

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 effect 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.

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 non-manipulative 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.

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°56' West Longitude, and 33°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 ATRNAs 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 aquired, 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).

M. REFERENCES

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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 _____ Date _____
Ayn J. Martin, Associate Area Ecologist, Gifford Pinchot National Forest,
Pacific Northwest Region

Recommended by _____ Date _____
Dennis Orbus, District Ranger, Palomar Ranger District, Cleveland
National Forest

Recommended by _____ Date _____
Michael Rogers, Forest Supervisor, Cleveland National Forest

Recommended by _____ Date _____
Paul F. Barker, Regional Forester, Pacific Southwest Region

Recommended by _____ Date _____
Ronald E. Stewart, Station Director, Pacific Southwest Forest and Range
Experiment Station

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 7 CFR 2.42, 36 CFR 251.23, and 36 CFR Part 219, I hereby establish the Agua Tibia Research Natural Area. It shall comprise 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.

I have reviewed the Cleveland National Forest Land and Resource Management Plan (LRMP) direction for this RNA and find that the management direction cited in the previous paragraph is consistent with the LRMP and that a Plan amendment is not required.

The Forest Supervisor of the Cleveland National Forest shall notify the public of this decision and will 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 upon 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)).

Chief

Date

APPENDICES

Agua Tibia Research Natural Area

Appendix A: Flora

Appendix B: Fauna

Appendix C: Management Direction for the ATRNA

APPENDIX A

FLORA

APPENDIX B

FAUNA

APPENDIX C

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

MAP 1
Agua Tibia Research Natural Area

Location within the Cleveland National Forest and Access Routes

Location of Research Natural Area

Research Natural Area Boundaries

Agua Tibia Wilderness Boundaries

Motorized Access Route (see text)

Hiking Trail

MAP 2
Agua Tibia Research Natural Area

Research Natural Area Boundaries & Trails

Research Natural Area Boundaries

Magee Palomar Trail (2W01.3)

Cutca Trail (1E01) T. 9 S. R. 1 W.

MAP 3
Agua Tibia Research Natural Area

Vegetation Types

HOLLAND (1986) TYPE	SAF (Eyre 1980) TYPE	KUCHLER (1966) TYPE
Bigcone Douglas-fir- Canyon Live Oak Forest (84150)	Canyon Live Oak Forest (249)	California Oakwoods (K-26)
Montane Manzanita Chaparral (37520)	Unclassified	Chaparral (K-29)
Canyon Live Oak Forest (81320)	Canyon Live Oak Forest (249)	California Oakwoods (K-26)

T. 9 S. R. 1 W.

MAP 4
Agua Tibia Research Natural Area

Soil Series

Research Natural Area Boundaries

Crouch Series

CuG -rocky, coarse sandy loam, 30-70% slopes.
CuE -rocky, coarse sandy loam, 5-30% slopes.

Tollhouse Series

ToG -rocky, coarse sandy loam, 30-65% slopes.
ToE₂ -rocky, coarse sandy loam, 5-30% slopes,
eroded.

T. 9 S., R. 1 W.

TITLE PAGE

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

MAPS

Agua Tibia Research Natural Area

Map 1: Location and Access Routes

Map 2: Boundaries and Trails

Map 3: Vegetation Types

Map 4: Soil Series