamaea fasciata</i>	308	CHF	O
Mountain Chickadee	<i>Parus gambeli</i>	310	F	O
Bushtit	<i>Psaltiriparus minimus</i>	312	OB	O
Brown Creeper	<i>Certhia americana</i>	314	OB	O
White-breasted				
Nuthatch	<i>Sitta carolinensis</i>	314	F	O
Canyon Wren	<i>Catherpes mexicanus</i>	318	OCH	O
Blue-Grey Gnatcatcher	<i>Poliophtila caerulea</i>	322	CH	?

Black-tailed

Gnatcatcher	<i>Poliopitila melanura</i>	322	CH	?
Gnatcatcher	<i>Poliopitila sp.</i>	322		O
Western Bluebird	<i>Sialia mexicana</i>	324	CH	O
Phainopepla	<i>Phainopepla nitens</i>	344	A	O
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	380	CH	O
Rufous-sided Towhee	<i>Pipilo erythrophthalmus</i>	386	CH	O
Song Sparrow	<i>Melospiza melodia</i>	392	CH	O
Dark-eyed Junco	<i>Junco hyemalis</i>	402	F	O
Fox Sparrow	<i>Passerella iliaca</i>	406	CH	O
Western Tanager	<i>Piranga ludoviciana</i>	430	F	O
Lesser Goldfinch	<i>Carduelis psaltria</i>	434	CB,CHF	O
House Finch	<i>Carpodacus mexicanus</i>	440	CH	O

1 from National Geographic Society

2 A-AIR SPACE OVER VEGETATION

Field Guide to the Birds of North America,

CB-CANYON BOTTOM

2nd edition, 1987

CH-CHAPARRAL

O-OAK FOREST

F-BIGCONE DOUGLAS-FIR FOREST

Aqua Tibia
~~Eagle-Cragg~~ RNA

Possible Reptiles and Amphibians of the
prepared by Brad Hollingsworth

Order Anura

Family Bufonidae

- | | |
|---|-------------------|
| O <i>Bufo boreas halophilus</i> | Western Toad |
| P <i>Bufo microscaphus californicus</i> | Southwestern Toad |

Family Hylidae

- | | |
|--------------------------------------|---------------------|
| @ P <i>Hyla cadaverina</i> | California Treefrog |
| L <i>Hyla regilla hypochondriaca</i> | Pacific Treefrog |

Family Pelobatidae

- | | |
|------------------------------|-------------------|
| P <i>Scaphiopus hammondi</i> | Western Spadefoot |
|------------------------------|-------------------|

Family Ranidae

- | | |
|--------------------------------|-----------------------------|
| L <i>Rana aurora draytonii</i> | California Red-legged Frog |
| L <i>Rana catesbeiana</i> | Bullfrog |
| L <i>Rana muscosa</i> | Mountain Yellow-legged Frog |

Order Chelonia

Family Emydidae

- | | |
|------------------------------|--------------------------|
| * P <i>Clemmys marmorata</i> | Southwestern Pond Turtle |
|------------------------------|--------------------------|

Order Squamata

Family Annielidae

- | | |
|---------------------------|---------------------------|
| P <i>Anniella pulchra</i> | California Legless Lizard |
|---------------------------|---------------------------|

Family Anquidae

- | | |
|---|---------------------------|
| L <i>Gerrhonotus multicarinatus webbi</i> | Southern Alligator Lizard |
|---|---------------------------|

Family Boidae

- | | |
|--|------------------|
| L <i>Lichanura trivirgata roseofusca</i> | Coastal Rosy Boa |
|--|------------------|

Family Colubidae

- | | |
|--|-------------------------------|
| L <i>Hypsiglena torquata</i> | Night Snake |
| L <i>Rhinocheilus lecontei lecontei</i> | Western Long-nosed Snake |
| L <i>Tantilla planiceps</i> | California Black-headed Snake |
| * L <i>Thamnophis hammondi hammondi</i> | Two-striped Garter Snake |
| * L <i>Thamnophis sirtalis infernalis</i> | Red-sided Garter Snake |
| L <i>Trimorphodon biscutatus vandenburghii</i> | California Lyre Snake |

Family Colubridae

L <i>Arizona elegans occidentalis</i>	Glossy Snake
L <i>Coluber constrictor mormon</i>	Western Yellow-bellied Racer
L <i>Diadophis punctatus similis</i>	Ringneck Snake
L <i>Lampropeltis getulus californiae</i>	California Kingsnake
L <i>Lampropeltis zonata pulchra</i>	San Diego Mountain Kingsnake
P <i>Masticophis flagellum piceus</i>	Coachwhip
L <i>Masticophis lateralis lateralis</i>	California Whipsnake
L <i>Pituophis melanoleucus annectens</i>	Gopher Snake
L <i>Salvadora hexalepis virgutea</i>	Western Patch-nosed Snake

Family Eublepharidae

L <i>Coleonyx variegatus abbottii</i>	San Diego Banded Gecko
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Family Iguanidae

O <i>Sceloporus occidentalis biseriatus</i>	Western Fence Lizard
O <i>Sceloporus orcutti</i>	Granite Spiny Lizard

Family Leptotyphlopidae

L <i>Leptotyphlops humilis humilis</i>	Western Blind Snake
--	---------------------

Family Lguanidae

L <i>Phrynosoma coronatum blainvillii</i>	Coast Horned Lizard
P <i>Sceloporus graciosus vandenburgianus</i>	Sagebrush Lizard
L <i>Uta stansburiana</i>	Side-blotched Lizard

Family Scincidae

L <i>Eumeces gilberti rubricaudatus</i>	Gilbert Skink
L <i>Eumeces skiltonianus interparietalus</i>	Western Skink

Family Teiidae

L <i>Cnemidophorus hyperythrus beldingi</i>	Orange-throated Whiptail
L <i>Cnemidophorus tigris multiscutatus</i>	Western Whiptail

Family Viperidae

L <i>Crotalus mitchellii pyrrhus</i>	SW Speckled Rattlesnake
L <i>Crotalus ruber ruber</i>	Red Diamond Rattlesnake
C <i>Crotalus viridis helleri</i>	Southern pacific Rattlesnake

Family Xantusiidae

P <i>Xantusia henshawi henshawi</i>	Granite Night Lizard
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Order Urodela

Family Plethodontidae

P <i>Aneides lugubris</i>	Arboreal Salamander
L <i>Batrachoseps pacificus major</i>	Pacific Slender Salamander
L <i>Ensatina escholtzii escholtzii</i>	Monterey Salamander
L <i>Ensatina escholtzii klauberi</i>	large-blotched Salamander

Family Salamandridae

P <i>Taricha torosa torosa</i>	California newt
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L -(Likely) Verified by collections in the San Diego Natural History Museum collection catalogs to exist in the Palomar Mountain area. Most records are from Ben Banta's pitfall trap survey of Nate Harrison Grade, Mt. Palomar between 1970-1972.

P -(Possible) Range overlaps Research Natural Area, but there are no verified collection data from SDNHM.

Likely and possible in no way imply their abundance.

@ -Hyla cadaverina is not found sympatric with H. regilla.

* -Partially to totally aquatic

Aqua Tibia
Mammals Likely in the ~~Eagle-Cragg~~ RNA

Order

Family Ruminantia

<i>Odocoileus hemionus</i>	Mule Deer	O
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Order Carnivora

Family Canidae

<i>Canis latrans</i>	Coyote	O
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<i>Urocyon cinereoargenteus</i>	Grey Fox	O
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Family Felidae

<i>Felis concolor</i>	Cougar	O
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<i>Lynx rufus</i>	Bobcat	
-------------------	--------	--

Family Mustelidae

<i>Mephitis mephitis</i>	Striped Skunk	O
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Family Procyonidae

<i>Bassaricus astutus</i>	Ringtail	
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<i>Procyon lotor</i>	Raccoon	
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Order

Family Soricidae

<i>Sorex ornatus</i>	Ornate Shrew	
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Order

Family Leporidae

<i>Sylvilagus bachmani</i>	Brush Rabbit	
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Order Rodentia

Family Cricetidae

<i>Neotoma fuscipes</i>	Woodrat	
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<i>Peromyscus boylii</i>	Brush Mouse	
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<i>Peromyscus californicus</i>	California Mouse	
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O- Observed

Peromyscus maniculatus
Reithrodontomys megalotis

Deer Mouse
Western Harvest Mouse

Family Heteromyidae

Dipodomys sp.
Perognathus longimembris

Kangaroo Rat
Pocket Mouse

Family Sciuridae

Eutamias merriami
Glaucomys sabrinus
Sciurus griseus

Merriam Chipmunk
Northern Flying Squirrel
Gray Squirrel

O

O- Observed

APPENDIX C

MANAGEMENT DIRECTION FOR THE ATRNA
TAKEN FROM THE CLEVELAND NATIONAL FOREST
LAND AND RESOURCES MANAGEMENT PLAN AND
FINAL ENVIRONMENTAL IMPACT STATEMENT (1986)

Protection is provided through habitat maintenance and/or improvement and avoidance of adverse impacts. In areas where management projects are proposed, site specific reviews and where necessary field reconnaissances are conducted during the environmental analysis process. If a sensitive species is located the potential effect is assessed and appropriate mitigation measures are established. This inventoring of sensitive plants and of habitat evaluation is an integral part of Forest resource management.

SOILS

Forest soils are predominantly coarse-textured, shallow, and have little profile development. Bedrock typically occurs within 20 inches of the surface and ranges from soft, highly weathered sedimentary rock to hard, fractured granite.

As determined during the analysis of the management situation for the Forest Plan, about 70 percent, or 282,000 acres of Forest soils have relatively low productive capabilities: less than 400 pounds of vegetation per acre per year. Productivity depends on climatic as well as soils properties and the least productive soils occur at low elevations where precipitation is least. The capability of the most productive soils ranges from 1,000 to 2,400 pounds of vegetation per acre per year, but they occur on only 25 percent of the Forest. These soils generally have sandy loam or loam textures in the surface and may have subsoils with considerably finer textures, including clay. They are deep, with high water holding capacities and are typically located in valley bottoms or on gently rolling hills. Soils with the greatest productive capability are at higher elevations where rain fall is greater and grasses, conifers, or oaks are usually the predominant vegetation. Many soils are located on steep slopes and have inherently high susceptibility to erosion. About 10 percent of the Forest has slopes over 60 percent, and 55 percent has slopes between 31 and 60 percent. Soils on slopes exceeding 60 percent are considered as sensitive watershed areas, for which management is generally aimed at protecting and maintaining soil resource values.

SPECIAL AREAS

In addition to Wilderness, other protected areas have been established for the preservation of natural ecosystems. These land classifications are Research Natural Area, Special Interest Area, and National Natural Landmark.

Research Natural Areas

A Research Natural Area (RNA) is an area typifying an important forest resource which is set aside for non-manipulative observation, research and ecological study. It is to be maintained in a virgin, unmodified condition, except for treatment necessary to maintain the plant community of which it is representative. There are no RNAs on the Cleveland now. Three sites are recommended under this Plan for the preservation of big cone Douglas-fir, Englemann oak, and Cuyamaca cypress.

* 1. Agua Tibia Site (big cone Douglas-fir) - 400 acres

Big cone Douglas-fir is not very common in large stands on the Forest. It does occur in many small stands. The largest suitable site for a RNA is located within the Agua Tibia Wilderness and is about 400 acres in size. The site is relatively undisturbed and contains typical big cone Douglas-fir habitat characteristics.

2. Organ Valley Site (Englemann oak) - 600 acres

The Englemann oak woodlands are distributed within a very limited area of cis-motane southern California and northern Baja California, Mexico. Many of the original groves have been destroyed by overgrazing and/or development. Further, many of the Forest's Englemann oak stands are unsuitable for nomination as a RNA due to small size, inaccessibility, and/or past disturbances. The site being recommended for nomination is known as Organ Valley, located on Black Mountain. This site suffers to some degree from those deteriorating factors mentioned above, but it is the best area within the Forest, accessible, and of adequate size (600 acres including a buffer zone of chaparral around the grove).

3. King Creek Site (Cuyamaca cypress) - 750 acres

"The ancient genus Cupressus, once widespread in North America, is now reduced to many disjunct, isolated, apparently relic populations of which the Cuyamaca cypress is the smallest and rarest. It occurs on King Creek at six stations on national forest and state Park land on Cuyamaca Peak with an estimated total of 43 acres. All of these King Creek cypress stations burned in 1950 fire; cypress within the state park suffered a reburn in 1970" [6].

A 750 acre RNA is recommended by this plan to include all of the above stands (stations) on National Forest System Lands as well as a buffer zone.

Special Interest Area

Unlike RNA classification, designation as a Special Interest Area (SIA) would not remove a site from the multiple-use philosophy of Forest management. While priority consideration is in the protection and preservation of one or more specific characteristics, an SIA may be used, where appropriate, to foster public awareness and enjoyment of areas which have special scientific or recreational values. The Guatay Mountain site (435 acres) is recommended for classification as a special interest area because of its old growth stand of Tecate cypress. This classification affords an opportunity to protect and preserve this unique conifer species.

The West Fork of the San Luis Rey River (86 acres) is also recommended for classification because of its wild trout fisheries.

National Natural Landmark

No sites are currently being considered for designation under this category.

SPECIAL AREAS

There are several possible special area land designations, with varying degrees of restrictiveness imposed on management activities, that can be established for naturally-occurring land and water characteristics and plant species. One of the public issues that has been raised concerns the specific targets, suitable areas, and the most appropriate designation.

In addition to wilderness other areas have been established for the preservation of natural ecosystems. These land classifications are Research Natural Area, Special Interest Areas, and National Natural Landmark. No sites are currently being considered for designation as a National Natural Landmark.

RESEARCH NATURAL AREAS

A Research Natural Area (RNA) is an area typifying an important forest resource which is set aside for non-manipulative observation, research and ecological study. It is to be maintained in a virgin, unmodified condition, except for treatment necessary to maintain the plant community of which it is representative. There are no Research Natural Areas on the Cleveland now. Six sites are under consideration for the preservation of: 1) big cone Douglas-fir, 2) Englemann oak, 3) Cuyamaca cypress, 4) Tecate cypress, 5) coastal sage chaparral, and 6) chamise chaparral. Coastal sage chaparral and chamise chaparral areas are not being considered at this time because there are extensive areas available on both the Cleveland and San Bernardino National Forests, and further study is necessary to identify the best areas for recommendation of these vegetation types. Tecate cypress sites will also be considered at a later date including Bureau of Land Management lands currently administered by the Forest in the Otay Mountain area.

1. Agua Tibia Site (big cone Douglas-fir)

Big cone Douglas-fir is not very common in large stands on the Forest. It does occur in many small stands. The largest suitable site for a RNA is located within the Agua Tibia Wilderness and is about 400 acres in size. The site is relatively undisturbed and contains typical big cone Douglas-fir habitat characteristics. It occurs on northern aspects and canyon bottoms at lower elevations, and on various aspects at higher elevations. It has a sparse herb layer and occurs on very steep slopes.

The trees are somewhat fire resistant, but could be eliminated by frequent fires. The surrounding vegetation, that would provide a buffer zone, is predominantly broadleaf chaparral. Access to the site is either through Cutca Valley or through the Mission Indian Reservation. Both involving some strenuous hiking.

Management Area Research Natural Areas

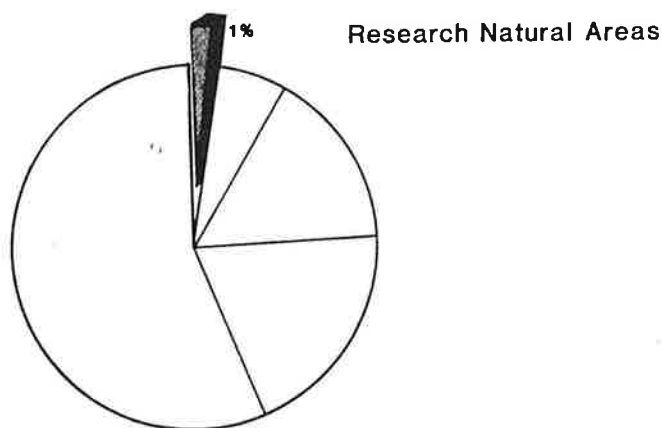
A. Emphasis

Management of RNAs emphasizes protection and enhancement of botanical features for research. Management direction stresses maintaining natural conditions and protecting the features for which they are established. Additional site specific direction for each will be incorporated into their establishment documents or subsequent management plans.

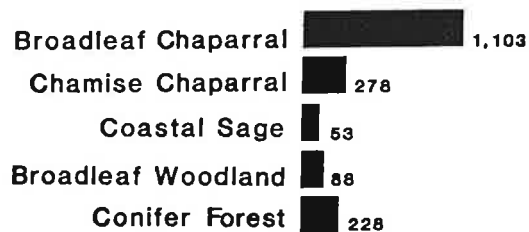
B. Land Classifications

RNA

● PERCENT OF LAND BASE



● VEGETATION TYPE DISTRIBUTION



Total: 1,760 acres

D. Practices

The following practices may occur on the RNAs as necessary to maintain or protect the natural values of the areas.

<u>Practice</u>	<u>Applicable Land Classes or Areas</u>
1. Vegetation Management (Prescribed burning)	All vegetation types on all areas.
2. Soil and Water Improvement	All vegetation types.

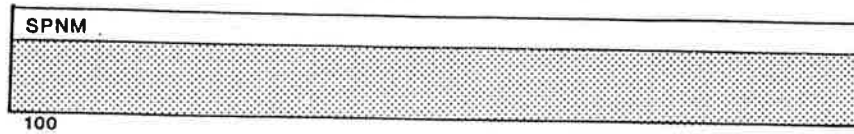
E. Vegetation Management Standards

Prescribed burning will be compatible with protection of resources of each RNA. It may be used to maintain the natural processes within the areas. Some locations or vegetation communities within the RNAs may be excluded from prescribed burning as determined by site specific analysis. Forest-wide standards and guidelines listed in this document and additional standards specified in the management plans for each area will apply.

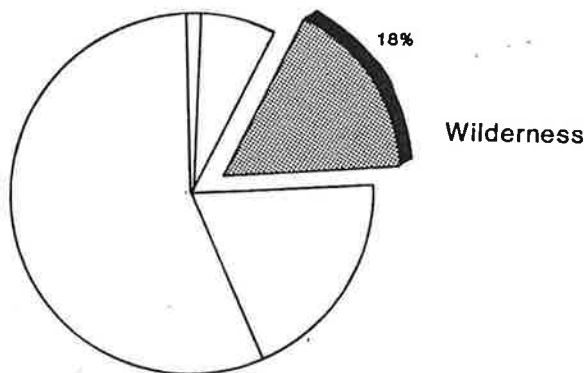
B. Land Classifications

W

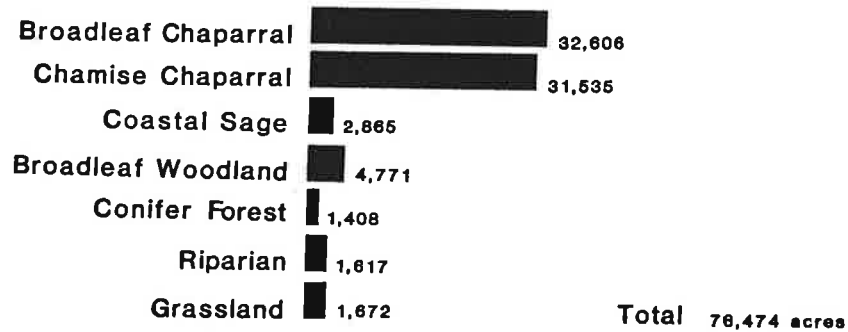
● RECREATION OPPORTUNITY SPECTRUM %



● PERCENT OF LAND BASE



● VEGETATION TYPE DISTRIBUTION



C. Management Area Direction

APPLICABLE TO ALL WILDERNESS

1. Fire and Fuels

- a. Establish effective communication with wilderness users to minimize wildfire starts and provide for user safety.
- b. Allow no open campfires.
- c. Motorized vehicle and equipment use is allowed for emergency purposes only.
- d. Require that aerial tankers use water or retardant with fugitive dye on fires whenever possible.
- e. The allowable wildfire size (acres) objectives and suppression strategies for fire intensity levels are:

Intensity	Maximum	Suppression
<u>Level(s)</u>	<u>Allowable Size</u>	<u>Strategy</u>
1 - 2	75	Contain
3	50	Contain
4 - 6	10	Control

2. Range

- a. Allow livestock grazing.
- b. Allow construction and maintenance of livestock facilities.

3. Recreation

- a. Provide adequate trailhead facilities adjacent to wilderness.
- b. Develop carrying capacities specific to each wilderness area and manage to those capacities.
- c. Monitor established wilderness area carrying capacities over time and modify if needed.
- d. Limit hikers to 15 persons per group.
- e. Allow no camping within 100 feet of live streams, except at designated sites.
- f. Designate campsites within 100 feet of live streams only when natural features make this necessary.
- g. Institute a pack-in, pack-out litter policy.
- h. Sign trails only as necessary for informed progressive travel.
- i. Limit equestrian users to 8 persons per group.
- j. Allow no tying, picketing, hobbling, or loose herding of recreation livestock within 100 feet of streams.
- k. Allow no pack and saddle stock on trails that are not maintained for stock use.
- l. Expand trail systems.
- m. Manage remnants of roads as trails.
- n. Locate new trails to minimize impacts on wildlife habitat diversity.

4. Vegetation

- a. Upon approval by the Regional Forester, use prescribed burning to re-establish or maintain natural growth patterns and diversity, or other wilderness values.

5. Visual Resources
 - a. The Preservation Visual Quality Objective is adopted.
6. Wildlife and Fish
 - a. Emphasize natural ecological processes for natural distribution and abundance of native species.

APPLICABLE TO AGUA TIBIA WILDERNESS ONLY

1. Recreation
 - a. Limit carrying capacity to 60 persons overnight.
 - b. Upon completion of the trail system, raise the carrying capacity to 135 persons.
 - c. Validate the estimated carrying capacity and change if necessary.
 - d. Provide primitive camping opportunities near the wilderness and encourage their use.
2. Range
 - a. Allow no livestock grazing.

Wilderness Areas	Acres
Agua Tibia	15,934
Hauser	8,000
Pine Creek	13,000
San Mateo.	39,540

D. Practices

The resource management practices that will occur on the management area are listed below. The land classes or specific areas within the management area to which the practices may be applied are also specified.

<u>Practice</u>	<u>Applicable Land Classes or Areas</u>
1. Trail Construction and Maintenance	All areas.
2. Livestock Grazing	All vegetation types. All wilderness but Agua Tibia.
3. Water and Soil Improvement	All areas.
4. Range Improvement	All vegetation types. All wilderness but Agua Tibia.
5. Prescribed burning	All vegetation types.

E. Vegetation Management Standards

Prescribed burning would be conducted to restore or maintain natural conditions throughout the wilderness areas. Some areas may be excluded from prescribed burning treatment upon site specific analysis because of vegetation or soil conditions. Burning will be conducted to accomplish wilderness fuels management objectives. Forest-wide standards and guidelines applicable to vegetation management and diversity will apply and guide the application of prescribed burning.

CLEVELAND NATIONAL FOREST

U.S.D.A.
FOREST SERVICE
PACIFIC SOUTHWEST REGION

