

UNIT 306

CALAVERAS BIG TREES STATE PARK

GENERAL PLAN

May 1989



CALAVERAS BIG TREES STATE PARK Preliminary General Plan

*State of California — The Resources Agency
Department of Parks and Recreation*



*George Deukmejian, Governor
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Summary

SUMMARY

The General Plan for Calaveras Big Trees State Park deals with a significant recreation resource on the slope of the western Sierra Nevada. Visitation at this unit of the State Park System has averaged 130,000 to 180,000 persons per year for the last ten years. Most visitors are attracted to Calaveras by its unique natural features, and by opportunities for camping, hiking, nature study, picnicking, swimming, and fishing.

This document embraces a wide variety of planning and management concerns, and is intended to provide guidelines for future development of visitor facilities, protection of the unit's resources, and operation of the park.

The plan emphasizes recreation activities at appropriate locations throughout the 6,000-acre park, and preservation of the unit's character and resources.

Resource protection measures proposed in the General Plan include:

- * Protection of the quality, quantity, and biological integrity of the unit's water features, and their relationships with other park values.
- * Active involvement by the department in land use decisions for all lands upstream from the park that may affect hydrologic resources.
- * Management of most of the unit's vegetation toward a natural condition.
- * Management of the North and South Calaveras redwood groves to restore, if necessary, and maintain conditions in as nearly as possible the natural manner that would have occurred in the absence of interference by Euroamerican people.
- * Restoration and maintenance of natural conditions in all of the park's primeval forests.
- * Continuation of efforts to reduce, and ultimately eliminate, alien plant species occurring in the unit.
- * Management measures to protect the unit's cultural resources, including Native American and Euroamerican sites and artifacts.
- * Management measures to protect the historically significant California Conservation Corps structures in the park.

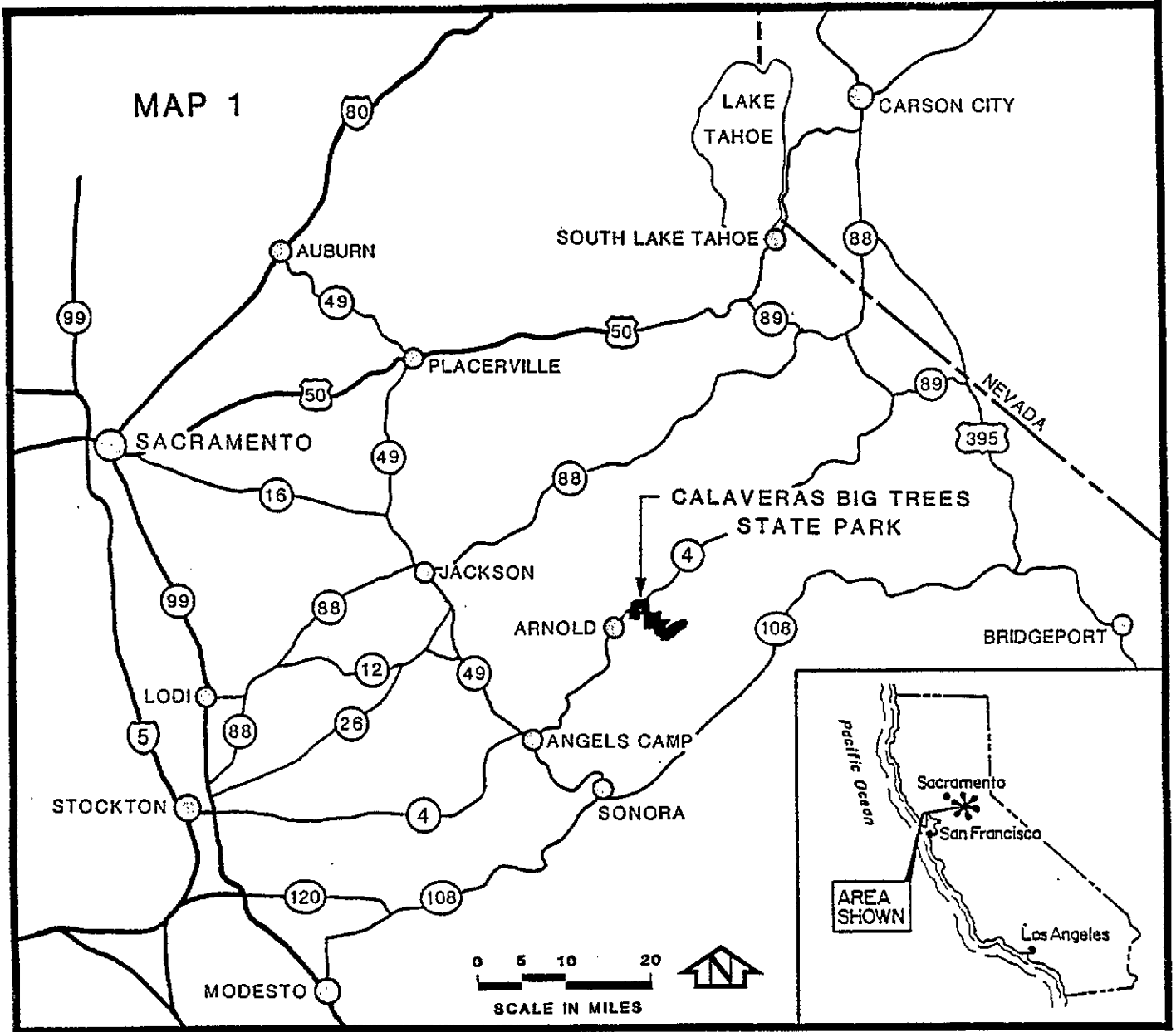
Land use objectives in the plan include:

- * Restoration of the North Grove Meadow and the surrounding environs to a natural state.
- * Expansion and improvement of interpretation of the natural and cultural resources.
- * Improvement of visitor orientation to the park and the surrounding area.
- * Improvement and increasing of interpretive trails throughout the park.

- * Improvement of traffic movement and visitor flow, particularly at the entrance station, the visitor center, the North Grove trailhead, and the river day use area.
- * Provision of convenient and adequate parking at interpretive and day use areas.
- * Enhancement and increasing of winter recreational opportunities.
- * Improvement and increasing of access along the Stanislaus River.
- * Improvement and increasing of overnight use without jeopardizing the quality of the canoeing experience.
- * Upgrading of administrative areas for more efficient and effective operation of the park.

Facilities recommendations in the plan include:

- * Replacing the present visitor center with a larger facility, at a location better oriented to the North Grove and more convenient for visitors.
- * Relocating the North Grove campfire center to the proposed campground at the West Moran site.
- * Developing new campgrounds at the West Moran and East Moran sites; removing the campground circling the North Grove Meadow, and restoring the area to a natural condition.
- * Improving the unit's interpretive trails; developing several new trails.
- * Developing a house museum to be located in the improved park office.
- * Relocating the North Grove picnic area after removal of the North Grove Campground.
- * Making improvements to the unit's maintenance area, the park entrance from State Route 4, Big Trees Hall, the river picnic area, the river access and use area, the Beaver Creek picnic area, the scenic overlook, the Oak Leaf Springs picnic area, the Group Campground, the Oak Hollow Campground, and the Beaver Creek environmental camps.
- * Relocating the Group Campground to the West Moran site; developing a new mini-group campground in the same area.



STATE AND REGIONAL LOCATION MAP



Introduction

INTRODUCTION

Purpose of Plan

This General Plan provides guidelines for long-term management and development of Calaveras Big Trees State Park. Prepared by the California Department of Parks and Recreation to satisfy requirements of Public Resources Code Section 5002.2, its approval by the State Park and Recreation Commission is required prior to any development that would constitute a permanent commitment of natural or cultural resources.

The plan summarizes the available information about the park, documenting the planning process and the relevant data used in making resource management, land use, operational, and development proposals. As conditions change, the plan may be reviewed and updated as necessary to responsibly guide departmental actions at the park. The plan, however, is not meant to provide detailed descriptions for either site development or day-to-day management. For instance, overnight, day-use, and parking capacities indicated by the plan are approximate only, indicating maximum capacities, and may be less when specific site plans are prepared for funding and implementation. Details of resource management are left for inclusion in specific resource programs that will be prepared at a later date.

This document also serves as an environmental impact report, predicting the natural and cultural impacts that could occur as the recommendations contained in the General Plan are implemented. However, the preliminary nature of these recommendations does not necessarily allow for adequate assessment of the environmental impacts, and more detailed studies may need to be conducted prior to actual development.

Discussions about land not owned by the Department of Parks and Recreation have been included. These lands may represent potential acquisition opportunities, based on available data. However, the discussions are intended for planning purposes only, and do not represent a commitment for acquisition.

General Plan Outline

The plan is made up of the following elements which reflect the department's responsibility to fulfill certain goals:

The Resource Element evaluates the natural and cultural resources of the park, and sets management policies for protection, restoration, and perpetuation of these resources.

The Interpretive Element proposes programs and facilities for public information and interpretation of the park's natural and cultural resources.

The Concessions Element summarizes opportunities to provide appropriate goods or services to the public through concessions in existing or proposed facilities.

The Operations Element describes specific requirements for efficient operation of the park, including visitor services, maintenance, and resource functions; and defines operational requirements unique to the park.

The Land Use Element describes current land uses and relevant planning issues, determines proposed land uses consistent with the resources and the unit classification, and outlines land use objectives and recommendations.

The Facilities Element describes current facilities and proposed development to enhance public enjoyment and appreciation of the park; to provide for recreational opportunities; and to establish priorities for park development.

The Environmental Impact Element (EIE) predicts the effects the proposed developments will have on park and adjacent resources, and, when necessary, describes measures to be taken that will mitigate those effects. Together with the other elements of this plan, the EIE serves as the Environmental Impact Report required by the California Environmental Quality Act.

Unit Identification

Calaveras Big Trees State Park is located along the slope of the western Sierra Nevada (Map 1). The unit is located in the Sierra Nevada Landscape Province.

The sole public access to the park is via State Route 4, which also provides access to the nearest community to Calaveras Big Trees, the unincorporated town of Arnold, located three miles west of the park entrance.

The park is bisected by the North Fork Stanislaus River (Map 2), which forms a deep canyon that separates its two most significant natural features: the North and South Groves of Sierra redwood. Almost all of the park's 6,000 acres are covered by mixed coniferous forests, with other plant communities comprising only a few dozen acres. These minor communities include montane meadow, riparian, oak woodland, and grassland.

The park contains one subunit: the Calaveras South Grove Natural Preserve. The preserve is 1,450 acres in size, and was created in 1984, in recognition of the outstanding quality of this untouched forest.

Other lands owned by the State Park System near Calaveras Big Trees are Indian Grinding Rock and Columbia State Historic Parks, located north and southwest of Calaveras, respectively.

The Planning Process

The planning process included a comprehensive evaluation of the roles various agencies are playing in preserving significant cultural and natural values and in providing recreational opportunities in this area of the state. Current recreational patterns of the many varied segments of the state's population were also examined in order to identify specific needs to be met by the park. This information, coupled with detailed resource inventories and public comments, provided the foundation for the various development and management proposals contained in this plan.

Regional Recreation Profile

Calaveras Big Trees State Park, located in east central California, 60 miles east of Stockton, provides visitors with varied recreational opportunities consistent with the unit's classification. These include camping, hiking, nature study, picnicking, swimming, and fishing.

The unit is located in the California Outdoor Recreation Resources Plan's (CORRP) District 5, which includes the counties of San Joaquin, Stanislaus, Merced, Tuolumne, Calaveras, Amador, and Alpine. The park itself is located in both Calaveras and Tuolumne counties. This district provides diverse recreational experiences for the public, from boating on valley lakes and rivers to mountain climbing and backpacking in the Sierra Nevada.

Approximately 66% of the 9,622 square miles in District 5 are privately owned, mostly as agricultural land in the Central and San Joaquin Valleys. The eastern portion of the district, consisting of the mountain counties of Amador, Alpine, Calaveras, and Tuolumne, is largely publicly owned, with the U.S. Forest Service being the largest landholder (1,193,631 acres), followed by the National Park Service (434,492 acres), with the Bureau of Land Management, Bureau of Reclamation, and Department of Defense managing a combined total of 210,699 acres. The State Park System manages 33,830 acres of land in the district.

In spite of the diversity of recreational opportunities, tourism in District 5 is light. Compared with the rest of the state, the district accounts for 3% of California's population, and 4% of the total recreational activity. Still, tourism is the primary source of income for the mountain counties.

Projections by the California Department of Parks and Recreation to the year 2,000 show that the highest demand for recreational activities (of those available in the vicinity of Calaveras Big Trees State Park) will continue to be hiking and backpacking, followed by nature studies, picnicking, camping, visiting scenic areas, fishing, swimming, and winter sports, in that order. (Data from PARIS-Parks and Recreation Information System.)

Recreation Participation at the Unit

Visitation records for Calaveras Big Trees State Park during the period from 1955 to 1988 (the period during which the park has been in its current configuration) indicate that there has been essentially no long-term change in attendance (Figure 1). The highest attendance figures for the period (those in excess of 200,000) occurred in 1957, 1958, and fiscal years 1967 and 1972. Low attendance years show a similar dispersion.

Statistical analysis shows that no significant increase or decrease in visitation has occurred during this period. This is inconsistent with the general increase in use of the State Park System over the same period, which has increased ten-fold, and with the state population, which has doubled.

The population of the local area has also grown over the past decades. Calaveras County more than tripled in population from 1960 (10,289) to 1988 (est. 34,045). The county has therefore already exceeded population

projections for 1990 (est. 32,271). Estimates from the California Department of Finance for the year 2,000 (42,800) are also likely to be exceeded. The community of Arnold has substantially increased in population during this period as well, and is now not only the fastest-growing community in the county, it is also the largest, with a population of 6,300 (est. for 1988). While some of this increase may be the result of an itinerant labor force associated with construction of a nearby hydroelectric project, Arnold is also heavily populated with a growing number of retired persons who are particularly interested in leisure-time activities.

The lack of growth in visitation at Calaveras Big Trees State Park is, therefore, anomalous with population trends. Reasons for this have not been determined, but it could be the result of an increase in other recreational facilities locally and statewide, development of more diverse forms of recreational activity, or simply refinement of attendance-gathering procedures at the unit. Whatever the reason, it is difficult to predict the future from the past record of Calaveras Big Trees, except that it is unlikely that future attendance will decrease over time.

The attendance figures indicate that the present range and scope of recreational facilities at the park are generally adequate for current use patterns, and are likely to remain so for the foreseeable future. Only in the area of camping and parking is there a demonstrable need for additional facilities, and surveys conducted at the park (in 1986) indicate that these need increase only slightly, in order to accommodate brief periods of high demand (i.e., specific days with special events and holiday weekends).

Public Involvement

The public played an important role in creating this plan. From the outset, the planning team attempted to identify all parties interested in or affected by the plan. Their participation in all phases of the planning process was actively sought, through public meetings, newsletters, discussions at interpretive activities, and personal interview surveys.

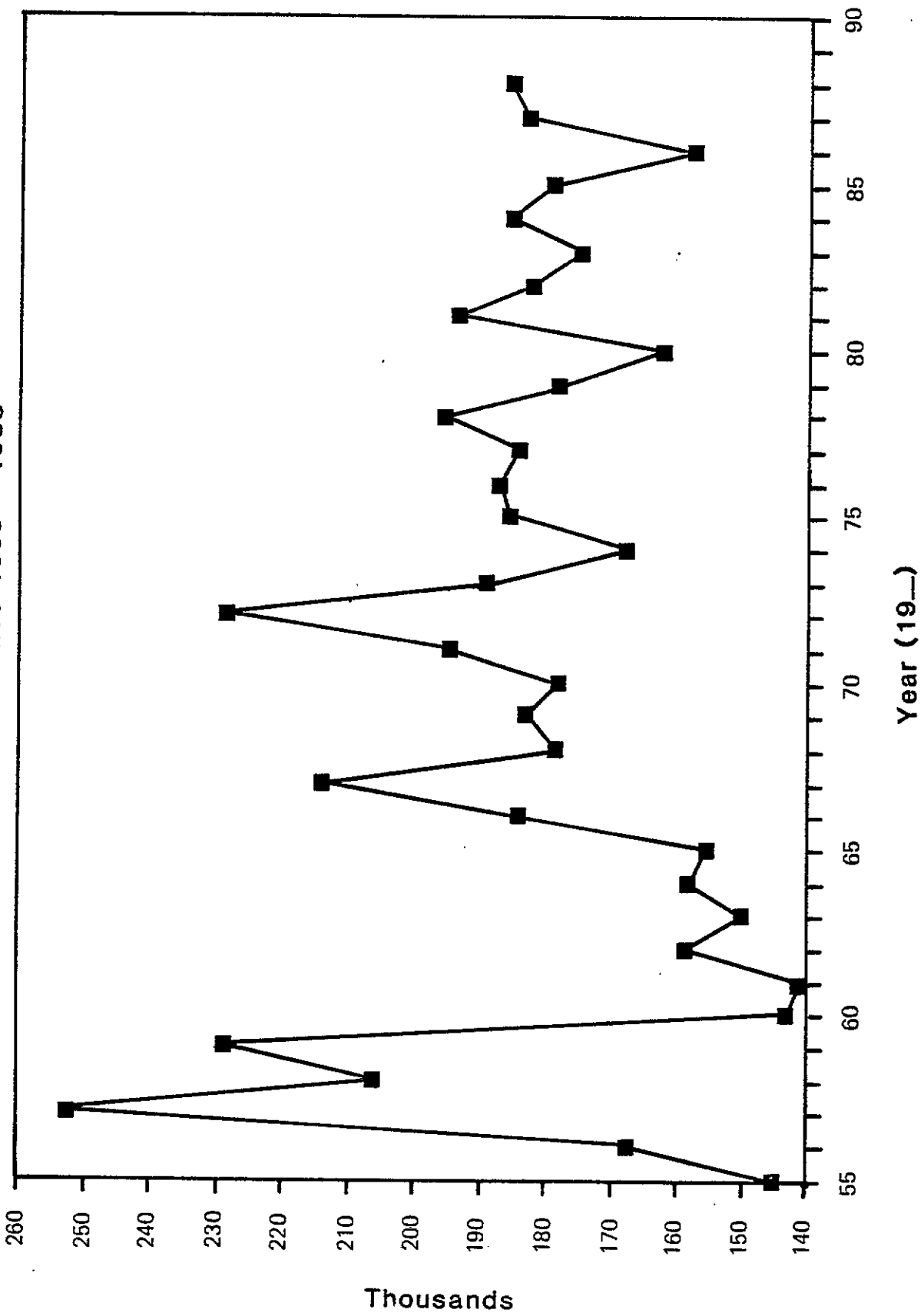
Public opinion was first sought during preparation of the Resource Element. One public meeting was held at Calaveras Big Trees State Park regarding this element, in order to receive comments on an early draft.

Work began on a full general plan when a mailing list was established that eventually distributed information to 149 individuals, associations, companies, and government agencies. News releases also advised the public of planning activities, encouraged more active participation at public meetings, and offered inclusion on the mailing list. A total of seven newsletters was sent out.

Public opinion was also gauged by visitor use surveys conducted by personal interview. A total of 369 surveys were conducted during the summer of 1986, which were oriented to specific visitor activities. Thus, 185 surveys were conducted in the campground, 84 on trails, 70 in picnic areas, and 30 in the visitor center (Appendix 3).

CALAVERAS BIG TREES STATE PARK

Annual Attendance 1955 - 1988



Information on public opinion was also gathered at four meetings held during the summer of 1986. Two were oriented toward all interested parties, while the other two were oriented toward campers, since so much of the plan was dealing with campground issues. Although attendance at these meetings was moderate, the resulting views and attitudes offered by the public were of great value in the planning process.

The planning team was particularly interested in determining the public's attitude toward potential changes in the park's design and function that were mandated by the previously prepared Resource Element. The meeting therefore focused on these matters, especially on element policies that provided for relocation of the North Grove Campground and restoration of the North Grove Meadow. The consensus was that such changes should be made if required, but that the particular qualities of openness and spaciousness provided by the current campground should be retained in the new facility.

Involvement With Other Agencies

Numerous contacts were made with the following agencies that have, or might have, an interest in the General Plan for Calaveras Big Trees State Park:

- Amador County Tribal Council
- Big Trees Village Property Owners Association
- Blue Lake Springs Homeowners Association
- Calaveras Big Trees Association
- Calaveras County Board of Supervisors
- Calaveras County Chamber of Commerce
- Calaveras County Commission on Aging
- Calaveras County Planning Department
- Calaveras County Water District
- California Department of Fish and Game
- California Department of Forestry and Fire Protection
- California Department of Transportation
- California Native Plant Society
- California State University, Sacramento
- California State University, Stanislaus
- City of Angels Camp
- Ebbetts Pass Wonderland Association
- Georgia Pacific
- Jackson Rancheria
- Meadowmont Property Owners Association
- Pacific Gas and Electric
- Pinebrook Home Owners Association
- Public Anthropology Research
- Save-The-Redwoods League
- Sierra Club, Motherlode Chapter
- Tuolumne County Board of Supervisors
- Tuolumne County Commission on Aging
- Tuolumne County Planning Department
- Tuolumne Rancheria
- U.S. Forest Service, Stanislaus NF
- Western Fibreboard



Resource Element

RESOURCE ELEMENT

Purpose

The Resource Element, as a key portion of the General Plan, is required by the Public Resources Code, Section 5002.2(b). This section provides that the Resource Element shall contain, among other things, a declaration of purpose for the unit, and a declaration of resource management policy. The subsection reads as follows:

5002.2(b). The resource element of the general plan shall evaluate the unit as a constituent of an ecological region and as a distinct ecological entity, based upon historical and ecological research of plant-animal and soil-geological relationships and shall contain a declaration of purpose, setting forth specific long-range management objectives for the unit consistent with the unit's classification pursuant to Article 1.7 (commencing with Section 5019.50) of this chapter, and a declaration of resource management policy, setting forth the precise actions and limitations required for the achievement of the objectives established in the declaration of purpose.

In order that the Resource Element may be used as an independent document, without requiring frequent reference to the Resource Inventory, the following section, the Resource Summary, consists of a summary of the Resource Inventory, with brief statements on the extent and nature of each kind of park resource present, and evaluations of their significance, as appropriate. The Resource Inventory is available through the Resource Protection Division of the department. Each section of the inventory contains a list of references.

Following the Resource Summary is the policy portion of the Resource Element, containing three different levels of policy. First is the classification of the unit; next, Statements and Declarations of Purpose that have been adopted, together with proposed changes; and finally, the Resource Management Policies, which consist of specific management directives for each of the kinds of resources that are perpetuated and managed in Calaveras Big Trees State Park. Each of these sections constitutes an element that is required by the Public Resources Code. At appropriate places in the text, reference is made to applicable sections of the code.

Resource Summary

Natural Resources

Topography

Calaveras Big Trees State Park is located midway up the western slope of the central Sierra Nevada. The western slope is rather gentle, but is drained by deeply incised rivers that create steep northwest- and southeast-facing slopes. The major drainage in the park, the North Fork Stanislaus River, typifies this condition. This stream flows through a steep-walled canyon, with side slopes averaging about 40 to 50 percent, even though the stream itself possesses an average gradient of only 2 percent.

Elevations are highest at the northeast and southeast portions of the park (5,230 feet and 5,560 feet, respectively), while the lowest elevation is where the North Fork Stanislaus River leaves the park, at 3,415 feet. The park headquarters, at Highway 4 near the North Grove, is at 4,700 feet elevation.

Meteorology

Along with much of California, the western slope of the Sierra Nevada is in a region of Mediterranean climate, with typically warm, dry summers and cool, wet winters. Precipitation at Calaveras Big Trees State Park falls mainly as rain, although snow is frequent during the winter, and in some years may be heavy. The average annual precipitation is about 56 inches, approximately 25 percent of which occurs as snow.

Temperatures are rather mild throughout the year, rarely rising over 100°F, and only occasionally dropping below 20°F. The monthly mean high is 84°F (July), while the monthly mean low is 27°F (February).

The typical storm season begins between mid-October and late November, usually peaks in March, and subsides by May. Occasional summer thunderstorms are typical.

Hydrology

The principal hydrologic feature of Calaveras Big Trees State Park is the North Fork Stanislaus River. Rising at the crest of the Sierra Nevada, this stream flows for 2-1/2 miles through the park, in a southwesterly direction. Flows may typically approach 3,000 cubic feet per second (cfs) during spring runoffs, but drop to about 50 cfs by mid-summer. More than 1,600 acres in the park are drained directly by the North Fork, exclusive of the Beaver Creek drainage.

Other significant streams are Big Trees Creek (in the Calaveras South Grove), Beaver Creek, and a small stream in the Calaveras North Grove.

Big Trees Creek, with its associated watershed, is the largest hydrologic feature contained entirely in the park. It flows through the Calaveras South Grove Natural Preserve, and is an important spawning habitat for local fish populations. It is a small but usually perennial stream, draining approximately 1,300 acres.

Beaver Creek is an important tributary of the North Fork Stanislaus River, which it enters several miles west of the park. In the state park, it is a significant hydrologic, recreational, and esthetic resource. The stream lies southeast of the North Fork. Big Trees Creek, still farther southeast, joins Beaver Creek just before the latter leaves the western boundary of the park. Nearly 780 acres of park land are drained directly by Beaver Creek, exclusive of the drainage of Big Trees Creek, described above.

The small creek in the North Grove is a minor drainage, having an upper watershed that is entirely contained in Calaveras Big Trees State Park. It flows through the Calaveras North Grove, then through a portion of the adjacent campground, where it is associated with a meadow of about 10 acres in size. The stream is usually seasonal, although during years of above-normal precipitation, it may persist through the dry season. The creek's watershed comprises somewhat more than 750 acres of park land.

Groundwater is a minor feature both in the state park and in the surrounding area. It is found principally in bedrock fractures, rather than in extensive aquifers; in some places, it reaches the surface to form small springs.

Geology

Calaveras Big Trees State Park is located in the Sierra Nevada Geomorphic Province, east of the Mother Lode gold belt. Geologic units that crop out in the park include metamorphics of the Paleozoic Era, Cretaceous granitics, Tertiary volcanic flows and pyroclastic rocks, and Quaternary alluvium and colluvium.

The Tertiary Eureka Valley Tuff (Toll House Flat member) is exposed in two areas of the southwest part of the park: near Smith Gate, and along the ridgetop above the Lava Bluffs trail. The Toll House Flat member is an ash flow tuff that is moderately to densely welded, with abundant phenocrysts and rock fragments. The Table Mountain Latite underlies the Eureka Valley Tuff. It crops out in the bluffs visible from the Lava Bluffs trail, and appears on the spur ridge above the Lava Bluffs parking area. The rocks of the Table Mountain Latite are dark and dense, similar to basalt in appearance. The Mehrten Formation is the most extensively exposed volcanic formation in the park. It is exposed on the higher ridges on both sides of the river. The Mehrten Formation consists of andesitic ash flow deposits, volcanic conglomerate, and an ash flow tuff facies. The best example of a Mehrten ash flow deposit in the park can be observed in the parkway road cut at the entrance to the scenic overlook parking lot, on the ridge southeast of the North Grove.

The Cretaceous granitic rocks are the most widely exposed of the rock units occurring in the park. They form the "basement" for the entire park. Granitic rocks crop out along State Highway 4 from the western park boundary to the main entrance, and along the parkway from Oak Hollow Campground to Beaver Creek. Landslides have developed in the deeply weathered granitic rocks, especially in the road cuts along the parkway.

Metamorphosed sedimentary and volcanic rocks occur as small roof pendants in the granitic rocks. These mostly metaquartzite pods occur throughout the granitic terrain, especially near or on the ridgetops underlain by granitic rocks.

Landslides are not a widespread problem in Calaveras Big Trees State Park. There are, however, three major active slides in the park. Two of these are located northwest of the Stanislaus River, both are recurring problems, and both have the potential for closing the road that provides access to the Stanislaus River and South Grove areas. Both slides are underlain entirely by deeply weathered granitic rocks.

The larger slide occurs as a shallow slide on top of a larger, stabilized ancient slide. Water characteristically surfaces in the upper portion of the slide, flows along the top of the slide for a few yards, and percolates back into the slide mass.

The smaller slide is located approximately 300 yards to the west of the big slide. Although smaller, it is at least as important in its impact on the parkway.

Another area in which landslide problems may be developing is along the parkway between Oak Leaf Spring and the hairpin turn at the top of the ridge above Beaver Creek. Arcuate crack patterns, as well as slight depressions, are developing at several places in the roadway.

Soils

Calaveras Big Trees State Park is located in the California Soil Region (Region III), referred to as the "Sierra Nevada, Trinity, Cascade, and Sierra of Southern California" soil region. Soils in this region are typically derived from igneous rocks, both intrusive and extrusive.

In the state park, the predominant parent material of the soils is from the granitic-granodiorite complex of the Sierra Nevada pluton. Other soils develop from andesitic volcanic deposits, and, less commonly, from metasedimentary rocks associated with the granitics. These last soils are typically shallow and poorly developed.

The volcanic soil types are usually found on ridgetops, where the parent material forms caps over the granitic bedrock. Placement and ease of erosion result in shallow, rocky soils.

Granitic rock forms are easily erodible to great depth, giving rise to well-developed soils, although they may be unstable on steep slopes, resulting in landslides. In the state park, the granitic soils are very productive, resulting in extensive forests of ponderosa pine, sugar pine, white fir, and incense-cedar, embracing also the two groves of Sierra redwood.

Although the area of the park has been mapped for soil series by various agencies, these studies have been portions of statewide or regional projects that cover the state park in general terms only. Also, even a cursory examination reveals that existing studies contain significant inaccuracies. The lack of reliable information on park soils makes site-specific planning difficult, particularly when it involves moderate to steep slopes or extensive soil alteration.

Plant Life

Calaveras Big Trees State Park lies in the Lower Montane Forest of the Sierran Floristic Province, a broad belt lying between 3,000 and 6,000 feet elevation at this latitude. The park is situated in the midst of an extensive and thriving coniferous forest, dominated by ponderosa pine (Pinus ponderosa), a tree well adapted to temperate climates. Associated tree species include incense-cedar (Calocedrus decurrens), sugar pine (Pinus lambertiana), and white fir (Abies concolor) among the conifers; and black oak (Quercus kelloggii), bigleaf maple (Acer macrophyllum), and Pacific dogwood (Cornus nuttallii) among the hardwoods. The conifers form a forest of truly giant trees, each of the four species attaining its best development here on the western slope of the Sierra Nevada. Shrub species associated with them include greenleaf manzanita (Arctostaphylos patula), whitethorn ceanothus (Ceanothus cordulatus), and deerbrush (C. integerrimus).

These plant species associate themselves into communities broadly based on aspect, with ponderosa pine dominating on the warmer, south- or west-facing slopes, and white fir dominating on the cooler, east- or north-facing slopes. Ridgetops, which typically possess shallow, rocky soils, support ponderosa pine (often poorly developed) and some chaparral species in a few places.

By far the most significant plant species found in the park, at least with respect to public interest, is the Sierra redwood (Sequoiadendron giganteum), also frequently called giant sequoia. (Other names for the species, found particularly in older literature, include Big Tree, bigtree, and simply sequoia. In the years immediately following discovery, the species was commonly called Mammoth Tree.) The presence of these trees is the primary factor that led to creation of Calaveras Big Trees State Park. The species occurs only on the western slope of the Sierra Nevada, from Placer County to southern Tulare County, in 75 recognized and named areas commonly called "groves." Only eight of these groves occur north of the Kings River, and in general, these eight are rather widely separated, in contrast to the more numerous groves farther south. Two of the eight northern groves are in Calaveras Big Trees State Park: the Calaveras North Grove and the Calaveras South Grove. No other Sierra redwood groves are in the State Park System.

The North Grove is the smaller of the two, with about 160 mature specimens. It is located adjacent to State Highway 4 and the most developed portion of the park, and is thus easily accessible.

The Calaveras South Grove is in the basin formed by Big Trees Creek, in the southeast portion of the park, about 4 air line miles from the North Grove. The South Grove itself is approximately 445 acres in size, and contains nearly 1,000 mature specimens of Sierra redwood. This makes it the largest of the eight groves north of the Kings River. This major grove, along with the enveloping forest of sugar pine, ponderosa pine, incense-cedar, and white fir, has remained essentially unmodified by humanity. The pristine nature of the area, along with the biological significance of the grove itself, led the State Park and Recreation Commission in 1984 to designate the basin as the Calaveras South Grove Natural Preserve.

A small but significant grassland community is found in the mountain meadow located near the park headquarters. The meadow has been altered by artificial drainage, grazing, and sowing of non-native annual grasses, all having taken place many decades ago. The borders of the meadow have been encroached on by the surrounding forest, due to drying conditions brought about by the artificial drainage, and to exclusion of periodic natural fires.

The larger waterways in the park (North Fork Stanislaus River, Beaver Creek, and Big Trees Creek) support rather narrow zones of riparian vegetation. Portions of Beaver Creek, however, flow through broader floodplains, and the riparian zone is correspondingly wider. Western azalea (Rhododendron occidentale) is an important component of some of these riparian zones, and is of special interest to many park visitors.

One community that may have been prominent in Calaveras Big Trees State Park historically is black oak woodland. Now found only in small, localized pockets, stands of black oak may have been very common and dominant on warm, well-exposed south-facing slopes. Because of fire exclusion, these stands have been succeeded by coniferous species.

Since 1975, the Department of Parks and Recreation has conducted a prescribed burning program in the park. This ongoing series of carefully planned, totally-managed fires was begun after the importance of periodic burning to the coniferous forest ecology became understood and accepted. The policy in the Calaveras region between 1910 and 1975 had been total fire exclusion. In the absence of fire, these forests proceed through successional stages to a climax community of white fir. Also, without fire, great quantities of inflammable material accumulate on the forest floor. Naturally occurring fires maintained these areas at a lower successional stage, creating fire climax communities. Ponderosa pine is particularly dependent on fire for successful long-term survival, since young seedlings and saplings of the species cannot grow unless fire is allowed to maintain an open, sunny forest floor. Sugar pine is likewise dependent on fire for its reproduction and success. The Sierra redwood is even more dependent on fire for reproduction, since the seeds are small and delicate, and they must fall on mineral soil if the seedlings are to become established.

Although the Sierra redwood has been designated a native species of special concern by the California Native Plant Society (CNPS), it has not been classified as rare or endangered by CNPS, the State of California, or the federal government. No plant species known to occur in the state park is listed as rare or endangered.

Animal Life

The dominance of the forest habitat in Calaveras Big Trees State Park creates a terrestrial fauna that is rather low in diversity. Other vegetation types occur here as small, localized features; these include riparian, chaparral, oak woodland, and grassland communities. Because of their infrequency and small size, the effect of these communities on the overall character of the local animal life is small, both as habitats in themselves and as partners in ecotonal relationships.

Common or important mammals include black bear, mountain lion, coyote, raccoon, and chickaree (or Douglas squirrel). Mule deer occur seasonally in the park, which is located along the migratory routes of two herds. Bird species include pileated woodpecker, mountain chickadee, and pygmy nuthatch.

Aquatic animal life is dominated by species associated with cool, swift-moving mountain streams. Rainbow trout is the most common species, with introduced brown trout and native California roach associated with it in some of the streams. Many forms of aquatic insect larvae, including mayflies, stoneflies, and caddisflies, are found in these streams.

Although no state- or federally-listed threatened or endangered animals are known to occur in the state park, two resident bird species are of special interest: spotted owl and goshawk. Both nest in the area, and, while uncommon, have been sighted in the park. Other animal species of special scientific, interpretive, educational, or management interest are black bear, mule deer, mountain lion, pileated woodpecker, and various species of scolytid beetles.

The degree to which terrestrial and aquatic animal populations and the diversity of Calaveras Big Trees State Park have changed since settlement and development by Euroamericans is not well understood, aside from the obvious influences of fish planting and game taking. The primary unanswered question is: To what extent have subtle alterations to habitat, by such influences as fire suppression and Euroamerican presence, altered animal life in the park?

Ecology

It needs to be recognized by everyone that a park, or any other reasonably natural area, consists not of a collection of individual plants and animals in their environment, but that it is really a single biological entity, functioning as a composite whole. Different soil and moisture conditions favor particular plant associations, and these in turn support different animal populations; but even though these various aspects of the natural scene may appear quite different to us, they interface and interact with each other under natural conditions in a very harmonious way, according to ecological principles. Although there are many separate natural objects in Calaveras Big Trees State Park that are extremely interesting and important as individuals, each is part of and is supported by the natural system that embraces the whole biological complex.

Cultural Resources

General

The chronology of human activity in the Sierra Nevada may date back more than 10,000 years, although the earliest known dated sites are slightly more than 8,000 years old.

The area around Calaveras Big Trees State Park was used by Native Americans for hunting, gathering, and food processing with little disturbance until the middle of the 19th century. The discovery of the North Grove of Big Trees in 1852 resulted in almost immediate recreational development in the area. By 1854, a hotel and bowling alley were operating in North Grove. For more than 125 years, the North Grove area at Calaveras Big Trees State Park has been used principally for recreational purposes, in the broad sense of that term. The North Grove area is possibly the oldest continuously operating recreation site in California.

Archeological Sites

Archeological resources currently known in Calaveras Big Trees State Park include 36 Native American sites and 11 historic sites. One of the Native American archeological sites is surrounded by a historic trash scatter. Known Native American sites consist of 28 bedrock mortar outcrops, four bedrock mortar sites with lithic scatters, and three lithic scatters.

There are 11 currently recorded historic archeological areas in Calaveras Big Trees State Park. These consist of the Sperry and Perry Hotel site, two road alignments, a water tunnel, two cabin sites, and four trash dumps. There are also numerous known, but as yet unrecorded, historic sites, including several historic road alignments, the first hotel and the entire area surrounding the "Big Stump," several more dump areas, the Pickering Railroad right-of-way in

the South Grove area, and the Union water ditch on the north wall of the Stanislaus canyon. The park has been about 70 percent intensively surveyed, and it is probable that subsequent surveys will reveal more Native American and historic archeological resources.

Standing Historic Structures

Calaveras Big Trees State Park has a total of eight standing structures that are associated either with the early hotel period or with the Civilian Conservation Corps (CCC) period.

The current park office building is the only remaining structure from the Big Trees Hotel complex, and is the oldest standing structure in the park. This structure was built in the early 1860s as a caretaker's cottage, and was later used for hotel guests. During the 1930s, after park acquisition, it was used as the warden's cottage and warden's office. During the 1950s and 1960s, the structure was used as a ranger's residence. In the 1970s, the building was converted to park offices. The extent and nature of alterations made over the years have never been fully documented.

Big Trees Hall is a one-story wood frame lap-sided rectangular structure, with a high gable end roof. The roof overhang extends across the full front porch. The interior of Big Trees Hall boasts an open beam ceiling and a native rock fireplace. Big Trees Hall is an excellent example of the rustic architecture that characterized many CCC construction projects throughout the 1930s. It is located near the present visitor center.

The former CCC dispensary constructed in the 1930s is located to the north of the park entrance. The dispensary is a one-story, wood frame, narrow tongue-and-groove-sided rectangular building, surmounted by a steeply-pitched gable end roof. A small storage shed protrudes from the west side, and rests on wood sills. The dispensary is currently a park employee residence.

Pump house number one, located near the campground, is believed to have been constructed by the CCC in the 1930s, when it installed a new water system for the park. This structure, no longer in use, consists of a small, rectangular building, constructed out of stone and wood, with a steeply-pitched wood shingle roof. It must be noted that the stone masonry of the pump house does not have the same appearance as other known CCC construction.

The CCC constructed other buildings in the park. Those that survive today are located in the maintenance compound area, and thus are not readily viewed by park visitors. One of these structures is the former CCC bunkhouse. This building is a long, rectangular, wood-frame one-story building that has been converted to a maintenance shop. Additional CCC-constructed buildings located in the maintenance yard consist of a garage and office building, a former CCC office currently used as a tool room, and the service garage.

Although not a structure, one of the most historic features in the park is the Big Stump, together with the adjacent butt log, both being the remains of what was the largest tree in the Grove, and the tree first seen by Augustus Dowd in 1852. This feature is discussed at length in subsequent sections.

Ethnographic Background

The local Native American group associated with Calaveras Big Trees State Park and its environs is the Northern Sierra Miwok. The Miwok belong to the large Penutian language stock, which also includes the Wintun, Maidu, and Yokuts. The Miwokan language can be divided into western and eastern divisions. The western division contains the Coast and Lake Miwok. The eastern division contains the Bay (Saclan), Plains, and Sierra Miwok. Sierra Miwok is further divided into northern, central, and southern languages.

The Sierra Miwok occupied the western slope of the Sierra Nevada from the middle reaches of the Fresno River on the south, in Madera County, north to the course of the Cosumnes River, in Sacramento and El Dorado Counties. The northern Sierra Miwok generally occupied the Mokelumne and central Calaveras and Cosumnes River drainages.

The territory of the Sierra Miwok is rich in a large variety of floral and faunal resources. In the foothills, an oak woodland system supports two species of oak and one species of pine, numerous seed-producing grasses, and various forbs. It is also a rich habitat for mule deer and rabbit. Tule elk and American pronghorn were then available at lower elevations. The Montane forest affords several major conifers, black oak, and numerous important chaparral species. Oak woodlands produce plentiful acorns, pine nuts, grass seeds, and various herbs and greens. The Montane forest produces sugar pine nuts, ponderosa pine nuts, and black oak acorns, along with numerous herbs, and cedar bark used for siding of the Miwoks' houses.

Early History

The first known sighting of Sierra redwoods by a Euroamerican occurred in the fall of 1833, when members of the Joseph R. Walker expedition encountered them in what is now Yosemite National Park. Although a journal of the expedition was published in 1839, the discovery attracted no notice or attention.

The Calaveras North Grove was apparently seen in 1841 by John Bidwell, and very likely by others in that decade. But it remained for Augustus T. Dowd, employed by a water company in Murphys, to make the effective discovery. Dowd was employed as a hunter to provide meat for a ditch construction crew. His pursuit of a bear led him into the North Grove in the spring of 1852; and while his colleagues at first dismissed his story as a hoax, it was not long before word of the discovery of the incredible trees spread through the community, the state, and then throughout the botanical world.

Exploitation of the Big Trees and tourism immediately followed Dowd's discovery. In 1853, Captain H. W. Hanford undertook the challenge of cutting down the largest tree in the grove, which happened to be the tree first seen by Dowd. It was drilled with parallel holes using large augers, and the job required a month; even then, large wedges and a strong gust of wind were needed before the tree fell. Part of the trunk was later leveled off to provide a two-lane bowling alley and a bar, while the huge stump, nearly 25 feet across, was covered by an octagonal building. Dances were held there, and a local newspaper was published in the stump house for several months in 1858.

In 1854, another destructive act involved the grove's second-largest tree, now known as the "Mother of the Forest." With the aid of a great scaffolding, the bark of the tree was removed in sections to a height of 116 feet; the carefully numbered pieces were then shipped for reassembly and display in New York and London. The massive dead trunk still stands, with the regular markings where the bark was removed clearly visible.

The enormous stump, the butt log, and a part of the upper trunk of the discovery tree are also still in place, not far from the park's visitor center. Several sections were removed in earlier years from the butt log for display purposes. It has been calculated that if this tree had continued to grow at its previous relatively rapid rate, it would be today, in all probability, the largest tree in the world.

William W. Lapham, one of the first owners of the North Grove, took prompt steps to accommodate visitors who came to see the trees. In 1854, he built a small hotel near the Big Stump. Although visitors came from near and far, the venture was not profitable, and the 320-acre property had changed hands four or five times by 1860. In the experienced hands of Sperry and Perry, however, the hotel was more successful; by 1862, a new hotel had been constructed, in a more favorable location nearby. The new building was 2-1/2 stories high, with a steep roof and a large veranda.

The new owners increased their land holdings, and soon enlarged the hotel to accommodate 100 persons. They built a "caretaker's cottage" at about the same time, which was later used to house additional hotel guests. This cottage still stands, and after several remodelings over the years, it is serving as the district office of the department.

Along with different partners, Sperry continued to own the Big Trees property, and to operate the hotel until 1900. The South Grove had been acquired in part in 1861 by James M. Hutchings, of Yosemite fame; but it was difficult to reach, and no more than two small cabins were ever built there. Hutchings and the other owners sold the South Grove to James H. Sperry, and the ownership thus became consolidated with that of the North Grove. Visitors to Sperry's hotel sometimes took the rough 10-mile trail to visit the South Grove.

Whether for commercial purposes or supposed esthetic enhancement, the owners bestowed names on many individual Sierra redwood trees in both the North and South Calaveras Groves, and attached marble tablets to the trees with the names carved on them. Some names were those of presidents or other renowned persons, some were names of states, and a few were suggested by characteristics of the trees themselves. Many names, however, were those of then-living persons who are no longer well-remembered today. Naming had the advantage of making it easier to identify and locate individual trees, but some visitors found the practice inappropriate and objectionable. Some of the tablets were still in place when the state acquired the groves. Although some of the tree names are still in use, the tablets have been removed, and preserved as historic artifacts.

The early history of the Calaveras Grove perhaps epitomizes the reactions and attitudes of people in the mid-nineteenth century to the great natural wonders of California and other western regions, phenomena which were only then being discovered as people explored and settled these hitherto unknown places. The Big Stump and butt log remain today as a sort of symbol of this early period.

Perceptive visitors to the Calaveras Big Trees had recognized the public importance of the natural features, and shared the owner's desire to have them preserved for public enjoyment. Sperry was interested in having the property become a national or state park, but could not afford to donate it for that purpose. He sold it in 1900 to Robert P. Whiteside, who, although a lumberman, was interested in continuing the uses that Sperry had established. The movement to preserve the groves in public ownership remained active. In 1909, an act of congress authorized the U.S. Forest Service to acquire both groves by exchange of timber on other national forest land elsewhere. And in 1928, when state acquisition seemed more probable, another congressional act authorized the transfer of intervening national forest land to the State of California if the state acquired either the North or South Grove, or both. Neither of these acts was implemented until the 1950s. The Whiteside family continued to operate the Big Trees Hotel until the state acquired the property in 1931.

History of the State Park

With the Calaveras Grove Association taking the lead in raising necessary matching funds, the North Grove and vicinity were acquired in 1931 from the Whitesides, with 1928 state park bond money. The Whitesides had sold the South Grove in 1926 to the Pickering Lumber Company. The Big Trees Hotel was operated for the state by a lessee until 1937. The Big Trees post office, established in 1865, continued to operate in the hotel.

The Civilian Conservation Corps, one of the most successful of the depression-generated recovery agencies, was established in 1933, and one of the camps was placed in Calaveras Big Trees State Park. The list of important projects performed in the park by CCC enrollees is long and impressive. Among many other things, the CCC built camp and picnic facilities for the public, renovated the old hotel, took fire protection measures, performed other conservation work, built trails, cleaned and smoothed the Big Stump, and improved the park's water supply. The CCC's most enduring monument may be Big Trees Hall, an impressive structure with an open beam ceiling and a native rock fireplace, described earlier.

The Big Trees Hotel was to be operated after renovation as a hostelry, if profitable; otherwise, it was to be preserved as a historic structure. But the old building was destroyed by fire in August 1943, the cause uncertain. The site is now vacant, and there is little evidence of the structure above ground.

Like many other resource-based companies, Pickering expanded its production of lumber after World War II, and extended its logging railroad to and beyond the South Grove. The tracks were originally planned to go directly through the lower part of the grove, but the route was realigned after negotiation. The story of the campaign to acquire the South Grove is long and complicated, the necessity of raising matching funds being an overpowering element. The state acquired the so-called corridor lands (Act of 1928, above) in 1952; the

following year, the U.S. Forest Service acquired the Beaver Creek sugar pine forest ("Calaveras Bigtree National Forest") under the Act of 1909; and in April 1954, the state closed its negotiations with Pickering through mutual approval of the purchase of the South Grove. Although the grove and its basin remained intact, some of the nearby lands were purchased subject to removal of the merchantable timber on a one-time basis. The logging was completed within two or three years after the purchase of the land.

Although logging roads had been constructed in the vicinity, access to the South Grove remained difficult for several more years. An approach road had been surveyed through the corridor lands, but construction was delayed by several factors, including the Korean War. The route was completed as far as the North Fork Stanislaus River by 1959, but it was 10 years later before the road was opened to its terminus at Beaver Creek. The last mile to the South Grove is intended to remain as trail access only.

Esthetic Resources

Forests are the primary attraction of Calaveras Big Trees State Park. The park contains not only two magnificent groves of Sierra redwoods, but also extremely fine examples of the other coniferous species of this portion of the Sierra Nevada. John Muir has stated, in several parts of his writings, that the forests in the Central Sierra Nevada are the finest of their type in the world. This park contains outstanding examples of those magnificent forests.

Most of the several species of coniferous trees found here reach exceptional size and majesty. They are also notable for their coloration, and for the effect produced by the play of light and shadows on them, at different times of day, and in the various circumstances under which they grow.

Exceptional visual effects can be experienced in many parts of the park. The deep forests, the ridgetops with their extensive views, and the river canyon, which is traversed by the parkway, all offer exceptionally fine visual experiences.

The park affords numerous auditory experiences of a high order. The sounds of the wind in the forest, of bird songs in the branches high overhead, and of the Stanislaus River or lesser streams echoing in the canyons, all contribute important positive elements to the experiences of visitors.

There are several negative factors that can, and frequently do, detract from the esthetic experiences of visitors to the park. The most important of these are two roadways. A right-of-way lying between Beaver Creek and the South Grove, reserved by the former owners and their successors, has the potential of carrying distracting and dangerous traffic across the routes taken by visitors to the South Grove. Although not heavily used at the present time, this right-of-way is already becoming a problem in the park.

Of even greater importance is the present route of State Highway 4, through the area of the North Grove and park headquarters. This location involves a relatively steep grade, which causes heavy traffic to generate loud noises that carry throughout the North Grove area. After much effort by this department, a desirable bypass route for this highway was adopted by the State

Highway Commission in 1969; while there seems to be little possibility of the highway's being built in the near future, the adopted alternate route probably holds the solution to this important park problem.

Recreational Resources

Calaveras Big Trees State Park is one of the most popular units of the California State Park System. Visitors are attracted not only by the Sierra redwood groves, but also by the surrounding forests, streams, and vistas. Visitor activities include hiking, camping, fishing, swimming, birding, and other forms of nature study. Facilities for snow play, once centered at the meadow, were inappropriate and marginal, and have been phased out.

Facilities now provided for the public include 129 family campsites, 150 picnic sites, more than 14 miles of trails, 1 campfire center, various outdoor interpretive displays, and a visitor center/museum. These facilities are most heavily used during the vacation season from Memorial Day through Labor Day, but use continues throughout the entire year. Although most of the park is closed to vehicles during the winter months due to snow, the heavy-use "core" area around headquarters is kept open, and winter camping is allowed in 12 nearby sites.

The recreational and interpretive activities offered to the public are greatly augmented by the efforts of the Calaveras Big Trees Association (CBTA), a volunteer cooperative group that was created in 1974. CBTA provides a variety of interpretive services, has sponsored extensive renovations to the visitor center, and periodically engages in other special projects that benefit the state park.

Resource Policy Formation

Classification

Primary Classification

This park was one of the early units established after the origin of the State Park System. The first acquisition was made in 1931, in part with funds made available in the bond issue of 1928, following legislative action in 1927 that authorized the bond issue, and established the original Division of Parks in the Department of Natural Resources.

The original park was acquired specifically for the purpose of preserving the North Grove at Calaveras Big Trees, together with the surrounding mixed conifer forest, and to provide for public appreciation and enjoyment of them. The park thus falls within the purpose of the present Section 5019.53 of the Public Resources Code, which provides for classification in the state park category, and is quoted in full below. Classification of the park in this category took place in November 1962.

5019.53. State Parks. State Parks consist of relatively spacious areas of outstanding scenic or natural character, oftentimes also containing significant historical, archeological, ecological, geological, or other such values. The purpose of state parks shall be to preserve

outstanding natural, scenic, and cultural values, indigenous aquatic and terrestrial fauna and flora, and the most significant examples of such ecological regions of California as the Sierra Nevada, northeast volcanic, great valley, coastal strip, Klamath-Siskiyou Mountains, southwest mountains and valleys, redwoods, foothills and low coastal mountains, and desert and desert mountains.

Each state park shall be managed as a composite whole in order to restore, protect, and maintain its native environmental complexes to the extent compatible with the primary purpose for which the park was established.

Improvements undertaken within state parks shall be for the purpose of making the area available for public enjoyment and education in a manner consistent with the preservation of natural, scenic, cultural, and ecological values for present and future generations. Improvements may be undertaken to provide for recreational activities including, but not limited to, camping, picnicking, sightseeing, nature study, hiking, and horseback riding, so long as such improvements involve no major modification of lands, forests, or waters. Improvements which do not directly enhance the public's enjoyment of the natural, scenic, cultural, or ecological values of the resource, which are attractions in themselves, or which are otherwise available within a reasonable distance outside the park, shall not be undertaken within state parks.

State parks may be established in either the terrestrial or underwater environments of the state.

Subclassifications

The Classification Act (Section 5019.50 et seq., Public Resources Code) establishes several categories of units that may be included within the boundaries of another unit of the State Park System. These include the natural preserve, cultural preserve, and state wilderness categories.

Under the terms of the California Wilderness Act of 1974, as amended (Chapter 1.3 of Division 5 of the Public Resources Code, beginning with Section 5093.30), Calaveras Big Trees State Park was studied to identify roadless areas in it, and to determine whether such areas should be recommended for establishment as state wildernesses.

The single roadless area identified at Calaveras Big Trees is the basin of the Calaveras South Grove. It was determined that that area would be more appropriately classified as a natural preserve rather than a state wilderness. Accordingly, establishment of the South Grove Natural Preserve took place at the November 1984 meeting of the State Park and Recreation Commission. The boundaries of the natural preserve are shown on one or more of the maps accompanying this document.

The Public Resources Code section defining the natural preserve classification is given here in its entirety:

5019.71. Natural Preserves. Natural preserves consist of distinct areas of outstanding natural or scientific significance established within the boundaries of other state park system units. The purpose of natural preserves shall be to preserve such features as rare or endangered plant and animal species and their supporting ecosystems, representative examples of plant or animal communities existing in California prior to the impact of civilization, geological features illustrative of geological processes, significant fossil occurrences or geological features of cultural or economic interest, or topographic features, illustrative of representative or unique biographical patterns. Areas set aside as natural preserves shall be of sufficient size to allow, where possible, the natural dynamics of ecological interaction to continue without interference, and to provide, in all cases, a practicable management unit. Habitat manipulation shall be permitted only in those areas found by scientific analysis to require manipulation to preserve the species or associations which constitute the basis for the establishment of the natural preserve.

Declaration of Purpose.

Early Declarations for Calaveras Big Trees

At the time of classification, in November 1962, the (then) State Park and Recreation Commission recognized the following as the purpose of Calaveras Big Trees State Park: "To preserve for public enjoyment and inspiration two of the finest of all groves of Sierra Redwood (one being the earliest grove to become known to the public), together with the outstanding forest of which they are a part; and to provide facilities for public enjoyment and understanding of these natural features, consistent with their preservation in essentially natural condition. Recommended in 1928 and in special 1945 and 1946 reports (South Grove area) by Frederick Law Olmsted."

Less than two years later, in June 1964, the commission adopted a formal Declaration of Purpose for Calaveras Big Trees State Park. It reads as follows:

"The purpose of Calaveras Big Trees State Park is to make available to the people forever, for their inspiration, enlightenment, and enjoyment, the North and South Calaveras Groves of Sierra Redwoods, in a condition of ecological integrity, embraced within an outstanding example of the mixed coniferous forest of the central Sierra Nevada, held in an essentially natural condition; together with the outstanding forest recreational resources of this area and its important historic and scientific values.

"The function of the Division of Beaches and Parks at Calaveras Big Trees State Park is to manage the resources of the park in such a way as to ensure their perpetuation in accordance with the declared purpose of the park; to interpret them fully and effectively; and to provide such facilities and services for public enjoyment as are consistent with the declared purpose."

Revised Declaration of Purpose

The preparation of a Resource Inventory for Calaveras Big Trees State Park, and of this Resource Element of the General Plan, has made it desirable to revise, expand, and make more specific the previously adopted Declaration of Purpose. A new declaration for the park is set forth below.

CALAVERAS BIG TREES STATE PARK DECLARATION OF PURPOSE

The purpose of Calaveras Big Trees State Park is to make available to the people, for their inspiration, enlightenment, and enjoyment: The North and South Calaveras Groves of Sierra Redwoods and their enclosing basins, in a condition of ecological integrity; the outstanding mixed coniferous forest occupying much of the park, held in an essentially natural condition; the native wildlife and naturally functioning ecosystems; the scenic mountain and forest landscapes typical of the central Sierra Nevada; all streams in the park, and their esthetic and appropriate recreational values; and the historic and cultural features related to the first discovery of the Sierra Redwoods, and to the history and prehistory of the park.

The department shall devise, prescribe, and implement appropriate programs of resource management to perpetuate the park's values, and to fulfill its declared purposes. It shall also develop and establish full and effective interpretive programs covering the park's varied resources. The department shall provide facilities that make available the park's values in a manner that is fully consistent with their perpetuation. Facilities shall be of types and designs appropriate to the state park classification, and to the regional environment of the central Sierra Nevada; their capacity and extent shall be determined by the needs of visitors enjoying the park's features, and by compatibility with its natural and cultural resources. Park management shall regulate visitor uses as necessary, to keep them compatible with perpetuation of park resources.

Zones of Primary Interest

In fulfilling its responsibility to protect both the integrity of the resources of the State Park System and the quality of the experiences of its visitors, the Department of Parks and Recreation has a strong interest in activities on certain lands close to, but outside, the boundaries of units of the State Park System. This includes watersheds of streams that arise outside but enter state parks. It also applies to viewsheds where activities and developments outside a park may be obvious or conspicuous to visitors who are in the park (Map 2).

While all of the South Grove proper (Parcel A) is in the park, the extreme upper end of its watershed is not. This relatively small area of land is of critical interest to the department, and it is most important that the features on that upper watershed be protected in a strictly natural condition.

Discussed below are three areas beyond park boundaries that are of interest to the department as far as land use planning is concerned. The purpose of mentioning these areas is not related to acquisitional interest, but rather, how their future use could affect park resources and public recreation.

On the northwest side of the Stanislaus River, the basin of Love Creek (Parcel E) is an important viewshed, and also contains numerous developments that could affect the park very greatly, particularly in their capability of generating fire. It has been pointed out earlier that there is an adopted route for Highway 4, strongly favored by the department, which would bypass the North Grove area, and which lies northwest over the ridge from the North Grove, on the watershed of San Antonio Creek (Parcel B). The adopted route forms a logical and desirable north boundary for the park; hence, the department has a serious interest in the narrow strip of land lying between that route and the present park boundary. This interest extends downstream, west of the park, in the watershed of the creek flowing from the North Grove, in a triangular zone bounded on the north by the adopted highway route, and on the south by the ridge forming the south boundary of the watershed.

East of the state park boundary in the Oak Hollow area, and south of the Big Trees Village subdivision (Parcel C), there is a very important viewshed. The department has a great interest in this forested slope, which lies directly in front of visitors who drive down the Calaveras Parkway on the way back from the South Grove toward the river, and toward park headquarters.

The slope of Beaver Creek, northwest of the Calaveras South Grove (Parcel D), supports one of the finest sugar pine forests that exists anywhere. It was originally a part of the Calaveras South Grove acquisition project, but it had to be excluded for reasons of cost. The U.S. Forest Service then acquired the sugar pine timber, and manages it in an unharvested condition. This forest, in two parcels, is known (despite its small size) as the Calaveras Bigtree National Forest, because of a requirement in the congressional authorization of 1909 under which it was acquired. The department has a great interest in preservation of this coniferous forest, dominated by sugar pine. There are a few scattered Sierra redwoods in that forest, one of them extremely large.

Resource Management Policies

The body of policies in this section of the Resource Element is included in order to fulfill the Public Resources Code requirement (Sec. 5002.2(b)) for a "declaration of resource management policy" in the Resource Element, "setting forth the precise actions and limitations required for the achievement of the objectives established in the Declaration of Purpose." The entire subsection is quoted near the beginning of this Resource Element.

General Resource Policies

In the early 1970s, the director adopted a series of Resource Management Directives designed to assist in perpetuation, enhancement, and management of most of the categories of resources in the State Park System. The directives were subsequently modified and expanded. Those policies have statewide application, and are intended to control resource activities in all units of the system.

The policies that follow are consistent with the Resource Management Directives, but they are more detailed and more specific in their application to Calaveras Big Trees State Park. The policies in this section are grouped in the same sequence, and under the same major headings, as the resources discussed in the Resource Summary, earlier in this document.

Inasmuch as the prime resources of Calaveras Big Trees State Park, and the reason for its establishment, are the two Sierra redwood groves, together with the mixed coniferous forests of which they are an integral part, all management policies for park resources at Calaveras Big Trees State Park shall be consistent with, and supportive of, perpetuation of these forests, and of optimum conditions for their appreciation by park visitors. Specific policies governing management of primeval forests as such will be found below, in the section on Plant Life.

Natural Resources

Meteorology

Ozone and Acid Rain

The deleterious impact of acid rain and atmospheric ozone on California's coniferous forests has been documented. Studies have centered on areas of the state that have high levels of industrial- and/or transportation-caused air pollutants, such as the San Fernando, San Bernardino, and Southern San Joaquin air basins. Although no current information suggests that similar effects have occurred at or around Calaveras Big Trees State Park, the situation has not been put under rigorous scrutiny. Atmospheric ozone, in particular, could be an important pollutant.

Policy. The department shall survey current information on the effects of ozone and acid rain on the Sierra Nevada Landscape Province, and particularly on the Calaveras Big Trees region, and shall review various monitoring methods, to determine if similar research should be conducted at Calaveras Big Trees State Park. This project could be conducted in such a manner as to be beneficial to other units of the State Park System that may face similar problems from atmospheric ozone and/or acid rain.

Hydrologic Resources

General

Springs and waterways are primary park features that have natural, esthetic, and recreational values. Riparian areas are fragile, and soil disturbance, even of a limited kind, or loss of vegetation, will result in increased sedimentation, and in degradation of the aquatic environment.

Policy: The department shall protect the quality, quantity, and biological integrity of water features, and their relationships with other park values.

Surface water shall be protected from pollution or excessive unnatural sedimentation. Periodic increases in sedimentation resulting from natural events such as floods, or from erosion following low-intensity fires, shall be considered natural, unless such events are coupled with soil disturbance activities that lead to unnatural levels of sedimentation.

The department shall not cause or permit pollution of ground or surface waters.

Human Disturbances of Hydrologic Systems

Human disturbances (e.g., logging, construction, hydroelectric development, mining, grazing, recreational uses), whether inside or outside the park, have affected hydrologic features in the park, and could continue to do so. These situations need to be identified, monitored, corrected, mitigated, or prevented before hydrologic features are affected to the point where park values are lost.

Policy: The department shall strive to be actively involved in land use decisions for all lands upstream from the park that may affect hydrologic resources. Detrimental land uses include actions that may have a deleterious effect on park resources, such as timber harvesting, mining, grazing, road and building construction, or water diversion or regulation. Measures to maintain natural water quality, channel flow, and sediment rates shall be recommended and supported. Internal disturbances (department-controlled activities) shall be so designed and implemented that they do not cause or intensify sedimentation or erosion.

Geologic Resources

Landslides

Although not widespread, landslides have occurred in the park. The most conspicuous ones are northwest of the river, along the parkway. Landslides pose both public hazards and resource threats, in the form of both catastrophic events and day-to-day movement. Landslide movement has been recorded as a result of inherently unstable material on slopes; construction of roads and trails; downcutting of streams and oversteepening of slopes; and loss of vegetative cover and soil resources as a result of fire, grazing, logging, and other land uses.

Policy: Buildings, roads, pipelines, and septic tanks shall generally not be constructed on landslides, or in areas recognized as having a high potential for slope failure. If facilities are urgently needed in a landslide area and no alternative location exists, a site-specific geologic report shall be prepared by a registered geologist in advance of final working drawings, in order to evaluate the geologic conditions that would affect the proposed facility. This study will propose design modifications to the facility to minimize potential impact from slope failure or landslides.

Where roads, trails, or other facilities already exist in areas having active slides, detailed studies should be performed to determine the cause of the landsliding, in order to design remedial actions that will provide permanent acceptable solutions to the problems.

A monitoring program has been instituted to evaluate the movements of the two active landslides in the park. Employing surveying instruments, this program replaces an earlier procedure that was found to be ineffective. Photographs are taken to supplement the measurements.

Policy: The monitoring program established to evaluate movement of the active slides along the parkway shall be continued, with quarterly collection of data. In the event of significant changes in landslide movement or configuration, the department shall take appropriate remedial actions.

Soil Resources

Erosion

Accelerated, unnatural erosion poses a significant threat to the biotic and scenic resources of the park. Road construction, facility development, and previous grazing and timber harvesting have caused erosion and soil loss.

Erosion hazards could develop if a severe fire were to destroy large sections of the forest, especially the underlying mat of vegetative material on the forest floor. Because the soil covering is relatively thin in some areas, lack of protection from vegetation would allow more rapid erosion. Loss of soil on the slopes would then inhibit prompt regrowth of the forest.

Policy: All activities or developments that will disturb the soil surface shall include measures to minimize resource impacts. Roads and trails shall be located and maintained so as to minimize gullyng, soil loss, concentration of surface runoff, and disturbance of riparian areas.

Plant Life

General Vegetation Management

It is the responsibility of the department to preserve and perpetuate the natural plant communities found throughout Calaveras Big Trees State Park. This is the only unit of the State Park System that is located in the main forest belt at middle elevations of the Sierra Nevada; it contains not only two very fine groves of Sierra redwood, but also one of the very finest remaining examples of the mixed coniferous forests of the Sierra Nevada. Protection and perpetuation both of the Sierra redwood groves and of their setting in the natural forest was the principal objective in acquisition by the state of lands now comprising Calaveras Big Trees State Park. The objective of preservation and perpetuation includes not only the trees of these forests, but also the other plant communities that are associated with them.

Policy: On lands other than those supporting facilities, vegetation shall generally be managed toward a natural condition; that is, toward plant communities that result from normal successional trends which prevail in the presence of all natural factors normal to the region, and in the absence of interference from humankind. In areas previously modified, ongoing efforts shall be made to encourage restoration of vegetation toward a natural condition. The natural state of the vegetation shall be determined through scientific analysis, by means and techniques approved and adopted by the department. Specific vegetation management programs shall be devised and implemented as necessary and appropriate.

Sierra Redwood Groves

One of the two Sierra redwood groves in the park, the North Calaveras, was the first grove of trees of this species to be effectively discovered and brought to the attention of the public. (Earlier discoveries were overlooked, and attracted no public attention.) Its discovery in the year 1852 precipitated a procession of visitors from all over the world, some of them noted persons, who came here on long and arduous journeys to see these great trees. The other grove, the South Calaveras, is the largest grove of this species north of the Kings River, and is one of the finest, ecologically speaking, of all the groves throughout the Sierra Nevada. Although some 90% of the area supporting natural trees of this species is in public ownership, these two Sierra redwood groves (out of the recognized 75) are the only ones that are in the California State Park System. Because of the special importance of both groves, as cited above, the department has a very special responsibility to manage them with clearly defined objectives, and the highest degree of scientific competence. The legislature has designated this species and the coast redwood as the California State Tree.

The management objective for both the North and South Groves of Sierra redwoods is to keep them in as nearly natural a condition as possible. This precludes a policy of fire exclusion, as was practiced in the Calaveras region between 1910 and 1975. Natural fires were random in occurrence, non-uniform in coverage, and irregular in pattern, resulting in mosaics of vegetative growth and age-classes.

Policy: The department shall manage the North and South Calaveras Groves in such a manner as to restore, if necessary, and to maintain conditions in as nearly as possible the natural manner that would have occurred in the absence of all interference by Euroamerican people, including, in such interference, the exclusion of natural fires. In establishing the detailed objectives of this management policy, the department shall take into account all available information on this subject, and apply it to the circumstances at Calaveras Big Trees State Park, consistent with the department's Prescribed Fire Management policies.

In applying prescribed fire in the natural environment, the department shall strive to simulate the effects of natural fires as they occurred in prehistoric times. Emphasis shall be given to duplicating the frequency and distribution of such fires, and the department shall provide for any needed research to determine such characteristics.

Both the North and South Calaveras Groves have somewhat indefinite limits, with several outlying trees at some distance from the main groves. Both have been extended by artificial planting, in the 1930s and 1950s respectively.

Policy: Protection of the natural integrity of the Sierra redwood groves shall apply to the extent and distribution of the trees, as well as to the ecological condition of the groves. While no effort should be made to remove Sierra redwood trees planted outside the grove limits in decades past, further planting outside the natural grove limits (not including outlying trees as part of the grove) shall not be done or allowed by the department. If natural seeding occurs outside the grove limits, this shall be considered a natural phenomenon, and accepted as such.

Other Primeval Forests

The mixed coniferous forest of the western slope of the Sierra Nevada reaches exceptional height and stature in the region of Calaveras Big Trees State Park, so the park contains and perpetuates an outstanding example of this forest. The reintroduction of fire in the park eliminates some of the younger trees of all species, but particularly the unnatural thickets of fir and cedar, which were encouraged by fire exclusion. Prescribed fire has already begun to return the distribution of species to a more natural proportion.

Policy: The department shall strive to restore and maintain natural conditions in all the primeval forests of the park, just as in the Sierra redwood groves themselves. The park objective shall be to achieve a natural distribution and proportion of the various species, not influenced by any artificial or external considerations. The department shall prepare, adopt, and implement detailed resource management plans applicable to the various natural units in the park; such plans shall specify the manner in which these objectives shall be pursued in each such area.

Cutover Areas and Young Forests

Tree cutting has taken place in several areas of the park. Cutover areas in the North Grove region are relatively small, and 50 years old or more. A much more substantial cutover area, dating from the 1950s, is in the central portion of the park, extending from the Stanislaus River southeastward to beyond Beaver Creek. This resulted from the purchase by the state of the land without its merchantable timber, which was then cut by the owner. Recovery and regeneration of the forest has been generally very good in the years since the logging was done.

In general, lands previously cut over are of less resource significance than lands that are still supporting primeval forest or other natural unmodified vegetation. Developments and facilities in these previously modified areas would have less impact on the natural resource values of the state park. Cultural resources, of course, would require independent evaluation.

Policy: If it should be deemed desirable to plant tree species, either to aid in the recovery and naturalization of cutover areas in the park, or for any other reason, the planting stock used shall be only from seed

obtained in the park or its immediate vicinity, so no genetically different strains from more distant regions will be introduced into the park.

Protection from Wildfires

Wildfire is a severe hazard at Calaveras Big Trees State Park, particularly in the late summer and early fall. Fire control zones or fuelbreaks have been constructed along the rims of the basins enclosing the South Grove and the North Grove. These facilities, which require periodic maintenance, can be of great importance in protecting the two groves from possible wildfire sweeping in from outside the park.

Because fire control facilities and procedures can and often do cause longer-lasting damage to park resources than does fire itself, development of special standards and procedures applicable to park environments is of the utmost importance. Conventional standards, criteria, and specifications employed on commercial lands by non-park fire protection agencies are usually not acceptable in state parks.

The fact that prescribed burning is used for fuel reduction and vegetation management purposes does not reduce the necessity for protection from and control of wildfires, and for installation (according to State Park System standards and criteria) of presuppression facilities, such as fuelbreaks.

Policy: A wildfire management plan for Calaveras Big Trees State Park that addresses wildfire prevention, presuppression, and fire suppression shall be developed by the department, in cooperation with the responsible wildfire control agency in the area (currently the California Department of Forestry and Fire Protection). This plan shall include, but not necessarily be limited to: fire prevention measures; criteria and standards for fuelbreaks and other fire protection facilities; visitor evacuation and safety; and acceptable fire-fighting procedures.

Every part of the wildfire management plan shall be fully consistent with primary park resource values, and with major park objectives. Department standards require that there be a minimum disturbance of soil, a primary emphasis on reduction of esthetic impacts, and special consideration in the location, construction, and maintenance of fire protection facilities, and wherever possible, in fire suppression measures as well.

The wildfire management plan must take into account the existence of the prescribed burning program, and be fully coordinated therewith.

Forest Pest Control

Outbreaks of forest insects, particularly bark beetles, occur from time to time in the park, as in all other pine forest regions of California, and severe infestations sometimes kill significant numbers of forest trees. These insects are native to the trees, and their periodic outbreaks are normal, and to be expected. Park forests are not being managed for commercial purposes, and therefore, no economic loss from the lumber value of the trees killed may be recognized in the insect activity.

Policy: If individual landmark trees close to areas of visitor concentration are recognized as threatened by insect activity, they may be individually treated with preventive spray, in order to prevent significant loss. Destructive types of control measures that are commonly practiced on commercial forest lands, such as logging, shall be considered as outside the realm of acceptable park practice, and shall not be used in park forests.

Trees that are killed through activity of native insects shall be recognized as still within the natural ecosystem, and thus still protected and perpetuated under park management policy; they shall not be felled or removed. Exceptions shall be permitted only in the case of individual dead trees that constitute a clearly recognized hazard to visitors or their property, to department employees, or to major park facilities.

Up to now, there has been no serious threat of infestation by alien introduced insects, such as the gypsy moth. Likewise, there has been no serious threat in the park of severe plant diseases, such as Fomes annosus, Armillaria root rot, or dwarf mistletoe.

Policy: If park forests become threatened by alien insects or by destructive plant diseases, control methods shall be sought that are unobtrusive, and do not modify the natural scene. Prior to any decision on control, the department shall carefully evaluate the anticipated damage by the insect or disease versus the expected damage to be caused by control measures, and shall make a decision in the light of such evaluation.

Control of Alien Plant Species

It is fortunate that at Calaveras Big Trees State Park, there have been no severe occurrences of alien plants. A control program has been established to reduce the occurrence of two plants, bull thistle (Cirsium vulgare) and common mullein (Verbascum thapsus). Other programs may be initiated.

Policy: The department staff shall continue efforts to reduce, and ultimately eliminate, alien plant species occurring at Calaveras Big Trees. Use of herbicides is discouraged, unless all other practical methods of removal have proven to be ineffective.

Grasslands and Meadow Restoration

The meadow just below the North Grove is an outstanding park resource, and needs intensive management to ensure its perpetuation. Drastic changes were made in the meadow shortly after the state acquired the park, before present-day park management objectives were recognized. The result was that the water table was lowered, and many of the native grasses were replaced by introduced weedy species, which are still in evidence; much of the meadow area is dry during the late summer.

Some of the campsites in the campground encircling the meadow are too close to the meadow for enjoyment of the natural scene by any visitors other than those occupying the immediate campsites in question. Also, their location encourages activities by occupants that are detrimental to the margins of the meadow.

Policy: The department shall develop and implement a program designed to restore the moisture level in the meadow near the North Grove, and to replace the alien species with native grasses and forbs. The objective shall be to restore the meadow as nearly as possible to its original, natural condition.

It is ultimately desirable, and is the objective of the department, to remove all camping facilities from the North Grove area. Campsites that are closest to the meadow on both sides should be given the highest priority for removal. In so doing, consideration may be given to establishing new or expanded camping facilities in other areas of the park.

Wildlife Management

General

Wildlife adds a great deal of interest and variety to visitor experiences. Animals are also important components of the natural ecosystem, interrelating with and affecting other elements. Protection and perpetuation of natural wildlife populations is a major management objective at the park.

Policy: The department shall avoid practices that cause significant imbalances in natural wildlife populations. If it is necessary to regulate animal populations by other than natural means, the methods used shall be based on sound principles of ecosystem management, shall be consistent with the general policies of the department, and shall avoid disturbance to other natural values of the park, and to its visitors.

Management of Special-Interest Animal Species

Several wildlife species have been discussed in the Resource Inventory (and named in the Resource Summary) as being of special interest, and as requiring special monitoring and management. Some of these animals require management for protection and habitat enhancement, and to minimize human-wildlife conflicts or hazardous encounters.

Policy: The special-interest animals identified in the preceding Resource Summary shall be given a high management priority. Programs or projects undertaken at the park shall be planned and designed so habitat for desirable, native, special-interest animals will be perpetuated.

Big Trees Creek Aquatic Habitat

Big Trees Creek, flowing through the South Grove, has been closed to fishing since 1968, by action of the Fish and Game Commission, at the request of this department, in order to prevent the fragile banks of this small stream from being damaged by people fishing. The creek now supports a population of rainbow trout that can be used as an unharvested benchmark population for comparison with other, similar streams that are fished.

Policy: In order to manage toward a natural condition, Big Trees Creek shall remain in its present protected condition, both as a component of the South Grove Natural Preserve, and to provide a comparison for other

harvested rainbow trout stream populations. The Fish and Game Commission shall be encouraged to continue to keep this stream closed to fishing at all times.

North Fork Stanislaus River

The Calaveras County Water District is about to finish development of its water rights and power resources on the North Fork Stanislaus River, including Beaver Creek, both above and below Calaveras Big Trees State Park. The licensed project will increase summer flows in the river eight to ten times over present conditions. Water temperatures will be lowered, and daily fluctuations of temperature will be greatly modified. Summer stream depth, width, and velocity will increase. These changes will undoubtedly alter the fish and invertebrate populations in the North Fork Stanislaus River. Two native species of fish will be affected, the rainbow trout and the California roach. Rainbow trout may benefit from the increase, but the roach, which is at its upstream limit of distribution in this stream, will probably be eliminated. Brown trout may also be eliminated. Additionally, changes can be expected in distribution and abundance of riparian plant species, and in forest trees having roots in the new summer water table.

Policy: The department shall begin a long-term monitoring of fish populations, riparian vegetation, and canyon-bottom forests, in relation to the expected changes in stream flows. The study will address the ecology of the California roach and the rainbow trout, in order to increase understanding of the ecological changes that will occur with the increased summer flows in the river.

Ecological Values -- Special Ecosystems

While some of the ecosystems in the park are of special value and interest because they are unusual (for example, the Sierra redwood groves and the meadow), it is extremely important that all personnel involved with these elements retain an active awareness of the interdependence of all ecological values and entities, and of the fact that action taken in one place can and often does have a significant effect on some other system or life form.

Policy: Resource management at Calaveras Big Trees State Park shall have as its primary objective perpetuation of natural ecological systems. Management shall not be directed at promoting single species or purposes. The focus of management shall be the Sierra redwood ecosystem, with all its biological elements and entities, but not the promotion of individual species or specimens.

Cultural Resources

Management of cultural resources at Calaveras Big Trees State Park is governed by state statutes, and by departmental policies and directives. The following portions of the Public Resources Code pertain to management of cultural resources: Chapter 1, Section 5019.74 (when cultural preserves are designated); Chapter 1.7, Section 5097.5; and Chapter 1.75, Section 5097.9. Resource management directives pertaining to cultural resources include: 10, 24-25, 32, 50-52, and 58 through 76.

There are eight known Native American archeological sites at Calaveras Big Trees State Park that exhibit surface lithic scatters. These surface scatters of stone artifacts are extremely sensitive to damage from visitor traffic, and possibly from prescribed burning. Lithic scatters are known to exist in the area around the entrance to Oak Hollow Campground; there are two on the north bank of the Stanislaus in the day-use areas near the parkway bridge, and the rest are along the banks of Beaver Creek.

Policy: The department shall use every reasonable effort to reduce damage to Native American lithic scatters in the park. Where such sites are known to exist, the department shall route trails around the surface scatters, and, wherever feasible, shall place appropriate natural-appearing barriers, such as logs, to help direct the public away from these sites. Archeological consultation shall precede any prescribed burning activities.

A number of prehistoric sites were recorded near existing springs. Any spring improvements could damage the sites.

Policy: Any planned spring improvements shall be reviewed in advance for potential damage to archeological resources. Mitigation measures shall be accomplished prior to improvements.

Most of Calaveras Big Trees State Park has been surveyed for cultural resources. In some prescribed burn units, the density of duff is so great that any existing cultural resources remain hidden. In such places, archeological resurvey is needed after burning. Proper cultural resource management practice dictates that sites be identified and properly recorded.

Policy: The department shall undertake an orderly archeological resurvey of prescribed burn units after they have been burned.

The Calaveras County Water District plans to construct dams above and below Calaveras Big Trees State Park, on the North Fork Stanislaus River. This project will increase the sustained summer flows in the river eight to ten times over present conditions, and will reduce the peak spring flows. Archeological sites have been recorded along the river, and any sustained increases in water levels and velocities may damage these sites.

Policy: The department shall prepare a resource management plan that will address potential damage and offer mitigation measures for archeological sites affected by the increased summer flows in the river.

The site of the 1854 Lapham Brothers hotel, near the Big Stump, and the site of the later Sperry and Perry hotel, near the present park headquarters, both contain important subsurface artifacts that could be affected by any degree of excavation.

Policy: In order to protect subsurface artifacts, ground disturbance in areas of the former hotel sites shall be avoided or minimized. Necessary subsurface disturbances shall be reviewed by a cultural resources specialist and mitigated if necessary.

There are numerous historic trash dumps in the unit. Many of these dumps have debris dating to the mid- to late-nineteenth century, and constitute a valuable resource base for understanding the lifestyles of visitors to this early year-round recreation area. Most of the recorded trash dumps have suffered unauthorized collecting over the years.

Policy: The department shall protect the historic trash dumps in Calaveras Big Trees State Park.

A historic cabin site was recorded a short distance from the Oak Leaf Spring Trail. Not much is known about this cabin site, and efforts to research it have not been successful. The cabin is now in a deteriorated condition; the north and west walls have slipped, and the roof has fallen in.

Policy: The department shall continue to seek background information, and shall prepare a resource management plan for the cabin near Oak Leaf Spring that includes the feasibility of reconstruction, and directives for preservation of the wood fabric.

The Civilian Conservation Corps structures in the park are historically significant. The structures still remaining are Big Trees Hall, the CCC Bunkhouse (current carpenter shop), the park maintenance office, the auto shop, the former CCC office (current tool room), the pump house, and the former CCC dispensary that is now a park residence. Modification for any present needs could degrade their historical significance and values. The CCC also developed the early campground facilities, including "Mt. Diablo-type" stoves and picnic tables. The small bridge near the Sentinel trees is probably a CCC structure.

Policy: The department recognizes the significance of the CCC structures, and shall strive to maintain proper adaptive uses. The department shall not modify the exterior appearances of these historic structures by any means. Any replacement of exterior features shall be in materials that are compatible with the rustic architectural style, or shall be a replica of the original material. The original architectural style shall not be altered. The department shall also maintain the historic integrity of the interior of Big Trees Hall.

The department shall also maintain, when practical, representative samples of the stoves and other camp facilities constructed by the CCC.

The current park office building is the only structure remaining from the Big Trees Hotel period. Built in the 1860s as a caretaker's cottage, the park office building stands as the oldest Euroamerican resource in the park. In later years, the structure was used for guest accommodations. Originally, the structure contained six rooms, with a later three-room addition at the rear. It has been remodeled at least twice since the state acquired it. During the 1930s, after park acquisition, the structure served as the warden's residence and office.

Policy: The department recognizes the historic significance of the present park office building, and shall strive to maintain proper adaptive uses. The department shall maintain the historical integrity of the exterior of the building. Any exterior maintenance will use compatible materials, and will not alter the original architectural style.

The department shall prepare a Historic Structures Report on the park office building, to determine, among other things, the original appearance and floor plan, the various changes made, and, if possible, when those were done, and the extent of original materials still remaining in the structure. If any restoration is undertaken, it shall be done in accord with the original construction plan.

Esthetic Resources

The esthetic resources of a state park are often quite intangible; yet, in many respects, they are the most important aspect of the park environment. Ideally, visitors to a state park ought to be able to sense the fact that things are done differently in the park from the way they are done in the everyday world. This applies to such ordinary considerations as the type and location of signs; the way that power lines and telephone lines are located and concealed; and the way that all special features and general scenic values are made available and enjoyable without incongruous intrusions or unnecessary interference from utilitarian features.

Highway 4 Realignment

The very serious impact on park environmental values and on visitor experiences caused by heavy traffic on Highway 4 through the North Grove area was described in the Resource Summary earlier in this document, and more completely in the Resource Inventory. The Calaveras County Water District is now in the early stages of constructing an extensive hydroelectric and water development on the upper North Fork Stanislaus River, which will generate increased commercial traffic on Highway 4 through the park, much of it involving very heavy vehicles. This will greatly intensify the problem of environmental disturbance in the park from highway traffic, which is already quite severe. Aside from this factor, the general traffic on Highway 4, unrelated to the park itself, is undergoing a gradual increase because of continuing development of recreational homesites and other uses in areas at higher elevations east of the park.

After a great deal of effort on the part of this department during the 1960s, a bypass highway route, acceptable to and advocated by this department, was finally adopted by the then-California Highway Commission in 1969. Owing to rapidly changing political and fiscal conditions subsequent to that date, construction of the highway was never undertaken; but the adopted route has never been abandoned, and is still official with the present Department of Transportation.

Policy: The department shall strongly support, and shall take appropriate action to bring about at the earliest possible time, construction and completion of the bypass for Highway 4, along the route adopted by the California Highway Commission in 1969. The department shall monitor this project during the acquisition and construction phases, and shall take all necessary steps to ensure the integrity of the lands along the northwest and northern boundaries of the park.

Memorial Groves

The Save-the-Redwoods League and the Calaveras Grove Association both made invaluable contributions to creation in 1931 of Calaveras Big Trees State Park, and to its enlargement 23 years later. The association was formed in the 1920s to support acquisition of the North Grove, which formed the original nucleus of the park. It was reorganized and rejuvenated later, to participate in the struggle to acquire the South Grove. The Save-the-Redwoods League provided the channel through which a single gift of \$1 million was received toward the South Grove project.

According to policies and procedures developed in the coastal redwood parks much earlier, memorial groves have been established in both the North and South Calaveras Groves, by the association and by the league. These are established in recognition of funds donated either specifically for the Calaveras projects, or for other, related conservation projects. The commission and the department enthusiastically support the programs of these organizations, which have made tremendous contributions toward inclusion of important areas in the State Park System. The Calaveras Grove Association recently became inactive, and turned over its assets to the Calaveras Big Trees Association, which was established in 1974 as a citizen support group for ongoing activities of the department at Calaveras Big Trees State Park.

Policy: Since memorial groves encompass some of the most spectacular, significant, and sensitive areas in the park, there shall be no developments in memorial groves, other than trails; no modification of the vegetation, other than to restore and maintain natural ecological conditions; and any necessary signing shall be small and unobtrusive. The management policies set forth previously, in the section on Sierra redwood groves, take into account the existence of memorial groves, and are applicable in this context.

North Grove Trail

For some time, nearly a quarter of a million visitors annually have been enjoying the Calaveras North Grove. At least that many people each year follow the loop trail that affords access to and interpretation of the grove. With visits being made in such large numbers, it is essential that some type of control be exercised. It is important to identify the route that people should follow in order to gain the best experience of the grove, and to discourage more venturesome visitors from wandering into areas where they cause either physical or ecological damage to the vegetation.

Several types of control efforts have been exercised in the past, some of them fairly effective, and some of them entirely inadequate. Surfacing the trail with wood chips, for example, provides excellent identification for the route to be followed, and also constitutes a mattress underfoot that protects the root systems of the plants; but the chips regularly float away during periods of heavy rain or melting snow. Eventually, it may become necessary to provide some kind of hard surfacing on the trail, such as through the use of soil cement and/or soil stabilizers. Low causeways of planks may be important in moist areas and over drainages, preferably as permanent rather than seasonal installations. If use of rustic fencing is expanded, it is important that it be designed to avoid giving visitors the feeling of being channeled, or of being caught in a maze.

Policy: The department shall develop and pursue a plan for the North Grove trail that provides adequate guidance and control of visitors, protection of the vegetation (including root systems), and all-year protection of the ground surface from trampling and erosion. If surfacing is used, it shall be of a type and color that blends harmoniously with the natural environment. Soil conditions shall be monitored to detect compaction, and corrective measures taken if necessary.

Big Stump Protection

The enormous stump near the Sentinel trees at the Calaveras North Grove holds a most unusual combination of natural and cultural interest. Because the stump and the adjoining butt log are visible remnants of what was once by far the largest tree in the North Grove, and because of their relation to the discovery and early history of the grove, and to the astonishing act of felling the huge tree, committed in 1853 by early settlers, the Big Stump and butt log together are among the most interesting and important objects in the entire park. Their preservation and interpretation for enlightenment of present and future generations is imperative.

Several factors, in addition to the mere passage of time, are contributing to deterioration of the Big Stump, and to a slightly lesser degree, of the butt log. One major factor is penetration of water from rain and melting snow, and consequent alternate moistening and drying of the wood. Other factors are the results of actions of visitors.

Access to the surface of the stump encourages some visitors, particularly children, to slide down the hollows and irregularities in the sides of the stump, which wears and erodes the soft wood, and imparts to it an unnatural appearance. This practice, in turn, places the feet of the participants at the immediate base of the stump, and encourages them (and others) to trample the ground close around the large feature, which has a detrimental effect on its durability. Furthermore, public use of the grooves made by augers destroys historic features.

Methods of affording better protection to the Big Stump have been the subject of many discussions. No firm conclusions have yet been reached as to the best solutions to the various problems involved. Reconstruction of one of the round or octagonal buildings that covered the stump in the 19th century, while perhaps affording some protection of the surface from water penetration, and possibly from some kinds of misuse by visitors, would also virtually preclude appreciation and interpretation of the stump as a natural feature, and as a once integral part of a huge tree; for this reason, that option should not be pursued. An alternative method of enabling visitors to observe the features of the stump close-up needs to be developed. This might be a viewing platform immediately adjacent to the stump.

Policy: The department shall forthwith pursue steps toward adoption of measures to provide adequate protection for the Big Stump and the butt log, both from weather conditions and from detrimental activities of visitors, and shall activate such measures at the earliest possible time.

Toboggan Hill Restoration

The cut made in the forest on the south side of the meadow at the North Grove, to provide a place for winter tobogganning, created a major scar on the park landscape that constitutes a negative esthetic value. There is some regeneration in the opening, but it is inadequate for prompt recovery of the forest in that area.

Policy: The department shall take steps to restore the forest clearing to a natural forest growth. An effort shall be made to duplicate as closely as possible the mixture and association of native species found on the adjoining slopes.

Recreational Resources

Recreational Values in a Natural Park

The Classification Act provides, in effect, that recreational uses permitted in a unit classified as a state park shall be those that are consistent with the primary purposes for which the park was created, and that do not consume or damage the park resources, nor detract from the experience of visitors who are enjoying the principal values of the park. In the early years of the State Park System, there was no Classification Act, and no recognition of such distinctions; the resulting conflict is well illustrated by the cutting of trees at Calaveras to provide for winter snow play, and the draining of the meadow to encourage that activity, and to provide an area for such field games as baseball. These activities have long ago been discontinued, but we are still dealing with the effects of the measures taken to encourage them in the past.

It has often been observed that one of the most popular types of recreational activity is driving for pleasure. The parkway at Calaveras Big Trees, which connects the North and the South Groves, offers an excellent opportunity for this particular type of enjoyment. Hiking on the many trails, nature study, and photography are some other types of recreational activities that are fully compatible with the purposes and objectives of a natural park such as Calaveras Big Trees.

Policy: To protect natural, cultural, and esthetic resource values that are the basis for most recreational opportunities, only such types of recreation activities as are compatible with the state park classification and with the Sierra environment shall be planned for or permitted at Calaveras Big Trees State Park.

Restrictions on Uses in Sensitive Areas

The Sierra redwood groves and the meadow at the North Grove are ecologically sensitive areas, and must not be subjected to any type of damaging development or use. The same is true of the riparian areas in the park; any necessary measures should be taken to prevent the trampling or erosion of streambanks or other moist areas. Another type of area for which protection is needed is that of the volcanic deposits found on the ridges bounding the South Grove, on the ridge southeast of the North Grove, and in a smaller area on the ridge between the two branches of the creek just east of the North Grove. These andesite

areas contain plants that do not grow in any other local type of habitat; while they are not rare or endangered on a statewide basis, they are not found elsewhere in the park. Furthermore, these areas are also ecologically sensitive otherwise, and need to be protected from development or heavy use.

Policy: The department shall avoid any development of facilities that would threaten ecologically sensitive areas in the park, whether by construction itself or by resulting visitor impact. Any necessary measures shall be taken to afford protection to such areas.

Allowable Use Intensity

The California Public Resources Code, Section 5019.5, requires that a land carrying capacity survey be made prior to preparation of any development plan for any park or recreation area. Section 5001.96 further requires that attendance be held within limits so established. Allowable Use Intensity is a refinement of the land carrying capacity concept, and is prepared as part of the Resource Element of the General Plan, in fulfillment of the above code sections.

Allowable use intensity is just one of several factors considered in developing the Land Use Element of the General Plan. Other factors that may also be considered in determining land use for any unit of the State Park System are classification and purpose, recreation needs, design considerations, and social carrying capacity, or the desired quality of the recreation experience.

Allowable use intensity determinations establish guidelines for development and use an area can sustain without an unacceptable degree of deterioration in the character and value of the scenic, natural, and cultural resources. Determinations are based on analysis and integration of resource management and protection objectives, resource constraints, and resource sensitivities information.

Resource management objectives are defined by the Public Resources Code and other law, unit classification and declaration of purpose, and specific declarations of resource management policy presented in this Resource Element.

Resource constraints are factors which would make visitor use or facility development unsafe, economically impractical, or undesirable. They are determined by evaluating such factors as erodibility and compaction potential of soils, geologic hazards, slope stability and relief, hydrologic conditions, potential for pollution of surface waters, and flooding.

Sensitivities are conditions, locations, or values of resources that warrant restricted use or development to protect resources. Sensitivities are evaluated by considering such factors as the ability of the ecosystem to withstand human impact (ecological sensitivity), not only in the short term but also over a more extended time span; the fragility and significance of archeological and historical resources; vegetation characteristics such as durability, fragility, and regeneration rates; and wildlife considerations such as tolerance to human activity, population levels, and stability.

Sensitivities may also include scenic resources, rare, threatened, or endangered plants, animals and habitats, unique or scientifically important botanic features, and other resources of regional or statewide significance.

Based on the preceding factors, allowable use intensity for Calaveras Big Trees State Park was determined as shown on the Allowable Use Intensity map. Four use intensity categories were established, ranging from very low to high. Representative examples of appropriate activities and facilities for each category are listed in the legend of the map. The following are general descriptions of the Allowable Use Intensity classes that have been mapped.

Category I --

Includes areas having sensitive biological, cultural, and/or esthetic resources that could be significantly affected by concentrated use or development. These areas include primeval, scenic landscape, which offers outstanding opportunities for nature observation, sightseeing, and hiking. Lands mapped include an area designated as a natural preserve, and riparian corridors along major watercourses.

Category I lands are open for public access by foot; however, use should occur only on designated trails. Motorized management access is not allowed except in emergency situations.

Category II --

Includes scenic landscape that offers opportunities for unstructured and unconfined forms of recreation, such as sightseeing, hiking, and primitive camping. These areas include areas of sensitive biological, cultural, and/or esthetic resources that are unsuitable, at this time, for inclusion in Category I due to the extent of existing disturbance, such as from past land use practices or high-intensity public uses. They also include lands of steep topography and soil instability that severely limit the potential for public vehicle access and site development.

Category II lands are open for public access by foot, backpacking, and primitive camping at designated campsites, and vehicle access over established routes for management purposes only.

Category III --

Includes areas with gentle topography, relatively stable soils, and/or good vehicle access that are appropriate for low- to moderate-intensity site development. Lands in Category III include areas of established, low- to moderate-intensity recreational use, disturbed sites with good access, existing or potential public vehicle access corridors, and an existing right-of-way access. Category III lands contain some sensitive biological, cultural, and esthetic resources.

Areas mapped also include scenic corridors along travel routes where turnouts have been provided for stops or for access to trails, and for other informal uses.

Category IV --

Includes areas suitable for moderate- to high-intensity site development, and having good access. Lands mapped in this category include existing moderate- to high-intensity use sites, and some lands potentially developable to this standard that are not limited by physical characteristics or sensitive resource considerations, except that certain areas of cultural sensitivity are not now being affected, but must be given special consideration if modification is proposed or use changes.



Land Use Element

LAND USE ELEMENT

Purpose

The Department of Parks and Recreation serves the dual mission of protecting and preserving the resources of the State Park System and of providing recreation opportunities and facilities for the public. Establishment and classification of Calaveras Big Trees as a state park recognizes the significant natural resources of the unit. These resources present diverse and quality recreational, interpretive, and educational opportunities to enhance the public's enjoyment and appreciation of the area.

The Land Use Element determines the optimum use of the land at Calaveras Big Trees State Park for providing those opportunities, consistent with the programs and policies identified in the Resource Element for resource protection and perpetuation. The Land Use Element considers appropriate, desirable, and necessary land uses for all undeveloped and developed areas of the park. Land use classifications will dictate appropriate types of facilities for specific areas. These facilities are described in the Facilities Element.

The functional result of the Land Use Element is the Land Use Plan (Maps 7 and 8). The Land Use Plan organizes land use in the park by prescribing what happens, where it happens, and to what degree it happens. The Land Use Plan defines routes of travel and use areas, as well as non-use areas free from human change. It controls use and development, and arranges park activities and facilities so visitors may have the opportunity to enjoy the recreational, educational, and spiritual experiences the park has to offer. The Land Use Plan, together with the Land Use Element, provides a valuable guide for long-range management and development planning of the park.

Land Use Categories

To develop a sound plan for appropriate and organized use of Calaveras Big Trees State Park, the functions and activities which occur there were identified and grouped into categories. The categories represent desirable types of land use, and consist of compatible functions and activities. There are six categories of land use. They are: Interpretive Use, Day Use, Overnight Use, Operations Use, Transportation Use, and Open Space. The uses are delineated on Map 7, and defined as follows:

Interpretive Use

Interpretation aims at enhancing public enjoyment and benefit in the park through increasing understanding of the park's resources, and encouraging appreciation of their value. Areas designated for this use occur primarily in or near areas of natural or cultural significance. Interpretive use is often compatible with day use, and the two use areas may overlap.

Hiking (trail use) is an interpretive activity which is divided into two forms -- self-guiding and self-discovery. The difference is described on page in the Facilities Element. Trail routes extending to and between points of interest are designated for interpretive use. Pathways which serve as a means of circulation between facilities, such as buildings and campsites, are specific to those facilities, and are not considered interpretive trails.

Day Use

Day use is defined as active or passive recreation occurring during the operating hours of the park. Recreational activities permitted in the park include: picnicking, hiking (trail use), swimming, sunbathing, rafting, fishing, sightseeing, bicycling, nature study, socializing, photography, games, reading, art, snow play, and cross-country skiing.

Areas with have attractive natural qualities and are accessible, suitable for small-scale development, and able to withstand the impacts of recreational use may be designated for day use.

Overnight Use

Overnight use is recreational camping. There are three forms of camping permitted at the park. They are family camping, group camping, and environmental camping (primitive camping). Year-round overnight use is available on a limited basis.

Overnight use designation is restricted to the few areas of the park which have good access, gentle topography, stable soils, nearby utility service, absence of sensitive resources, and are large enough to accommodate high-intensity development without losing the natural character.

Operations Use

Certain areas in the park are reserved for administration, maintenance, and service areas for park operations. Included in these areas are the park headquarters office, the contact station, the maintenance yard, the staff housing area, and utility system distribution and collection points.

Transportation Use

Transportation is a system for moving park visitors and park staff from one place or area to another. There is no public or mass transportation network in the park, so means of travel are limited to motorized vehicles or bicycles. Walking and hiking are usually associated with recreational activities, and, therefore, are not considered a form of transportation. (Note: Although traveling in the park may be part of the overall recreational experience enjoyed by visitors, it is secondary to the experiences gained at the various attractions in the park, and, therefore, is considered separate from recreation.) Paved routes of travel open to public use (including appurtenant roadside parking areas) which extend to and between land use areas, are designated for transportation use. Circulation in the interpretive, day, overnight, and operation use areas is an integral part of those areas, and not part of the transportation use designation.

Open Space

All areas not designated for other uses are classified as open space. Most of the open space is undeveloped; however, it can include unpaved fire and service roads, trails, fuel breaks, fence lines, utilities, and abandoned facilities. Open space is to remain free of new development, except for new utilities developed to serve new facilities proposed in the Facilities

Element. Routine maintenance and replacement of existing facilities in the open space designation is also permissible. Low-intensity recreation such as fishing, hiking, and nature study may also take place in these areas.

Existing Land Use

Many of the present land uses at Calaveras Big Trees were established soon after the discovery of the stand of Sierra redwoods now called the North Grove. Early travel to the grove was facilitated by a wagon road which passed through the area. Reports of the enormity of the trees attracted travelers to the grove, which quickly developed into a privately owned resort with overnight accommodations. As the resort expanded to accommodate increasing numbers of guests and tourists, recreational facilities were developed as added attractions.

A paved highway (State Route 4) was completed in the late 1920s; it provided a much easier and faster way to get to the resort and grove. This also created greater popularity for the grove.

Soon after the highway was opened, the property was acquired by the state for perpetuation as a park. When the state took possession in 1931, the North Grove resort complex was well established as the core of the park, with the grove of redwoods the principal attraction.

Many forms of recreational uses were already in place when the park was established. Primitive camping and picnicking were occurring at the upper end of the meadow, and trails for hiking had been carved into the surrounding terrain. Guided horseback rides to the South Grove were also available.

Beginning in the late 1930s and continuing into the early 1940s, the Civilian Conservation Corps (CCC) set up camp at Calaveras Big Trees to undertake further formal developments for the park. Their efforts centered around the North Grove and the meadow area, and resulted in the establishment of land uses and vehicular circulation which have basically remained unchanged to this day. In the late 1940s and early 1950s, more facilities were developed, broadening land use. They included a group campground, staff housing, a park headquarters, a contact station, and an expanded parking area.

Between 1949 and 1954, 3,516 acres of forest land next to the park's southeast boundary were purchased and added to the park (including the South Grove). This acquisition increased the size of the park to 5,437 acres, more than 90 percent of its present size. Recreational use continued to be limited to the North Grove and the meadow areas due to the lack of an adequate road to the new areas of the park. This problem was solved in 1959 with development of a six-mile-long, two-lane paved road called the Calaveras Parkway. When the parkway was opened to the public, new areas of interest became readily accessible -- most notably the North Fork Stanislaus River, where the parkway was temporarily terminated. Demands for additional land use and facility development followed in the wake of the new access. To help meet the demand, overnight use was established at Oak Hollow, with facilities accommodating 55 campsites. Formalized day use was established at the Scenic Overlook and near the river, and interpretive use was established near the lava bluffs. When additional funding became available, the parkway was extended three miles to Beaver Creek, providing a more convenient access to the South Grove. As

with the first segment of parkway development, the second segment opened up new opportunities for additional facilities. Day use was established at Beaver Creek and Oak Leaf Spring. Interpretive use in the South Grove, although already in place, increased in popularity. An additional 558 acres were purchased and added to the unit in the 1970s. Formal recreation use has not been established in these newer areas.

The rest of the park remains undeveloped, with the exception of fire/service roads and minor, isolated improvements. Out of the 5,995 acres of the park, only 225 acres are developed and support ongoing use.

Land Use Goals

Calaveras Big Trees State Park is one of the oldest and most popular units of the State Park System. The popularity of the unit stems not only from its scenic natural resources, but from its public amenities as well. In establishing a plan for land use, it is essential that the values that have made the park a favorite with the public be maintained or improved, not altered or lost. To facilitate this, the Land Use Element has been prepared with certain goals in mind. These are:

1. To insure that the park's natural systems and cultural resources are protected and enhanced.
2. To insure that those qualities of the park that provide for the highest levels of public enjoyment and appreciation are perpetuated.
3. To provide for expanded opportunities to experience the park and its resources, consistent with the above goals.

Planning Issues and Concerns

An analysis of existing conditions, along with the results of a user survey and input received at public meetings, enabled identification of a number of issues and concerns at the park. Those that were used in developing recommendations are summarized below. They are followed by issues that were raised and considered by the planning team, but not incorporated into the plan.

Interpretive Use

- The limited facilities and size of the Visitor Center.
- The undesirable location of the Visitor Center.
- The need for better visitor orientation to the park and the surrounding area.
- The need for a campfire center at the Oak Hollow Campground.
- Redesign of the Lava Bluffs Trail to improve vistas.
- The desirability of extending the River Trail from the river to the South Grove.
- The necessity for improvements to the Bradley Grove Trail.

Day Use

- Improved visitor access to and along the North Fork Stanislaus River.
- The need for restrooms at the river use areas.
- Addition of restrooms at the South Grove trailhead.
- Improvements and upgrades of picnic areas.
- Addition of restrooms at the Beaver Creek Loop.
- Addition of restrooms at the South Grove trailhead.
- The need for a snow shelter for winter recreationists.

Overnight Use

- The need for an increase of up to 30 additional campsites.
- Creation of at least two "mini-group" campsites, to relieve the strain placed on the family campground by small groups.
- An increase in the number of tent campsites.
- The lack of sufficient restrooms and shower facilities at Oak Hollow.
- The location of the group camp, which allows access to users while bypassing the contact station.
- A reduction in the number of environmental campsites.
- The lack of necessity to put in campground hookups for recreational vehicles.

Operations Use

- The combination of unit and district administration in a single small park office.
- The desirability of keeping the park noncommercialized.
- The safety problem created by a trail from the group camp that crosses the highway at a curve with limited sight lines.

Transportation Use

- The negative impact of noise from State Route 4 on camping and other visitor experiences in the North Grove area.
- Traffic congestion at the contact station.
- The need for more parking at the river day use area.

Open Space

- The severe impact camping and day use have on the North Grove Meadow, compared with the desirability of the location for such uses.
- The ecological desirability of restoring the meadow, which requires reduction or elimination of adjacent intensive visitor use.

Planning Issues Not Incorporated

- Removal or relocation of environmental campsites at Beaver Creek.
- The need for bike lanes on the parkway.
- The potential conflict between commercial rafters and other park visitors on the North Fork.

Land Use Objectives

The above issues were considered for their harmony with the previously defined Land Use Goals. Those that were considered to be both appropriate and desirable form the basis for the following Land Use Objectives. These objectives served as guidelines for formulation of specific recommendations regarding short- and long-range management and development of the park.

1. Restore the North Grove Meadow and the surrounding environs to a natural state.
2. Expand and improve interpretation of the natural and cultural resources.
3. Improve visitor orientation to the park and the surrounding area.
4. Improve traffic movement and visitor flow, particularly at the entrance station, the visitor center, the North Grove trailhead, and the river day use area.
5. Provide convenient and adequate parking at interpretive and day use areas.
6. Enhance and increase winter recreational opportunities, including camping.
7. Improve and increase access along the Stanislaus River, including access for the physically disabled.
8. Improve and increase interpretive trails throughout the park.
9. Improve and increase overnight use without jeopardizing the quality of the camping experience.
10. Upgrade administrative areas for more efficient and effective operation of the park.

Land Use Recommendations

To achieve the land use objectives, a number of actions are recommended. These actions have been carefully analyzed to ensure their consistency with the policies and guidelines contained in the Resource Element. The consistency between the Land Use and Resource Elements is most evident in comparison of the Allowable Use Intensity Map and the Land Use Plan Map. There are some exceptions, however.

To accomplish restoration of the grasslands and meadow as discussed in the Resource Element, new areas must be established for relocation of overnight use. Although the Resource Element contains a policy which states: "Consideration may be given to establishing new or expanded camping facilities in other parts of the park," the accompanying Allowable Use Intensity Map does not provide for this relocation of use.

To correct this problem, a closer analysis of potential campground sites was performed. Three sites were identified as being well suited for overnight use, without an unacceptable degree of deterioration in the character and value of the scenic and natural resources. The planning team determined that the Land Use Plan, as recommended here, is consistent with the intent of the Allowable Use Intensity guidelines. The inconsistency between the two maps is of no consequence, and is to be dismissed.

All of the recommended actions are summarily listed below, under the appropriate land use category.

Interpretive Use

Relocate the visitor center facility to a location better oriented to the North Grove and more visible and convenient to visitors.

Provide campfire centers for interpretive use at both Oak Hollow and the proposed West Moran campgrounds.

Convert the present headquarters office to a combined house museum and unit office.

Establish an interpretive use area at Oak Hollow for development of a Miwok village display.

Revise, improve, and enhance trail circulation to promote interpretive use of the North Grove, Bradley Grove, and Lava Bluffs areas.

Expand the interpretive use area around the North Grove to accommodate relocation of the Three-Senses Trail and a planned Civilian Conservation Corps (CCC) interpretive facility in an adjacent picnic area.

Reclassify the North Grove Meadow to open space, and the North Grove Campground to interpretive use.

Establish and promote new interpretive trail use at the Beaver Creek area.

Establish and promote new interpretive trail routes between the Lava Bluffs trailhead and the Stanislaus River, and between the Stanislaus River and Beaver Creek.

Day Use

Relocate and expand day use from the North Grove Meadow to an area which is physically separated from the meadow.

- Provide an area to accommodate popular recreational activities consistent with the unit classifications.
- Include an area for interpretation of historic (CCC) picnic furniture.
- Provide for expanded winter use.

Expand day use at the Stanislaus River picnic area.

Expand day use at the Stanislaus River access area.

Continue and promote day use at the Beaver Creek picnic area.

Establish day use picnicking as the primary use at the Scenic Overlook interpretive area.

Continue the present level of day use at the Oak Leaf Spring picnic area.

Continue the present level of day use at the Big Trees Hall.

Overnight Use

Remove overnight use from the North Grove Meadow area.

- Reclassify the North Grove Campground area to interpretive use.

Remove overnight use from the group camp area.

- Reclassify the area to operations use.

Establish overnight use areas at the following sites:

- A 15-acre area located 1/4 mile southwest of the North Grove Meadow, called the West Moran site, for family and mini-group camping.
- A four-acre area located 3/4 mile north of Oak Hollow Campground along Old Moran Road, called the East Moran site, for family camping.
- A one-acre area located 1/2 mile east of the West Moran site, for group camping.

Establish overnight use contiguous to the West Moran site to accommodate small- to intermediate-sized groups of campers.

Continue the present level of overnight use at the Oak Hollow Campground.

- Provide an area for a campfire center to serve as an extension for interpretive use.

Reduce the environmental camping areas to consist of only the two campsites at Beaver Creek.

Operations Use

Relocate district operations to the present visitor center location.

Establish a combination of operational and interpretive uses at the present headquarters location.

Relocate the contact station to improve both operational use and circulation.

Continue the present level of use at the maintenance yard.

- Provide for addition of new facilities in the present area.

Continue operational use of the sanitary disposal station located near the visitor center.

Transportation Use

Support and promote the concept of realigning the portion of State Route 4 that passes through the park to the northwest, as adopted by the California Highway Commission (Map 2).

Allow and encourage Caltrans to make safety improvements at the intersections of the highway with park roads.

Maintain the parkway alignment and appurtenant parking in their present location.

- Exception: Revise the alignment near the park entrance to encourage incoming traffic to proceed directly to the visitor center area for initial orientation (Figure 12).

Revise traffic circulation routes to and between the North Grove and North Grove Meadow use areas.

Establish and promote access and parking for both private vehicles and buses to serve the proposed North Grove Meadow day use area.

Expand and promote vehicular access and parking to serve the new and improved facilities, as proposed, at the North Grove trailhead and River Access areas.

Expand parking for the Big Trees Hall.

Continue the present level of access and parking use at the Scenic Overlook, the Oak Leaf Springs picnic area, the South Grove trailhead, and the Beaver Creek picnic area.

Establish new parking at Oak Hollow to serve the proposed Miwok village display.

Reduce the capacity and improve vehicle access and parking at the Lava Bluffs trailhead.

Establish vehicle access along Old Moran Road to serve the proposed overnight use areas.

Open Space

Allow for development of utility lines to serve new facilities proposed in the Facilities Element. Allow for routine maintenance, replacement, and removal of existing facilities.

Future Acquisition

The following discussion and all other comments regarding land acquisition are intended for long-range planning purposes only, and are not a commitment to acquire property. Implementation of the land use and facility plans recommended in this General Plan is not dependent on land acquisition described below. However, providing additional public lands at Calaveras Big Trees State Park could protect and maintain the integrity of important viewsheds and watersheds. It is recommended that the following areas be added to the park (Map 9):

The land at the upper end of the South Grove watershed (Parcel A). This area is part of the Stanislaus National Forest. Its preservation in an undisturbed condition is very important to overall protection of the Calaveras South Grove Natural Preserve.

The land bordering the west side of the park, south of State Route 4 (Parcel B). This property is adjacent to a proposed overnight use area (the West Moran site). It is important to preserve this area in a natural condition, to eliminate the potential for private development in the immediate viewshed of the proposed campground facility.

The land located between the south boundary of the Big Trees Village subdivision and the park boundary line north of the Stanislaus River (Parcel C). This land is in a prime viewshed of the Stanislaus River, and should be preserved as undeveloped open space.

The Calaveras Bigtree National Forest (Parcel D). This land contains an outstanding natural population of sugar pines. The natural resources and potential for interpretation would provide a valuable asset for the park.

The land containing the upper reach of Love Creek along the southwest boundary of the park (Parcel E). Development of this area would intrude on the viewshed in the park.



Facilities Element

FACILITIES ELEMENT

Purpose

The Facilities Element identifies existing facilities and recommends improvement and/or development of new facilities at Calaveras Big Trees State Park. Architectural design concepts, circulation and utility concerns, and priorities for development are also discussed.

Various facilities are necessary for optimum public access, use, and enjoyment of the unit. Roads, trails, campsites, restrooms, and parking areas are typical of the many types of public-use facilities provided at the park. Maintenance yards, utilities, and administrative offices are examples of the other facilities needed for operation and maintenance of the park.

Existing Facilities Evaluation and Recommendations

There are many facilities at Calaveras Big Trees State Park with varying degrees of success in the type and amount of use they receive. Understanding these facilities, in terms of the opportunities they provide and deficiencies they may have, will help in formulating recommendations for improving the park. For continuity, facilities identified in this element are grouped in the same categories used in the Land Use Element to define the different types of land use.

Interpretive Use

Visitor Center (circa 1970)

The visitor center is a 1250-square-foot wood-frame building with a capacity of 100 persons, including staff. It houses an exhibit room, a 50-seat auditorium, a sales counter, an office, a conference room, and a restroom. The building was preceded by a smaller structure built around 1950, which served as the park headquarters office. That building was destroyed by fire in 1956, and reconstructed shortly thereafter. In the early 1970s, the functions of the park office were moved out of the building to make way for a visitor center. In 1979, and again in 1983, the building was expanded, permitting the center to evolve into what it is today.

The location of the visitor center is not well suited for its primary purpose of orientation and interpretation of the park. The center is not visible to visitors entering the North Grove area. Visitors tend to stop at the North Grove trailhead and hike the trail before visiting the center, a reversal of the proper sequence. Some visitors overlook the center entirely, and proceed to other areas of the park. Continuity between the grove and the visitor center is another problem. There is no clear, direct relationship between the two. The small size of the facility limits the great potential for improved and expanded interpretation of the park's resources.

Recommendations

- Replace the present visitor center with a larger facility containing approximately 2,000 square feet of exhibit space and ancillary office space at a location which is better oriented to the North Grove and more visible and convenient to visitors.

- The new visitor center should include an exhibit room, an auditorium/theater, a sales area, an artifact/exhibit laboratory, a research library, an archives, offices, a conference room, public restrooms, and an outdoor veranda.
- Redesign and enlarge the North Grove parking area to accommodate circulation and additional parking for automobiles, recreational vehicles, and buses.
- Remove the existing comfort station located at the north end of the North Grove parking area, but only in conjunction with the development of a new visitor center.

Campfire Center (1949)

The campfire center covers an area of approximately 3,000 square feet, and seats 400 persons. It consists of a small covered stage, a protected projection screen, a podium, fixed benches, electrical systems, and a fire ring. The facility was developed to serve the North Grove Campground, and has been periodically improved. The evening programs presented at the center are a popular attraction to park campers.

The North Grove campfire center provides a pleasant backdrop for park visitors attending the campfire programs. Its presence, however, is an intrusion on the viewshed, and detracts from the natural qualities of the adjacent North Grove.

When the Oak Hollow Campground was constructed, no provisions were made for a second campfire center. Campers staying at Oak Hollow must drive four miles to North Grove to see the evening campfire programs.

Recommendations

- If a new visitor center is built before abandonment of the North Grove campground, relocate the existing campfire center to the group picnic area east of Big Trees Hall on an interim basis, and restore the current site to a natural condition.
- Remove the campfire center from the interim location, and relocate to the proposed campground at the West Moran site concurrently with the campground development, maintaining the current seating capacity and program capabilities.
- Develop a 200-seat campfire center at the Oak Hollow Campground.
- Provide a 24-vehicle parking at the West Moran site to serve the campfire center.

Interpretive Trails

There are two categories of trails in the park: self-guided and self-discovery. Self-guided trails focus on the unique qualities of the park by providing access to prime natural and cultural resources. Information is

provided on these trails to give users an awareness and appreciation of the natural processes and history which have formed the park as it is today. Self-discovery trails are typically considered hiking trails. The features along these trails are not usually identified or interpreted. It is left up to users to appreciate the natural beauty of the park.

Appurtenant to the trails are parking and gathering areas called trailheads. Typically, a trailhead consists of parking, a bench or table, a restroom, a drinking fountain, a display panel, and the beginning of the trail.

Self-Guided Trails

North Grove (date unknown) - The North Grove Trail is the most frequently used trail in the park. It is a 10-foot-wide trail which loops through the grove. It has a total length of 1.3 miles, and can accommodate up to about 400 users. Parking the trailhead is paved, and has a capacity of 70 vehicles.

Recommendations

- Develop a new trailhead at a location which conforms with the flow of visitors emerging from the proposed visitor center and parking area.
- Develop a new segment of trail extending between the proposed trailhead and the North Grove, intersecting the existing trail at a point near the Fricot Group redwoods.
- Remove the segment of trail between the parking area and the Big Stump, and relocate it to the route of the historic wagon road which led to the old Mammoth Grove Hotel.
- Place additional benches along the trail at locations which will not create a visual intrusion on the natural setting.
- Develop an extension of the trail between the Big Stump and the north end of the meadow.

Three Senses Trail (1976) - This trail was developed to provide visually impaired visitors the opportunity to experience the natural environment through the senses of touch, hearing, and smell. The trail has been successful, and has become popular as an interpretive aid for school groups as well. The trail is 500 feet long, and relatively flat. It is in need of rehabilitation due to wearing down of surfaces by encouragement of touching. The trail also needs to be moved further away from the North Grove Trail because of the confusion created by the close proximity of the two. Parking is shared with the North Grove trailhead.

Recommendations

- Relocate the Three-Senses Trail to the area northwest of the grove.
- Keep the Three-Senses Trail separate from the North Grove Trail, and provide access from the proposed visitor center.

- Improve the relocated trail to provide better interpretation of the natural environment through use of the senses, and provide for the needs of the disabled.

South Grove Trail (1969) - The second most popular trail in the park is the South Grove Trail. This trail has a total length of three miles; it begins at the trailhead north of Beaver Creek, and extends to the middle of the Calaveras South Grove Natural Preserve. The average trail gradient is 8%. The trailhead includes a 36-vehicle parking area, two portable toilets, benches, and an interpretive panel. There is no drinking water.

Recommendations

- Install a composting toilet along the trail leading to the South Grove in the area where the trail crosses the service road and outside the Calaveras South Grove Natural Preserve.
- Improve the trailhead parking facility to include a rest area consisting of two composting toilets, a drinking fountain with a waterline connected to the Beaver Creek water system, benches, and tables.

Self-Discovery Trails

River Trail (1950) - This is the longest trail in the park, extending from the North Grove Meadow to the North Fork Stanislaus River. It is 4.5 miles long, with a maximum gradient of 20%. Because it starts near the North Grove Campground and passes through the Oak Hollow Campground, the trail is used primarily by campers. There are no formal rest areas along the trail; however, water and tables are available at the trailhead and the Oak Hollow Campground, and picnic tables at the river day use area. The trailhead can accommodate eight vehicles. It is somewhat obscure, because of its location behind the picnic facility at the meadow.

Recommendations

- Provide a maximum of six benches along the River Trail at locations where trail users are likely to experience exhaustion, such as at the tops of inclines.
- Realign and regrade portions of the trail to improve the gradient.

Cross Country Ski Trail (date unknown) - This 3.2-mile loop trail follows existing park roads that are closed to vehicle traffic during the winter. The trail starts at the North Grove trailhead, and uses portions of the Smith Parkway, the west portion of Old Moran Road, a park service road, and the North Grove day use access road. Use of the trail is contingent on a sufficient amount of snowfall to provide an adequate base. Year-round use of the parkway to provide access to the proposed East Moran Campground will eliminate a major portion of the ski trail.

Recommendations

- Relocate the portion of the trail that uses the parkway to a new alignment parallel to the parkway.
- Develop a connecting ski trail between the proposed all-season campground (East Moran site) and the ski trail loop.

Bradley Grove Trail (1978) - The most underused trail in the park is a 2.9-mile trail that circles through a planted grove of Sierra redwoods called the Bradley Grove. The low use is primarily attributable to the severity of the gradient (25% at some points) and poor alignment. Lack of visitor awareness of the trail is another factor contributing to its low use. Like the Lava Bluffs Trail, there is neither interpretation of the natural features nor places to sit and rest along the trail. This trail branches off of the South Grove Trail, and, thus, shares the trailhead facilities.

Recommendation

- Realign and regrade portions of the trail to improve access to and along the trail and interpretation of the resources.

Lava Bluffs Trail (1959) - This 2.4-mile loop trail follows the remnants of a historic water ditch. Although its overall gradient is mostly flat, some locations are as steep as 18%. The only interpretation along the trail is at the trailhead. The trailhead consists of a 13-acre unpaved parking area, a portable toilet, and an interpretive panel. Most of the parking area is not used due to the low amount of use the facility receives.

A major shortcoming of the trail is that there is no clear view of the geologic structure it is named for. Many visitors have expressed disappointment at being unable to see the lava features.

Recommendations

- Improve the existing trail by extending or rerouting it to a location which is in sight of the geologic features.
- Modify the trailhead to conform with the rest area and paved parking proposed with the new Lower Stanislaus River Trail.

Miscellaneous Trails - Trails which serve solely as a route for people to move between facilities close to each other are considered pathways, and are not identified as interpretive trails. Most pathways are insignificant in length. Fire and service roads are not considered trails unless designated as such.

No Recommendations

New Interpretive Facility Recommendations

House Museum

- Remove the district administrative staff and functions from the present park office.
- Adapt the interior of the building to function as both a park unit office and a museum for interpretation of park history.
- Maintain the historic integrity of the building's exterior architecture.

Miwok Village Display

- Develop a cedar bark house and an acorn granary near the entrance to the Oak Hollow Campground for interpretation.
- Provide a small, informal parking area to serve the interpretive display.

Meadows Trail (New)

- Develop a self-guided trail circling the North Grove Meadow subsequent to proposed removal of the campground facilities.
- As much as possible, route the trail along the campground road proposed for removal.
- Move the footbridge crossing Big Tree Creek near the picnic area to a location further downstream from the present site.
- Provide a maximum of two unobtrusive interpretive platforms at different locations along the margin of the meadow.

Lower Stanislaus River Trail

- Develop a self-discovery and fishing access trail, beginning at the existing Lava Bluffs trailhead and extending down to the Stanislaus River.
- Develop a rest area at the trailhead, including four picnic tables, a potable water system, and a composting toilet.
- Pave the existing trailhead parking area and entry road to accommodate 20 vehicles, and restore the remaining area to a natural and vegetated condition.

Oak Leaf Springs Trail

- Develop a self-discovery trail beginning at the Stanislaus River bridge and extending over the ridge to Beaver Creek and the South Grove trailhead.

- Improve the parking area serving the Oak Leaf Spring picnic facility to accommodate trail use parking, and develop a connecting access trail between the parking area and the proposed trail.

Beaver Creek Trail

- Develop a self-guided trail along Beaver Creek between the service road bridge and the P.G.&E. Diversion site.
- Incorporate trailhead parking for the trail with the present trailhead parking serving the South Grove Trail.

Day Use

North Grove Picnic Area (circa 1940)

Located at the north end of the North Grove Meadow, this six-acre picnic facility is divided into two units. They are physically separated by Big Tree Creek. One unit provides picnicking for organized groups of up to 100 persons. It is used approximately 45 times a season, with an average number of 87 persons per use. The other unit is for family-sized groups (six persons), and has 28 picnic sites. The combined capacity of parking for the two units is 90 vehicles. The parking area is also used for overnight parking of extra vehicles which cannot be accommodated at the campsites.

Recommendations

- Subsequent to proposed removal of the North Grove Campground, remove the present group picnic facility, and relocate to the general area currently occupied by campsites 16 through 20.
- Expand and improve the relocated group picnic facility to accommodate one large group (100 people) and one small group (50 people), and provide for placement of the historic comfort station relocated from the North Grove Campground.
- Remove the family picnic facility located at the north end of the meadow, relocate to the area now occupied by the group picnic facility and campsites 3 through 8, and restore the area to a natural condition.
- Expand and improve the relocated family picnic facility to accommodate 240 people (40 families).
- Maintain the existing comfort station located near the present group picnic area.
- In conjunction with developing a new family picnic facility, include an area furnished with 5 to 10 old stone barbecues, relocated from the campground, and 1930s-style furniture, for living interpretation. Locate in the general area between Big Trees Hall and the Big Stump.
- Provide an open space turf area between the family and group picnic areas for outdoor activities.

- Develop an all-season shelter with a fireplace near the open space area. This should be developed in conjunction with the cross-country ski trail.
- Develop parking areas to support the proposed day-use facilities, having a total capacity of 120 vehicles.
- Adapt the portion of the old park entrance road south of the disposal station to accommodate parking for the group picnic area.

Big Trees Hall (1938)

One of the most prominent and architecturally compatible structures in the park is Big Trees Hall, which was built by the Civilian Conservation Corps (CCC) to serve as a recreational building. This 1800-square-foot facility has a capacity of 100 persons, and contains two restrooms. It is used primarily for group meetings and educational programs. Parking is shared with the visitor center parking area, and accommodates 11 vehicles, which is inadequate.

Recommendations

- Expand the parking area to accommodate up to 45 vehicles.
- Maintain the historic integrity of the building for park functions and interpretation.

Stanislaus River Picnic Area (1969)

The primitive picnic area located southwest of the bridge crossing the Stanislaus River was originally designed as a 50-site campground facility. Instead, ten picnic tables, five barbecues, and two portable toilets were placed in a two-acre area for day use. The absence of a source of potable water has been the prime deterrent to further development. The area is also used for vehicle parking and river access.

Recommendations

- Redevelop the picnic area to improve and enhance day-use activities.
- Increase the number of family picnic sites from 10 to 20 sites (120 people), and include a barbecue at each site.
- Add a 50-person group picnic facility.
- Develop a comfort station to serve the picnic facilities.
- Develop a potable water system to supply water throughout the picnic area.
- Develop a terrace structure at the east side of the area, and include benches, an interpretive panel, and a cleared vista of the natural features of the river.

- Relocate and expand the access road and parking area to improve traffic circulation and better serve the proposed day-use facilities.
- Provide a parking area for up to 50 vehicles.

River Access and Use Areas (1969)

Since completion of the parkway road, more and more people have been using the river for recreation. In anticipation of recreational use, two parking areas were provided near the bridge crossing, on opposite sides of the river. The larger of the two parking areas is on the west side. It accommodates up to 28 vehicles, which is inadequate for the demand. The other area is a wide shoulder along the parkway that can hold approximately 15 vehicles. Developable space is very restricted due to the steep terrain around the river.

When the parking areas reach capacity, as they often do, traffic congestion results as people circulate and search for the next available space. Although not as convenient, the picnic area is also used for river access parking. Occasionally, this area will also fill up with parked vehicles, worsening the congestion problem.

Access to the river from the parking areas near the bridge has been by way of steep descending trails. In 1988, stairways were constructed to improve the accessibility. Trails leading to the river from the picnic area are not as steep, but are longer in length, and are less definitive as to where they lead.

Most recreational use of the river occurs along the stretch in the vicinity of the bridge and parking areas. Access along the river's edge is undefined, although there are "volunteer" trails which are used by some. The river use area is segmented at a point beneath the bridge by large rock outcroppings and boulders which block safe passage between downstream and upstream (relative to the bridge) areas. Getting from one area to the other requires ascending to the bridge level and crossing the parkway at grade.

Amenities at the river use area are minimal. There are two portable toilets and two interpretive panels at the parking area. There is no provision for disabled access to the river, which would be very difficult to provide except at the extreme downstream portion of the River Picnic Area.

Recommendations

- Expand and redesign the parking area west of the river to accommodate additional vehicles.
- Replace the existing chemical toilet with a comfort station and associated utility systems.
- Develop a terrace structure near the parking area in view of the river, and include benches, interpretive panels, an overhead sunscreen, and a nearby drinking fountain.
- Develop a new 50-vehicle river use parking area south of the picnic area connecting to the picnic area access road.

- Include a comfort station and utilities in the proposed river use parking area.
- Maintain the parking area east of the river, and provide two composting toilets in a safe and convenient location.
- Regrade and/or realign portions of access trails leading down to the river from the parking areas and picnic area to reduce difficulty and improve safety to the highest degree possible.
- Develop a trail to the river from the proposed downstream parking area to provide accessibility for the disabled.
- Improve or provide trails along the heavily used portion of the river, including full or partial removal of large boulders beneath the existing bridge, to create a safe and convenient passageway between the upper and lower (relative to the bridge) river use areas.

Beaver Creek Picnic Area (1969)

This facility covers an area of six acres located along the northwest side of Beaver Creek. It is used for recreation associated with the creek, as well as for picnicking. The area consists of 40 picnic sites (without barbecues), a portable toilet, and a 54-vehicle parking area. Only five of the picnic sites are furnished with running water. Approximately half of the sites are rarely used due to visual obscurity and the relatively low use the area receives. The sites used most often are the ones nearest the parking area and along the creek. High water flows in the creek in 1986 eroded and destabilized its banks, reducing the amount of safe access to the water. A fence was constructed to prevent access to this eroded bank.

Recommendations

- Reduce the number of picnic sites to a maximum of 24 sites (144 people), and rearrange the locations to improve visibility and use.
- Provide a picnic site accessible to disabled persons.
- Expand and improve the potable water system to provide water throughout the picnic area, and to supply water to the South Grove trailhead parking area.
- Add barbecues to half of the picnic sites.
- Provide a composting toilet with a nearby drinking fountain.
- Surface heavily used pathways between the parking area and swimming area with an appropriate paving material.
- Improve trail access to the creek.

Scenic Overlook (1969)

At the top of the ridge which separates the North Grove and Oak Hollow Campgrounds is a 1/2-acre vista point adjacent to the parkway. This facility, once called Dardanelles View, features a vista of the distant high Sierra peaks east of the park. In the early 1960s, a campfire center was located here. It has since been removed. The facility currently includes a portable toilet, two tables, an interpretive panel, and an 18-vehicle parking area. The River Trail passes through the area, and some hikers pause for a rest. The area can get quite warm during the summer due to the solar exposure.

Recommendations

- Establish a low-use, informal picnic area without barbecues or a water system. (Note: A single drinking fountain may be provided if a convenient water source is developed in the future.)
- Provide a maximum of four picnic tables.
- Replace the portable toilet with a composting toilet.
- Develop a viewing terrace near the parking area, and include a bench, an interpretive panel, and an overhead sunscreen.

Oak Leaf Springs Picnic Area (ca. 1970)

This 1/4-acre facility is located alongside the parkway, and consists of three picnic tables, a drinking fountain, and a memorial plaque. Parking is accommodated at a turnout on the opposite side of the parkway. The amount of use it receives is low, probably attributable to the lack of nearby recreational facilities.

Recommendation

- Maintain the present size, capacity, and layout of this picnic facility.

Overnight Use

North Grove Campground (1943)

The North Grove Campground is a 74-campsite facility serving family camping. It is situated around 3/4 of the perimeter of the North Grove Meadow, and covers roughly 22 acres. There are five categories of camping equipment which can be used at the campground. Each campsite is designated according to the category most suitable.

The categories and their suitable campsites are: single tents (18); multiple tents (19); small travel trailers (12); motorhomes/big trailers (24); disabled accessible (1).

The facility is closed during the winter season, except for 12 campsites which remain available for camping year-round.

In addition to campsites, the facility includes two combination buildings, two comfort stations, four restrooms, a roadway, and utilities. Standard campground amenities, such as picnic tables, water faucets, and fire rings, are furnished with the campsites, and some still contain the old stone masonry stoves installed by the CCC almost 50 years ago.

The popularity of this facility is unquestionable. The campground is almost always full during the summer use season, and turnaways are common. Much of its popularity is attributable to the proximity and relationship to the meadow, which provides a feeling of spaciousness and serenity. The location is also conveniently close to the North Grove, the visitor center, and the campfire center.

A major drawback and a source of many complaints is the traffic noise from the nearby highway. The noise diminishes the serenity of the meadow, and is a major disturbance to those camping nearest the road. Another problem with the campground, although not necessarily a concern of campers, is the visual and physical impact the facility has on the meadow. The quality of the recreational experience is diminished for picnickers and other day use visitors to the meadow by the intruding presence of the campground.

Recommendations

- Develop two new campground facilities: one located near the top of the knoll, southeast of the meadow referred to as the "West Moran site;" and the other located along Old Moran Road east of the parkway, referred to as the "East Moran site."
- Following development of the two new campgrounds, remove the existing facility circling the North Grove Meadow, and restore to a natural condition.

Oak Hollow Campground (1966)

This 55-campsite facility, covering an area of 20 acres, also serves family camping. Oak Hollow has one less category of camping equipment than North Grove. The categories and their suitable campsites are: single tent (10); multiple tents (21); small travel trailers (19); and motorhomes/big trailers (5). The character of this campground is different from that of North Grove. It has a more secluded feeling, and is more concentrated. Facilities provided at this campground include a combination building, two comfort stations, a roadway, and utilities. Water comes from two sources: a spring and a well.

Recommendations

- Upgrade an existing comfort station to a combination (shower) building.
- Develop a new 200-seat campfire center, including parking for up to 20 vehicles.
- Maintain the present size and capacity of the campground.
- Develop a new and reliable water source.

Group Campground (1953)

The Group Campground was developed to provide a separate facility for organized groups. This facility can accommodate groups of up to 100 people, and includes a combination building, a central cooking and eating area, a campfire circle, and a 30-vehicle parking area. It is located at the top of the ridge northeast of the highway, near the staff residence area.

There are inherent problems with its location. The most notable are lack of controlled access, the nearness to staff housing, and an unavoidable highway crossing for those who walk to the North Grove area.

Recommendations

- Remove the present facility.
- Develop a new 100-person group camp at a site east of the proposed campground facility at the West Moran site.
- Include in the facility development a combination building, utility systems (water, sewer, electrical, and L.P. gas), parking for up to 25 vehicles, a campfire circle, and standard group camp amenities.

Environmental Campsites (1982)

These facilities were developed in some of the more remote areas of the park to provide an opportunity for more primitive and individual forms of camping. The campsites include a composting toilet, a table, and a fire ring/barbecue. The campsites are not accessible by vehicle. Campers must pack their equipment, supplies, and water to the campsites. Out of the 10 campsites originally developed, only five still exist. The others were eliminated due to lack of use. Of the remaining five, two are located along Beaver Creek, and three are located along Old Moran Road.

Recommendations

- Continue operation of the two existing campsites located at Beaver Creek.
- Remove all other environmental campsites from the park.

New Overnight Use Facility Recommendations

West Moran Site

- Remove the environmental campsite. Develop a campground facility composed of three sections, with each section containing 30 campsites designed to accommodate family campers with tents, tent trailers, mini-buses, vans, and camper shells. (Note: This facility would be operated on a rotational basis, in which one section is annually closed for maintenance and resource restoration.)

- Include with the facility development a combination building, three comfort stations, parking spurs, utility systems, and standard campground amenities.
- Develop a 400-seat campfire center to replace the present facility, and include parking for up to 24 vehicles.

East Moran Site

- Remove both existing environmental campsites. Develop an all-season, 24-campsite facility serving motorhomes, trailers, and truck-mount campers.
- Include with the facility development a combination building, a sanitation disposal station, a campfire circle, utility systems, parking spurs, and standard campground amenities. No hookups are to be provided.

Mini-Group Campground

- Develop two campsites at a location contiguous to the West Moran site which will accommodate up to 50 campers each.
- Include in the facility development a small combination building, utility systems (water, sewer, electrical, and L.P. gas), and parking for up to 25 vehicles.

Operations Use

District Office (1972)

The administrative offices for both the Calaveras District and Calaveras Big Trees State Park are housed in the historic Caretakers Cottage. This quaint two-story, wood-frame structure was built in the 1860s as an annex to the old Mammoth Grove Hotel. It is the oldest remaining structure in the park. The interior of the building has been modified and upgraded over the years, but the historical integrity of the exterior has been kept intact. Next to the building is a five-vehicle parking area. The administrative functions have outgrown the building, cramping working conditions. Expanding the building would diminish its historic and architectural values, and will not be considered.

Recommendations

District Office

- Subsequent to proposed development of a new visitor center, relocate the district administrative functions and staff to the vacant facility.
- Convert the present visitor center building into a district office.

Park Office

- Retain park administrative functions and staff in the present building, and modify the interior to accommodate both a park office and house museum.

Contact Station (1959)

The contact station, also referred to as a kiosk, was originally constructed in 1950, in the middle of the former park entrance road near the present visitor center. When the parkway was completed in 1959, the station was moved to the present location. The facility consists of a single 80-square-foot office space with drive-up windows on two sides. It was designed and constructed to reflect the rustic architectural style of Big Trees Hall, and to fit with the character of the park.

Traffic congestion near the contact station is a problem on most days. One factor contributing to the congestion problem is the location of the facility relative to the intersection of the parkway and the road to North Grove. Another factor is the poor location of an adjacent 15-vehicle parking area.

Operationally, the contact station lacks a restroom and an office space for administrative staff.

Recommendations

- Develop a new building approximately 100 feet eastward along the parkway from the present site, and include a restroom and office space.
- Expand and improve the entrance road at the new location to accommodate three traffic lanes for double check-in processing.
- Expand and improve the unpaved parking area serving the contact station to accommodate parking for 12 vehicles and a turnaround area.

Maintenance Area (ca. 1940)

The maintenance facilities are located on the north side of State Route 4, opposite the park entrance. Almost all of the buildings located in the maintenance yard were built by the Civilian Conservation Corps (CCC) as part of their camp, and were later converted as necessary to accommodate park operations. For instance, the present carpenter's shop is in the former CCC barrack. Aside from the carpenter's shop (which also includes a ranger office and employee break room), the yard consists of an auto shop, two garages (one for employee use), an auto service station, a tool shed, a hazardous materials storage building (the only non-CCC era building), and a general storage building.

The maintenance yard is generally suitable for most needs of the park, although the age of the buildings and the non-original uses to which they are currently put can be inconvenient. The two significant problems are a lack of material storage space and lack of shelter for heavy equipment. These problems become critical during the winter months, when expensive pieces of equipment are often buried in snow.

Recommendations

- Remove the seasonal staff trailer, and relocate to the expanded staff residence area.
- Develop a heavy equipment storage building in the maintenance area.

Employee Residences

The employee residence area consists of four two-bedroom houses with detached garages, located on the road to the group camping area. Another residence is located near the park entrance, and is a two-bedroom house converted from the CCC dispensary. A small trailer, used for seasonal housing, is located near the maintenance yard.

The available housing for permanent employees is adequate. However, some additional housing for seasonal employees or other temporary workers is needed. Tent platforms for this purpose were located near the group camp approximately 20 years ago.

Recommendations

Based on the availability of housing in nearby communities, there is no need for additional park housing for permanent employees. However, the lack of adequate seasonal housing has created operational difficulties in the past. For these reasons, as vacancies occur, two of the five residences will be converted to seasonal housing. The remaining three will also be phased out as permanent residences when it is recognized that maintenance costs exceed operational benefits. As vacancies occur, consideration will be given to alternate uses for these structures, compatible with the provisions of this General Plan. The residence located at the park entrance, as a historic structure, should not be used for any purpose that detracts from its historic significance.

If, in the process of acquiring new property, housing is also acquired, the houses will be considered for permanent employee housing only if significant operational needs are met, such as public or resource protection. The structures will also be evaluated for seasonal housing or other compatible use. If no beneficial use is determined, the structures will be considered for demolition.

Transportation

State Route 4 (1929)

Access to the park is by way of the Ebbetts Pass Highway. This two-lane highway passes through the park in the vicinity of North Grove, and separates the maintenance and staff housing area from the rest of the park facilities. Within the park boundaries, it is operated and maintained year-round by the State Department of Transportation. The volume of traffic using the highway averages 3,700 vehicles per day, including heavy truck traffic. The highway is a source of a number of environmental disturbances to the park, including noise and air pollution, a barrier to wildlife, and soil-eroding runoff. A safety problem associated with park traffic on the highway is the lack of turn lanes or pockets at the three intersecting park roads.

Recommendation

- Develop left-turn pockets at the intersections of the staff residence road, the maintenance area access road, and the park entrance.

Walter W. Smith Memorial Parkway (1959 and 1969)

The Walter W. Smith Memorial Parkway, also known as the parkway, was constructed in two phases, totaling nine miles. The first phase extended from the highway to the Stanislaus River. The second phase extended the parkway to Beaver Creek. When the parkway was designed by the State Department of Transportation, it was intended to be constructed all the way to South Grove. It was later decided by state park staff to terminate the road at the present location. The segment of parkway west of the Stanislaus River is wider and has a higher volume of traffic than the segment east of the river.

The alignment of the parkway has not changed since construction, with one exception. A small segment was realigned slightly to eliminate damage from a landslide that threatened the original road.

Two areas along the parkway become congested with traffic during busy days -- the segment at the river and the segment near the contact station. The parkway is closed during the winter season, and, when snow is present, a portion is used as a cross-country ski trail.

Recommendation

- Realign and modify the parkway to follow a curved route which connects it directly to the new proposed access road which will serve the new visitor center.

Miscellaneous Transportation Use Recommendations

Facility Access Roads

- Develop a new access road to the North Grove parking area and the present visitor center building, intersecting the parkway at a point adjacent to the northeast end of the parking area.
- Develop a new access road to the proposed day-use facilities, following a route which bypasses the parking area in front of Big Trees Hall.
- Widen and pave the existing service road between the parkway and the West Moran site, the mini-group campground, and the group campground.
- Widen and pave the existing service road from the parkway through the East Moran site, and terminate in a loop no closer than 500 feet from the park boundary.

Facility Development

Architectural Design Concepts

The following concepts, some of which have been established by the Department of Parks and Recreation on a statewide basis, will provide standards and guidelines for design of facilities at Calaveras Big Trees State Park. The concepts are intended to conserve natural resources, assure opportunities for use of facilities by disabled persons, develop facilities compatible with the environment, and maintain or improve the quality of visual resources.

- Design and construct architectural structures to maximize conservation of energy and natural resources.
- Design and construct facilities to be accessible and usable by disabled persons.
- Design and construct buildings, structures, enclosures, walls, fencing, furniture, etc. to reflect Sierra mountain architecture and complement the rustic architectural style established by the Civilian Conservation Corps.
- Emphasize harmony between building and site.

Utilities

This information is meant to provide a general background of the capabilities and problems related to providing utilities for existing and proposed park development. Further studies and discussions with the utility districts and private utility companies will be required, following preparation of specific development plans for park facilities.

Telephone

Telephone service is provided to the area by Pacific Telephone Company, and is adequate for park needs. A pay phone may be installed with the proposed development at the proposed East Moran site, with service brought in from the adjoining Big Trees Village subdivision east of the park. At the West Moran and the new group camp sites, pay phone service may be extended from the Blue Lake Springs subdivision.

Electricity

Electrical service to the park is provided by P.G.&E. at two separate locations in the park. Proposed changes in the facilities around North Grove and the maintenance area will not require a change in service, other than rerouting service lines.

Power requirements for the facilities at Oak Hollow Campground will increase with addition of the proposed campfire center and combination building, but should not exceed the capacity of the existing service.

The proposed campground at the West Moran site, mini-group, and group campground facilities will require a single-phase, 200 amp/120 volt service. The nearest and most convenient source of electrical power is located on the bordering Mumbert property. An alternative to that source would be to extend a branch from the system that feeds the present North Grove Campground up to the new sites.

The only practical source of power for the proposed campground at the East Moran site is located in the nearby Big Trees Village subdivision, east of the site.

Other proposed facility improvements will not require electrical power.

Liquid Propane Gas (LPG)

LPG is supplied under contract from a private distributor. Piped gas is unavailable in this area. Proposed facilities requiring LPG storage and delivery systems are the West Moran site and the group, mini-group, and East Moran site campgrounds.

Sewer

Sewage disposal is accomplished by four methods: leach field, spray field, containment/removal, and containment/composting.

Facilities located in the North Grove area, including the sanitary disposal station, are connected to a septic system with a combination of leach and spray fields. This system is located west of the maintenance yard. The leach system is used exclusively during the off-season, when effluent volume is low and snow prevents spraying. The spray field is used exclusively during the peak visitation period.

The existing group camp and staff residences have a separate septic system which distributes effluent through an underground leach field. Oak Hollow Campground facilities also use an underground leach field for disposal. Other day use and interpretive facilities throughout the park include portable toilets which contain wastes, and are periodically emptied. Removing the wastes is a service provided by a private company. The General Plan proposes to eliminate portable toilets and replace them with composting toilets. Composting toilets work on the principle of biological digestion and evaporation to reduce the volume of the waste product. These toilets are effective in areas of low use.

The Calaveras County Water District has a regional sewage treatment facility west of the community of Arnold. The nearest point of connection for the park is a sewer main which terminates in Arnold, approximately three miles from the park entrance. At the present time, there are no plans to extend this system to communities closer to the park, which could allow connection with the North Grove facility. However, such an extension would be in the best interest of the park, and should be encouraged by the department.

Potable Water

Most of the park gets potable water from the Calaveras County Water District. The water is pumped into a 100,000-gallon concrete reservoir located on the ridge near the present group camp. From there, it is distributed through a gravity-feed system to the facilities in and around the North Grove area.

Water systems serving the Beaver Creek picnic area and the Oak Hollow Campground are fed by springs. The Oak Hollow system includes a well and pump for backup water supply when the spring's flow is reduced during the summer months.

To supply water to areas currently without a convenient source will require considerable waterline piping. Water pressure should not be a problem because available sources are sufficiently higher in elevation than the proposed facilities. The proposed campground at the West Moran site can be fed from the North Grove system. Water to the proposed East Moran and group campgrounds would be piped from the existing water storage tank serving the Big Trees Village subdivision. An alternative to that would be to connect to the water system in the subdivision.

Water to the proposed group camp could also connect with the North Grove system along with the West Moran site facility; however, the system would require a booster pump to overcome the elevation difference.

The proposed water system at the Stanislaus River picnic and river access areas would originate at Oak Leaf Springs. A new storage tank and a chlorination system would be required, along with a new water line. The line would follow the parkway and cross the river at the vehicle bridge.

Drinking water at the Beaver Creek facility comes from an underground spring, and does not require treatment at this time. The proposed addition of faucets should not overdraw the capability of the system.

There is no economically feasible way to pipe water to the Lava Bluffs trailhead area. Providing drinking water, as proposed, will require a storage tank which is periodically replenished with imported water.

Priorities for Development

The General Plan identifies proposed facilities and programs desired or necessary to achieve the goals and objectives established for Calaveras Big Trees State Park. The general priorities will guide budget decisions and preparation of specific development plans to best satisfy the levels of need.

Priority 1 includes the proposed actions related to identified needs which are critical in nature. Priority 2 actions are also related to identified needs, but are less critical than Priority 1 needs. Priority 3 includes actions that will satisfy the non-critical needs.

Implementation of the General Plan will be carried out over a long period of time; thus, some priorities are likely to change.

Phasing

Many of the recommendations contained in this General Plan are discrete, in that they can be instituted independently of the others. Some recommendations are linked, however, and should be implemented at the same time, in order to ensure both efficient park operation and proper consideration of this document. Whenever the department prepares budget documents necessary for realization of this plan's recommendations, regard shall be given to other recommendations that should be simultaneous. While the linking of some recommendations may change over time, the following are considered essential.

1. Eradication of the North Grove Campground

- Proper implementation of this recommendation will require that the following actions also occur:
 - Construct the East and West Moran Campgrounds;
 - Eradicate the old campground facilities, including all roads, parking spurs, tent pads, restrooms, and above ground utilities, and restore the area to a natural state;
 - Construct a CCC interpretive display;
 - Construct two mini-group camps at the West Moran camping area; and
 - Construct a new cross-country ski trail.
- While not essential, it would be desirable to relocate the group campground to the Moran Road location at the same time as the other overnight facilities.

2. Construction of a new visitor center

- Modify the beginning of the North Grove Trail to connect with the visitor center;
- On completion of the new visitor center, make any modifications to the old facility necessary to accommodate use as the Calaveras District office;
- If a new facility is constructed prior to moving the North Grove Campground, install a temporary campfire center behind Big Trees Hall.
- While not essential, it would be preferable to implement all recommendations regarding traffic flow between the visitor center and the contact station, and regarding the contact station itself.

These priorities are included with the following Summary of Facility Recommendations.

SUMMARY OF EXISTING AND PROPOSED RECREATIONAL FACILITIES

	EXISTING (1988)				PROPOSED				NET CHANGE			
	NUMBER	SIZE OR LENGTH	HUMAN CAPACITY	VEHICLE CAPACITY	NUMBER	SIZE OR LENGTH	HUMAN CAPACITY	VEHICLE CAPACITY	NUMBER	SIZE OR LENGTH	HUMAN CAPACITY	VEHICLE CAPACITY
VISITOR CENTER	1	1,260sf	100	11	1	6,000sf	250	125	NC	+4,740sf	+150	+114
CAMPFIRE CENTER	1	.3a	400	(30)	2	.5a	600	44	+1	+2.2a	+200	+14
INTERPRETIVE DISPLAY	0	0	0	0	3	.8a	60	6	+3	+7.8a	+60	+6
SELF-GUIDING TRAIL	3	4.4M	465	106	5	5.7M	602	161	+2	+1.3M	+137	+55
SELF-DISCOVERY TRAIL	4	9.8M	172	43	6	13.0M	228	20	+2	+3.2M	+56	-23

FAMILY PICNIC AREA	4	11.7a	522	151	5	16.5a	570	167	+1	+4.8a	+48	+16
GROUP PICNIC AREA	1	1.2a	100	12	2	3.8a	200	60	+1	+2.6a	+100	+48
RIVER USE AREA	1	14.0a	400	43	1	14.0a	400	120	NC	NC	NC	+77
SCENIC OVERLOOK	1	.2a	12	18	1	.2a	12	12	NC	NC	NC	-6
ALL SEASON ACTIVITY AREA	0	0	0	0	1	1.0a	40	15	+1	+1.0a	+40	+15
RECREATION HALL	1	1,800sf	100	(11)	1	1,800sf	100	45	NC	NC	NC	+34

FAMILY CAMPGROUND	2	42.0a	1,032	258	3	60.0a	1,112	278	+1	+18.0a	+80	+20
FAMILY CAMPSITES - TYPE A	100	6.0a	800	200	115	7.0a	920	230	+15	+1.0a	+120	+30
FAMILY CAMPSITES - TYPE B	29	2.0a	232	58	24	1.5a	192	48	-5	-.5a	-40	-10
MINI-GROUP CAMPGROUND	0	0	0	0	1	2.0a	100	25	+1	+2.0a	+100	+25
GROUP CAMPGROUND	1	2.0a	100	30	1	2.0a	100	25	NC	NC	NC	NC
ENVIRONMENTAL CAMPSITE	5	.1a	40	(10)	2	.1a	16	(4)	-3	NC	-24	(-6)

FACILITY ACCESS ROAD	9	1.8M	N/A	N/A	9	2.9M	N/A	N/A	NC	+1.1M	N/A	N/A
PARKWAY	1	9.0M	N/A	N/A	1	9.0M	N/A	N/A	NC	NC	N/A	N/A
VEHICLE PARKING	19	6.0M	N/A	698	21	8.6a	N/A	967	+2	+2.6a	N/A	+296

NOTES:

- Capacities are determined by DPR design standards.
- Vehicle capacities represent the number of vehicles which can be legally parked at a facility.
- Type A campsites include tents, tent trailers, mini-busses, vans and camper shells.
- Type B campsites include motorhomes, trailers and truck-mount campers.
- Numbers in brackets () indicate shared parking facility.

KEY: N/A Not Applicable
 NC No Change
 sf square feet
 a acres
 m miles
 + plus (gain)
 - minus (loss)

Summary of Recommendations and Priorities

PROPOSED ACTION

PRIORITY

INTERPRETIVE USE

	NO CHANGE	IMPROVE	EXPAND	RELOCATE	NEW ADDITION	ONE	TWO	THREE
Visitor Center		●	●	●		●		
Campfire Center				●		●		
House Museum					●		●	
Miwok Village Display					●			●
Interpretive Trails								
North Grove Trail		●		●		●		
3-Senses Trail		●		●			●	
South Grove Trail		●						●
Meadow Trail					●		●	
River Trail		●						●
Cross Country Ski Trail		●		●			●	
Lower Stanislaus Trail					●			●
Lava Bluffs Trail		●					●	
Oak Leaf Springs Trail					●		●	
Beaver Creek Trail					●			●
Bradley Grove Trail		●		●		●		

DAY USE

North Grove Picnic Areas		●	●	●		●		
Big Trees Hall		●					●	
River Picnic Area		●	●				●	
River Access and Use Area		●	●				●	
Beaver Creek Picnic Area		●						●
Scenic Overlook		●						●
Oak Leaf Springs Picnic Area	●							

OVERNIGHT USE

North Grove Campground*		●	●	●		●		
Mini-Group Campground					●	●		
Group Campground		●		●		●		
Oak Hollow Campground		●					●	
Beaver Creek Environmental Camps		●						

OPERATIONS USE

District Office		●	●	●		●		
Park Office		●					●	
Contact Station		●		●			●	
Maintenance Area		●						●
Staff Housing			●	●				●

TRANSPORTATION USE

State Route 4			●					●
Facility Access Roads			●	●			●	●
Parkway	●			●				

*Includes West Moran and East Moran sites.



Interpretive Element

INTERPRETIVE ELEMENT

The Interpretive Element of the Calaveras Big Trees State Park General Plan describes the range and scope of the unit's interpretive program. It also recommends changes and improvements designed to increase the enjoyment of visitors to the park. The Interpretive Element is an abridgement of the unit's Interpretive Prospectus.

Interpretive Period

The interpretive period at Calaveras Big Trees State Park should follow a flow of history approach.

Interpretation should cover the Native American occupation period; the gold rush period, and discovery of the trees; the resort period just after the Civil War; the early twentieth century period, with the first automobiles; the state park of the 1930s, with the CCC; and the long history of state park management of the area up to the present.

Interpretive Themes

Primary Theme 1: The Sierra Redwood - The Giant Survivors!

Calaveras Big Trees State Park contains outstanding examples of the forests in the Central Sierra Nevada that John Muir referred to in his writings as the finest of their type in the world; the most significant interpretive feature, with the most public interest, and the primary factor in creation of the park, is the presence of Sierra redwoods.

Subtheme 1: The Timeless Trees

Interpretation for this subtheme will cover the origin of the Sierra redwoods, stretching back perhaps 150 million years ago, and their past and present distribution.

Subtheme 2: How Big Is a Big Tree? - Remarkable and Inspirational Qualities of the Sierra Redwoods

This subtheme will present the giant sequoia's unusual and inspiring qualities. Interpretation for this subtheme should explain a living timeline of how the big trees get so big and old, and how they withstand wind, weather, fire, pests, and humanity to reach their great age.

Primary Theme 2: The Ecological Communities of Calaveras Big Trees

Interpretation should cover the unique nature of untouched Sierra Nevadan communities, the sensitivity of the communities to human intrusion, the succession of one community type into another, and the park's objective of managing them by preserving their dynamic processes. An emphasis should be placed on the interrelationships that bind the park's natural systems.

Subtheme 1: The Life of a Giant: The Ecology of a Big Tree Forest

The natural history of the giant sequoia will be covered in this subtheme: the requirements for survival from seed to old age; cone and seed production; germination; seedling, sapling, and old age stages of development; associated flora and fauna; and ecological relationships, including the role of fire in the tree's life history.

Subtheme 2: The North Grove Meadow: An Ecological Island

Aside from the Sierra redwood groves, the North Grove Meadow is the most important natural resource in the park. Although heavily manipulated in the past, and severely affected by the presence of a campground and picnic area, the meadow still retains many of the native plant species common to mountain meadows. Interpretation should emphasize both the ecological value of the meadow and the department's effort to restore it to a more natural state.

Subtheme 3: The Forest Ecosystem

The dominating presence of the virgin coniferous forests of the Sierra Nevada can now be experienced in only a few parks and preserves. The old-growth forests of Calaveras Big Trees are impressive stands of ancient sugar pine, ponderosa pine, incense cedar, and white fir. Visitors should be encouraged to explore and experience these forests, particularly by development of more extensive trail systems.

Subtheme 4: Living Waters: Streams and Rivers

The aquatic and riparian systems found in the park are an important part of the natural history of Calaveras Big Trees, yet most visitors view the streams and rivers only as recreational resources. These systems should be interpreted as special environments with fascinating stories, including their esthetic qualities, and their sensitivity to alteration by humanity.

Subtheme 5: Wildlife Habits and Habitats

Although wildlife can be interpreted in the context of appropriate biotic communities, the animals found at Calaveras Big Trees are of great interest to the visiting public, and can be the focus of interpretation themselves. Particular attention should be paid to those animals that are uncommon and threatened with a loss of habitat elsewhere in the Sierra Nevada, such as mountain lions, black bears, river otters, pileated woodpeckers, and California roaches.

Primary Theme 3: Big Trees Discovered! - and Exploited

The Calaveras groves of Sierra redwoods are a valuable natural resource; the timeline of historic events since their discovery is an interesting and valuable cultural resource.

Subtheme 1: The Many Discoverers of the Big Trees

Interpretation for this subtheme will cover: the original discovery of the big trees by Native Americans, possibly as long as 10,000 years ago; the first recorded Euroamerican sighting of giant sequoias in 1833 by members of the Walker expedition, in what is now Yosemite National Park; the first "effective" discovery of the Calaveras Big Trees by the backwoods hunter Augustus T. Dowd during the California gold rush period; and claims by others as the discoverers of the big trees.

Subtheme 2: The World Visits the Big Trees

This subtheme will focus on the fact that since its discovery in 1852, and continuing to the present, the Calaveras groves of big trees have been attracting tourists; they are probably the longest continuously operated tourist attraction in California.

Subtheme 3: The Big Stump

This subtheme will interpret the one feature of the Calaveras North Grove which became almost as famous as the trees -- The Big Stump. The story of how and why the "Original Big Tree" was taken down and what became of it has intrigued visitors to the grove since 1853.

Subtheme 4: Taking the Big Trees to the World

Interpretation for this subtheme will focus on the early attempts to present the giant sequoias to a disbelieving and skeptical world. The great size and dimensions of the big trees, which were portrayed in the bark and slab exhibits, were considered a hoax. This reaction should be interpreted, as well as the hunger and desire for the world to see and experience the new-found giants.

Primary Theme 4: Protecting the Calaveras Big Trees

Subtheme 1: Preserving the Big Trees and the Campaign for a Park

Interpretation for this subtheme will focus on the numerous campaigns, involving thousands of people and lasting more than seven decades, to have the Calaveras Big Trees preserved as a public park. Although the original state park was created in 1931, these campaigns culminated with final acquisition of the South Grove in 1954. The role John Muir played in early conservation of the North Grove should be emphasized in this subtheme.

Subtheme 2: People Who Care

This subtheme will interpret the work of individuals and organizations such as the Calaveras Grove Association, the Save-the-Redwoods League, and the Calaveras Big Trees Association to preserve the trees for future generations.

The Save-the-Redwoods League memorial grove program should be interpreted as part of an effort to encourage park visitors to join in the long tradition of "caring for the trees."

Secondary Theme 1: Discovering Clues to the Past

This secondary theme will emphasize to park visitors that much has happened in the area we now call Calaveras Big Trees State Park, and that they need only open their eyes and seek out these clues to discover the past. This would also offer the opportunity to interpret the need to preserve and protect cultural resource sites and artifacts.

Subtheme 1: The Miwok - Indians of the Big Trees

Numerous bedrock mortar milling sites are located in the park, and will be the focus for interpreting this subtheme by telling the story of a way of life that no longer exists. This subtheme will focus on the interaction of the Miwok with the forest environment, uses of local native plants, the seasonal nature of local use, and the Miwok contact with early Euroamerican settlers and recreationists.

Subtheme 2: Transporting Water, People, and Supplies

This subtheme will interpret how water, people, and supplies were transported to and from the Big Trees area. The remnants of the Union Water Company ditch and the Big Trees and Carson Valley Turnpike will be highlighted.

Subtheme 3: Living Near Giants: Pioneer Life in the Big Trees

The Oak Leaf Springs cabin ruins, the Smith "Cabin" Tree, and the Oak (Squaw) Hollow and South Grove cabin sites provide clues to the past lifestyles of early inhabitants of the Calaveras Big Trees area.

This subtheme will interpret the variety of people who came to the Big Trees area -- miners, homesteaders, farmers, shake-makers, trappers, curio makers, loggers, cowboys -- and how they lived near the giant trees.

Subtheme 4: Big "Names" of the Big Trees

The Calaveras big trees have many world-famous personalities such as Abraham Lincoln, Daniel Webster, and General Phil Sheridan associated with them; this subtheme will interpret their stories, and how they relate to the giant sequoias.

The ceremonial naming of the big trees and the attachment of marble plaques to them will also be interpreted in this subtheme.

Subtheme 5: The CCC Builds a Park

This theme will interpret the valuable role the Civilian Conservation Corps played in early development of Calaveras Big Trees as a state park throughout the 1930s and early 1940s.

Many park buildings and structures constructed by the CCC are still standing and in use throughout the park. Big Trees Hall is the most significant example of the CCC rustic architecture, and should be the focal point for this interpretive theme.

Secondary Theme 2: Forces Shaping the Landscape

This theme will interpret the active natural forces that are creating the landscape and physical features of Calaveras Big Trees State Park.

Subtheme 1: The Growing Mountains

This subtheme will interpret the geologic factors that created the Sierra Nevada. The jagged crest of the Sierra Nevada is visible from the scenic overlook in the park, and visitors want to know the names of the peaks, their elevations, and their locations. Interpretation should not be limited to such factual information, however; it should emphasize the continuing evolution of the landscape.

Subtheme 2: From Mudflows to Lava Bluffs

A unique geologic formation in the park is the Lava Bluffs. Interpretation should cover the series of volcanic eruptions which, over millions of years, spewed out lava and thick clouds of ash, creating mudflows which solidified into the Lava Bluffs.

Subtheme 3: The Role of Water: Shaper of the Land

The Stanislaus River and Beaver Creek are dynamic features of the park that will be interpreted in this subtheme. Visitors want to know where the water is coming from and where it is going, as well as what it is used for. Interpretation should cover these questions, as well as the role of water in the geological process.

Secondary Theme 3: Cycles of the Sierra Nevada

Most visitors to the park know only one season -- summer. This theme will interpret the four distinct seasons of the park, and the meteorological forces which shape the climate at this elevation of the Sierra Nevada.

Interpretation of this theme will encourage more "off-season" use of the park, and thus assist the staff in accommodating increased visitation.

Secondary Theme 4: From the Big Trees to the Big Dipper

The spectacular night sky of the Sierra Nevada will be interpreted in this theme. Park campers, most of whom come from cities, are not used to seeing the star-studded skies available at Calaveras.

Secondary Theme 5: Calaveras: More Than Big Trees!

Park visitors will be encouraged to make full use of their state park in this theme. Interpretation will emphasize the diverse recreational activities available: picnicking, camping, hiking, fishing, swimming, exploring, photography, art work, cross-country skiing, snowshoes and snow play, nature study, and just relaxing! Things to see and do in the local area will also be presented, as well as nearby units of the State Park System.

Proposed Interpretation

Facilities

Visitor Center

A new visitor center is the major new interpretive facility proposed for the park. The present facility is in a poor location, and lacks parking space, public restrooms, space for exhibit preparation and storage, and exhibit space to address the interpretive themes.

A new visitor center will make it possible to interpret themes with maximum use of diverse interpretive media: audio-visual shows, exhibits, interpretive panels, dioramas, historic and modern photographs, personal accounts in text and audio form, displays of artifacts and collections, "touch tables," games, quizzes, and inventive ideas of the future.

To interpret the themes as completely and creatively as possible, the visitor center will need to be large, especially the exhibit room. In addition, there should be plenty of storage space and a laboratory/studio for curation and preparation of artifacts, specimens, and exhibits. It should also include: a research library; archives; offices; an auditorium/theater for audio-visual programs, lectures, and talks; a sales area; public restrooms; and an outdoor gathering area for programs. It could also include a native plant garden to provide a handy overview of plants found in the park.

Before creation of a new visitor center, the present facility could be improved with the following: new lighting; rotating interpretive panels, artifacts, and specimens; a wildlife exhibit showing ecological relationships and habitats; exhibit cases and tables moved to make better use of space; more professional audio-visual programs; and a well-defined exhibit maintenance program.

When the new visitor center is completed, the present visitor center will be used for district office space. This would allow the present district office (the former caretaker's cottage, hotel annex, and warden's office) to be used as the unit office, and as a house museum for interpretive purposes.

The visitor center will introduce the interpretive themes of the park, but some of the themes are more conducive to interpretation on site. Satellite exhibit areas will provoke visitors to explore more of the park. The visitor center should not replace an outdoor experience by attempting to bring the outdoors inside the building. Interpretation should emphasize an out-of-doors experience to truly appreciate the Calaveras Big Trees resources.

Displays

In addition to existing locations, satellite interpretive sites with exhibit shelters should interpret: the North Grove Meadow, the Mammoth Grove Hotel site, Oak Leaf Springs, Big Trees Hall, and ecological and archeological sites chosen in the future.

Orientation displays could be developed outside the park, possibly at a USFS location on Highway 4, at Angels Camp (perhaps at the Melones Lake overlook), at Murphys, or at Arnold. Each site should include a park map, recreational opportunities, resource values, interpretive activity schedules, and park operational status (which varies with the season).

Sufficient interpretive panels should be placed in the campgrounds to explain park regulations and resource management programs. Panels should also be located at trailheads to provide maps and information on distances, difficulty, and resources to be seen.

Campfire Centers

The campfire center near the North Grove parking lot has recently undergone rehabilitation work. However, if the North Grove campground is relocated, a full-service campfire center should be constructed near the new campground, and the old facility removed.

The Oak Hollow campground needs a full-service campfire center. Many campers get set up and do not want to make the effort to drive four miles to the North Grove facility.

Informal campfire circles, designed for occasional use and without electrical service, should be developed at the proposed group camp and the East Moran Campground.

Interpretive Trails

More trails should be self-guiding. The Lava Bluffs trail and the proposed North Grove meadow trail should be interpreted with a pamphlet. The North Grove meadow trail should interpret both natural and cultural resources. The trail should discuss Native American and Euroamerican use of the area, including development of the campground in the 1930s by the CCC.

Not all trails need to be self-guiding: some may be better as self-discovery trails or guided hikes. The proposed trail system from the Stanislaus River Bridge to the South Grove trailhead should encourage these types of interpretation. The trail would provide excellent opportunities to interpret various plant communities and ecosystems. A spur trail to Million Dollar Spring would also allow for interpretation of subsurface water movement.

Other areas to be developed or improved for interpretation are: the Bradley Grove, the top of the Lava Bluffs, the Calaveras Bigtree National Forest (if turned over to state park operation), and a trail along Beaver Creek.

The Big Stump shows signs of erosion and human impact, and may need to be closed to public access. If this is necessary, an unobtrusive viewing platform should be installed.

The North Grove Trail retains some of the historic features of its long use. Memorial plaques are still located on some of the trees, and these should be removed for archival storage.

Park visitors have requested more signs on the North Grove Trail to identify trees, shrubs, and flowers. This type of educational sign would be inappropriate on the North Grove Trail, but could be suitable for a short orientation trail in the vicinity of the visitor center. These signs should be high-quality and unobtrusive, and may be temporary to identify a transitory event, such as a wildflower in bloom.

The present North Grove guide is not very useful in winter, when snow covers the number posts, and some of the interpretive features do not exist. The North Grove Trail should have self-guided pamphlets and numbered posts developed for winter use. The pamphlet would be keyed to features above snowline, and seasonally applicable.

The South Grove trail guide is keyed to physical features to keep signs to an absolute minimum in the pristine natural preserve. This policy should continue, as well as the policy of minimal trail development in the area. Part of this special wilderness area should be reserved for visitors to seek out giant redwoods without being led from place to place by artificial features.

More benches should be placed along the North Grove Trail and throughout the park to encourage visitors to slow down, stop, and take in the environment around them.

The Three Senses Trail is located on an important archeological site, dating to circa 1870. It also starts very close to the beginning of the North Grove Trail, which has created confusion for many visitors. On completion of the new visitor center, the possibility of relocating this trail should be explored. In the interim, the current trail should be evaluated, and, if necessary, upgraded, to provide better access for the disabled.

Other Proposals

Interpretation should be extended beyond the boundaries of the park, through an outreach program. Staff time should be provided for off-site talks to familiarize convalescent homes, service clubs, and schools with the resources available in the park.

Another method of reaching out to the local community is recording and videotaping park interpretive programs for broadcast on community television and radio stations. A park column in local newspapers could also accomplish this goal.

A few small, representative Miwok village structures (cedar bark house and acorn granary) could be constructed at the grinding rock site, near the entrance to the Oak Hollow campground. Since Indian Grinding Rock SHP interprets the Miwok culture in depth, this interpretive effort may spark more interest in visiting this nearby unit.

Many buildings and structures from the CCC period are found in the park. The most important of these, Big Trees Hall, should be a focus for CCC interpretation. Representative campground and picnic furniture from the CCC period should be moved to the hall location for public use and interpretation. Panels inside the hall, and in the picnic area exhibit shelters, should interpret the CCC theme.

Early owners of the Big Trees grove realized that most people would not be able to visit the trees in person, so they developed traveling exhibits to take the trees to the people (more to make money than for interpretive purposes). This same idea could be used today for interpretive purposes -- a portable exhibit could be constructed containing Big Trees artifacts and displays. It would then be taken, probably by docents, to various locations in the state (schools, fairs, shopping malls, museums, etc.), taking the Big Trees to people who are unlikely to visit the area in person.

The use of electronic media in interpretation has not been emphasized at Calaveras Big Trees, although there have been various proposals to expand into this area. These include installation of a radio transmitter (AM or FM) along State Route 4, audio recording of natural sounds in the park, and production of an interpretive videotape.

The following printed material needs to be updated: The Enduring Giants, the South Grove map/guide, the teacher's aid kit, and the North Grove trail guide. Plant and animal lists are needed, and would encourage in-depth study of park resources. A park activities newspaper should be available free for visitors (e.g., The Eel River Current). Some state parks have developed newspapers in conjunction with local service groups or the USFS or NPS, but the Big Trees could support a full paper with its own information, including some information on things to see and do in the area.

All interpretive facilities should be surveyed regularly to see if they are working and achieving their planned purpose. Some exhibits, signs, trails, etc., may need to be moved or improved if found to be lacking.

Interpretive Concessions

Private businesses could further the park's interpretive efforts by providing services beyond those typically provided by the park staff and CBTA. These services would typically be involved in transporting visitors to various locations in the park (i.e., buggy rides, shuttle buses, or bike rentals), but may be more purely interpretive, such as rental of audio tapes and players that offer talks about park resources and values. Any such interpretive concessions should meet the following criteria:

1. They must have a significant interpretive component to their operation.
2. They must not become attractions in themselves.
3. They must not distract from enjoyment of park visitors who do not use the service.
4. They must not require either significant alteration of current park facilities or creation of new ones.

Interpretive Associations

The Calaveras Big Trees Association has a reputation throughout the State Park System as one of the most outstanding examples of a successful volunteer group. The group was organized in the fall of 1974, with the primary goals of

assisting the rangers, keeping the small visitor center open, and selling books and postcards. The association started with approximately forty members and a strong core of dedicated leaders, who have remained active with the group for many years.

The expanded and remodeled visitor center is the most outstanding achievement of CBTA. In 1979 (\$25,000), and again in 1982 (\$60,000), the volunteers raised money for the project, had the shell built by a contractor, then finished all the interior work themselves.

The CBTA members and the park staff have worked closely to accomplish the outstanding record of interpretive achievements at Calaveras Big Trees State Park. All plans for future interpretive goals will rely heavily on CBTA volunteers.

Interpretive Collections

Interpretive collections are for enhancement of visitor appreciation, education, and enjoyment. Acquisition of artifacts and specimens should be limited to those items that meet these criteria. To the fullest extent possible, they should also be items that have a clear connection with the park. Those that are not should at least be biologically or historically relevant.

The park does not have a "scope of collections" statement to guide in acquisition of appropriate items meaningful to interpretive values. Until one is adopted, only those items which are obviously related to the park, either culturally or biologically, and which would otherwise be lost, should be collected.

Natural history specimens should be collected in a manner sensitive to the environment, and consistent with park values. Animal specimens shall be obtained only from natural or accidental kills in the local area. Archeological artifacts should be professionally obtained, conserved, and displayed.

The visitor center houses the park interpretive collections. The Native American exhibit case displays Miwok artifacts (arrow points, beads, baskets, etc.) on loan from the Sacramento collection. A few Miwok artifacts found in the park are also on display. Artifacts found during recent archeological surveys were left in place, and not collected.

Euroamerican-era artifacts are on display in the history exhibit case, some of which were found in the park. Others were donated from outside sources, but are representative of the park's historic period.

Natural history exhibits display many items, including geologic samples, freeze-dried specimens, animal pelts and bones, herbarium mounts, and various plant cones, seeds, and foliage. Similar items are kept in storage as hand-held objects for interpretive programs.

The visitor center archives protect some Native American and Euroamerican artifacts, old postcards, and oral history tapes, memorabilia of the state park, the Calaveras Big Trees Association, and the Calaveras Grove Association.

Although the visitor center does have some storage space, there is not enough for the wide range of items on hand. Animal and herbarium specimen storage is a particular problem. The new visitor center will provide for proper storage of prehistoric and historic artifacts, archives, and natural history collections. However, the park needs to develop a comprehensive collections management plan that can be put into effect in the cultural facility, and with existing resources.

Department staff and volunteers should be encouraged to continue to acquire appropriate artifacts for the park, but only under direction and with approval of the district superintendent.

Recommendations

Research Needs

Ongoing research provides knowledge that is the foundation of interpretation. Research into the natural and cultural resources of the park should be encouraged. Park staff, docents, students, and paid contractors can all be used to study the resources; however, overall coordination of the research should be provided by the interpretive ranger and the district resource ecologist. Specific research topics can be found in the unit's Interpretive Prospectus.

Interpretive Priorities

The following interpretive priorities are derived from the various proposals outlined elsewhere in this document. They are divided into two prioritized categories, based on the ability of the department to accomplish them in the short term (less than three years) or the long term (more than three years). Long-term priorities are generally those that will be funded as major capital outlay projects, or will otherwise require a substantial commitment of resources and personnel to plan and implement.

Page numbers after each priority item refer to the appropriate page of the Calaveras Big Trees Interpretive Prospectus that discusses the particular recommendation in greater detail.

Short-Term Priorities

1. Prepare a scope of collections statement that will guide department and CBTA personnel in acquiring appropriate artifacts for the park (p. 41).
2. Develop a collections management program to ensure that all artifacts and archival material are properly stored and maintained (p. 42).
3. Upgrade the current visitor center facility and program (pp. 31, 36-37).
4. Expand and improve use of the park's interpretive resources by school groups (p. 36).
5. Expand the training classes currently offered to docents to a summer program offered to park visitors (p. 35).

6. Modify the current North Grove trail interpretive signing for winter use (p. 33).
7. Revise and update current park interpretive literature, including The Enduring Giants, the South Grove trail guide, the teacher's aid kit, and the North Grove trail guide (p. 37).
8. Develop interpretive displays for the North Grove Meadow (p. 32).
9. Encourage use of the park for interpretive-oriented special events (p. 35).
10. Remove all memorial plaques from the Sierra redwoods in the North Grove, and place them in the park archives (p. 33).
11. Develop new puppet shows annually (p. 35).
12. Realign the Bradley Grove Trail, and develop an interpretive plan for it (p. 33).
13. Publish a park activities newsletter (p. 37).
14. Increase the number and types of guided walks offered by park staff and the CBTA interpretive specialist (p. 34).
15. Create an audio library of park environmental sounds (p. 37).
16. Develop plant and animal lists for use of park visitors (p. 37).
17. Offer junior ranger programs at both campgrounds (p. 34).
18. Increase the number of interpretive panels located in the campgrounds and at trailheads (p. 32).
19. Develop a self-guided interpretive pamphlet for the Lava Bluffs trail (p. 32).

Long-Term Priorities

1. Build a new visitor center (p. 31). On its completion, relocate the Three Senses Trail to an area near the new facility (p. 34), and develop a short orientation trail (p. 33).
2. On relocation of the North Grove Campground, create a new campfire center, and remove the current one (p. 34).
3. Develop an interpretive movie or videotape on the park (p. 37).
4. Increase the number of campfire programs (p. 34).
5. Create an "artists-in-the-park" program (p. 35).
6. Develop a living history program (p. 35).

7. Create a sample Miwok village site (p. 36).
8. Develop a campfire facility at the Oak Hollow Campground (p. 32).
9. Develop interpretive plans for campfire circles located at the proposed East Moran Campground and group camp (p. 32).
10. Convert the present district office to a house museum (p. 31).
11. Design an interpretive plan for the proposed trail extending the River Trail to the South Grove (p. 34).
12. Develop an interpretive plan for the proposed North Grove Meadow trail (p. 37), including interpretive panels dealing with the Civilian Conservation Corps (p. 36).
13. Develop interpretive displays for the Mammoth Grove Hotel site, Oak Leaf Springs, and Big Trees Hall (p. 32).
14. Create programs designed to carry interpretation into both the local community and throughout the state (p. 36).
15. Develop orientation displays to be located outside the park, along the Highway 4 corridor (p. 32).
16. In cooperation with the local community and allied agencies, install and support a low-power AM or FM radio transmitter, to advise motorists of local facilities, conditions, and events (p. 37).



Concessions Element

CONCESSIONS ELEMENT

A Concessions Element consists of an evaluation of any existing concessions activities, the potential for additional visitor services and revenues, and appropriate concessions policies and guidelines consistent with the unit's classification.

Definition

A concession is defined as authority to permit specific uses of state park lands and/or facilities for a specified period of time. The intent is to provide the public with goods, services, or facilities the department cannot provide as conveniently or efficiently, or to permit limited use of state park lands for other purposes, compatible with the public interest and consistent with the Public Resources Code.

Purpose

It is the department's policy to enter into concessions contracts for provision of products, facilities, programs, management services, and visitor services that will enhance visitor use and enjoyment as well as visitor safety and convenience. Such concessions should not create an added financial burden on the state, and, wherever possible, shall either reduce costs or generate revenues that aid in maintaining and expanding the State Park System. In carrying out this policy, the department must adhere to the provisions of the Public Resources Code that forbid commercial exploitation of resources in units of the State Park System, and that limit the kinds of improvements and activities that are allowed in certain types of units.

Appropriate Concessions Policies and Guidelines

The following are general statements of concessions policies for the State Park System:

- Policy A: Ensures that concessions developments are consistent with the purpose(s) for which the unit was established and classified, and in conformance with the General Plan for the unit.
- Policy B: Ensures that all concessions provide needed and appropriate visitor service at a fair and reasonable price to users; allows entrepreneurs an equitable profit; and ensures the State Park System of an adequate return.
- Policy C: Avoids duplication of visitor facilities or services that are adequately provided outside unit boundaries.
- Policy D: Allows for a wide variety of purposes and types of concessions.
- Policy E: Encourages private investors to fund and develop user facilities where economically feasible.
- Policy F: Solicits nonprofit corporations to develop and operate user facilities, particularly when such facilities are provided in conjunction with restoring and interpreting historical units.

Policy G: Requires evaluation of potential concessions services to determine whether such services are appropriate and will expand visitor enjoyment.

Recommendations for New Concessions

There are no current concessions operations at Calaveras Big Trees State Park, and the General Plan neither identifies the need for nor recommends establishing any in the future. However, the Interpretive Element does allow for concessions operations to be considered, but only if such operations further the park's interpretive effort.

Consideration for new concessions was given at the various public meetings held during the initial planning phase for this General Plan. These concessions include grocery stores, gift shops, gas stations, and privately managed campgrounds. The response was mixed, but the consensus was that traditional state park concessions operations were not only inappropriate for Calaveras Big Trees but unnecessary as well, considering the proximity of similar services.

Interpretive concessions operations may be allowed, but only if they provide services in keeping with the goals and objectives of the Interpretive Element. This would require that they clearly conform to the primary or secondary themes listed there. The Interpretive Element sets forth other requirements in the Interpretive Concessions section, which will not be repeated here.

Any proposals for concessions at Calaveras Big Trees State Park shall be studied on a case-by-case basis for compliance with the General Plan and the desirability of the service offered. Those that meet these criteria shall then undergo a feasibility analysis, conducted by the department's Operation Division and Concession Programs Division, with reviews by the Office of Interpretive Services and the Resource Protection, Planning, Acquisition, and Development Divisions. Final approval will rest with the director of the Department of Parks and Recreation.



Operations Element

OPERATIONS ELEMENT

Purpose

The purpose of the Operations Element is to describe the day-to-day functioning of Calaveras Big Trees State Park, and to provide general guidelines and policies for implementing the other elements of this General Plan.

Specific areas covered in the Operations Element include the administrative, visitor, maintenance, and resource management services of the unit's field operation. The structure and function of each is identified, as are operational problems and strategies for solving them.

Current Operation

General Administration

Calaveras Big Trees State Park is one of three units administered by the Calaveras District, the others being the Calaveras South Grove Natural Preserve and Indian Grinding Rock State Historic Park. As a functional part of Calaveras Big Trees, the natural preserve is administered through the state park, and is covered under this General Plan, even when not specifically identified. The district office is located in Calaveras Big Trees State Park.

Standard Operations

Calaveras Big Trees State Park is operated in compliance with standard departmental procedures, as defined in the Department Operations Manual and the Department Administrative Manual.

Visitor Services

The ranger staff is responsible for all park functions involving contact with the visiting public. These include entrance station operations, campground registration, information and interpretation, patrol and law enforcement, and medical emergencies. Each ranger is assigned a particular functional responsibility (interpretive, resources, and campgrounds), and serves on a two-year rotational basis. The ranger staff is assisted by a seasonal staff, who primarily operate the entrance station, and the members of the Calaveras Big Trees Association, who provide interpretive services to the public.

Resource Services

Resource management programs are conducted under the overall guidance of the department's Resource Management Directives. Specific programs are directed by a variety of documents, including the department's Tree Hazard Control Manual, Pesticide Use Manual, and Prescribed Fire Management Policy and Procedures document. Line responsibility for resource programs rests with the district resource ecologist, who is assisted by the unit resource ranger and a seasonal staff.

Ongoing resource programs include prescribed burning, exotic plant control, resource inventorying, ecosystem restoration, landslide monitoring, and tree hazard control.

Maintenance Services

The maintenance staff is responsible for insuring that all park facilities are kept in a clean and functional condition. Routine duties include housekeeping, garbage collection, carpentry, plumbing, heavy equipment operation, equipment maintenance, water treatment, and sewage treatment. The maintenance staff is augmented during the summer months with a seasonal staff that performs most routine duties.

Administrative Services

Aside from fee collection, which is performed by the visitor services staff, general administrative tasks of the unit are the responsibility of the district administrative staff. These duties include time and fiscal accounting, document management, and special event scheduling. Since the district office is centrally located in the park, the administrative staff also becomes involved in an unusually high amount of public contact, both in person and via telephone.

Special Operational Considerations

Calaveras Big Trees Association (CBTA)

Operation of the park's visitor center, as well as much of the organized interpretive effort, is conducted by CBTA, a nonprofit organization of docents and volunteers. In addition, CBTA has provided volunteers for special projects and events, capital funding for park improvements, and grants for resource-related research.

The association has grown in membership to more than 500, with approximately 150 individuals signed up to actually work in the park on volunteer projects, or as docents. Some volunteers donate their time and talents on construction projects such as building exhibit shelters, brochure boxes, garbage can holders, remodeling the campfire center, and building the Three Senses Trail.

Volunteers who attend the twelve-week training seminars become docents, and sign up to operate the visitor center, lead guided walks and demonstrations, and present campfire programs and puppet shows. Behind the scenes, numerous volunteers donate time to administratively carry out the diverse tasks of the association.

The park staff provides CBTA with guidance and other assistance as necessary. The Calaveras district superintendent is responsible for assuring that CBTA operates within the definition of its charter and bylaws, and that its activities continue to meet the department's mission. The unit interpretive ranger oversees the day-to-day operation of CBTA, assists docents with interpretive programming, and serves as secretary to the CBTA board of directors.

The visitor center operates daily during the peak visitation period (Memorial Day through September 30), and on weekends the rest of the year. Supervision of its daily operation is provided by an interpretive specialist funded by CBTA, who also performs formal and informal interpretive programs.

Memorial Groves

The North and South Calaveras Groves are divided into various memorial groves through a program conducted by the Save-the-Redwoods League. The program is an important asset to the park's ongoing effort to manage and perpetuate the two groves of Sierra redwoods, and is also symbolic of the league's long-standing tradition of assistance and cooperation in the park mission. Coordination of the memorial grove program is the responsibility of the district superintendent.

Winter Weather

The state park operates under varying weather conditions that create special problems. The most critical of these is snow. Snowfall is common from November through April, and has historically occurred in every month of the year except August. The most critical problem presented by snow is hazardous driving, particularly along the portion of State Route 4 that passes through the unit. Snow-related vehicle accidents are common during winter driving conditions, and expend a great deal of staff time. Other weather-related problems include tree damage, frozen pipes, stranded motorists, and a limited opportunity to perform necessary maintenance functions.

Visitor Safety

Typical visitors to the park participate in such strenuous activities as hiking and cross-country skiing. Most of these visitors are from low-elevation communities, and may be unaccustomed to the elevation of the park (ca. 1500 m., or 4800 ft.). Altitude-induced cardiovascular and pulmonary stress is a problem for some visitors. In addition, hiking-related injuries are common, particularly falls from rocks located along the North Fork Stanislaus River.

Vegetation Management

The park has started a major vegetation management program aimed at restoring the natural ecosystems that existed prior to intervention of Euroamericans. Prescribed burning, an important component of the management program, is discussed in the next subsection of this element. The program also includes manual removal of introduced plant species and planned thinning of forest communities in order to duplicate pre-settlement conditions. These efforts are based on the theory that suppression of wildland fires over recent decades has resulted in unnatural aggregations of forest trees, both in composition and frequency. Through computer simulation, the characteristics of a given forest stand are estimated on the assumption of an uninterrupted fire history. If necessary and desirable, trees in this stand can then be manually removed until the model is replicated. This practice is especially useful in areas of the park that are unsuitable for prescribed burning, or where it is desirable that the effects of prescribed burning be accelerated.

Prescribed Burning

The department has conducted a program of prescribed burning in the state park since 1975. The purpose of these burns is two-fold: reduction of forest fuels in an effort to reduce the danger of wildfire, and restoration of pyric communities in the unit's ecosystems. The program is funded under the department's Statewide Resource Management Program.

An important aspect of the program is smoke management, particularly in the vicinity of the North Grove and in the air drainages flowing into Arnold and the Blue Lakes Spring subdivision. Downslope drainage of smoke can be heavy and irritating to the general public, and can constitute a health hazard to individuals suffering from chronic obstructive pulmonary diseases. Air quality at such times is likely to exceed minimum standards for particulate matter as established by the federal government. Operation of this program therefore requires that careful consideration be given to smoke management, especially when burning is conducted in the North Grove area, and that close coordination be maintained with local air quality control districts.

Another significant aspect of the burning program is maintenance of esthetic quality in both groves of giant sequoias, and in other major viewsheds of the park. While it is impossible to conduct a prescribed burn in forest fuels without some residual charring and needle scorch, every effort is made to insure that such impacts will not result in a decrease in the enjoyment experienced by park visitors.

Wildfire

Major fires have not occurred at the park in the past five decades, yet the threat exists. Some portions of the park present a significant fire hazard, particularly those that have not been treated under the unit's prescribed fire management program. In addition, residential development and commercial operations on lands adjoining park property create another wildfire threat. Although fire protection from the California Department of Forestry and Fire Protection is excellent, there have been occasions when most local suppression forces have been dispatched out of the area. This typically happens when the fire danger is extreme, and the fire occurrence statewide is high. Under these circumstances, it has been necessary in the past to place restrictions on visitor activity. The threat of a major fire in the park is high enough to require the staff to maintain a high level of preparedness during the fire season. Rangers patrol and inspect all designated fire roads during the fire season. In the event of summer lightning storms, patrols are increased, and lookouts may be posted at key vista points.

The Resource Element of this General Plan calls for use of fuelbreaks as part of the park's wildfire presuppression effort. There are three fuelbreaks currently maintained in the park: the South Grove Rim, the Big Trees Village, and the Pattison (Map OE-1).

Guidelines for prevention and suppression of wildfires in the park are contained in the unit wildfire management plan, which is revised annually, and is approved by the California Department of Forestry.

Easements

A variety of easements exist in the park, but most have little impact on the unit's operation and resources. The most significant of these is a perpetual right-of-way along an old railroad grade near the Calaveras South Grove Natural Preserve, held by Western Fibreboard. The road is used primarily for log transport from the area southwest of the preserve to the northeast.

Another easement is held by the California Department of Transportation (Caltrans) for the portion of State Route 4 that passes through the park. This unusual circumstance of DPR holding title to a portion of a state highway dates to the 1930s, when Caltrans was acquiring land for the present highway. Since that portion of the right-of-way in the park was already owned by the state, it was decided that an easement would suffice, and title was not transferred.

Facility Maintenance

Calaveras Big Trees State Park has been in continuous operation as a recreational facility since 1853, and as a unit of the State Park System since 1931. Facilities have been developed, replaced, renovated, or otherwise modified on a more or less random basis throughout the unit's history. These facilities, especially buildings, utility systems, campsites, and trails, are difficult to properly maintain due to their age, extensive history of public use, and varying methods of construction. Many, due to their age and style of construction, are of historic value in themselves, particularly those dating from the Civilian Conservation Corps period, ca. 1940. Most of the buildings in the park date from this era, and are representative of an important period in the nation's history. These structures require a greater amount of care in their maintenance than typical park facilities, with primary attention being paid to maintaining their architectural integrity. In many cases, such as stone masonry and timber fitting, the journeyman skills required to properly maintain or repair these structures are not found in the unit's staff, and are difficult to find in the private sector.

As local community development has approached and bypassed the park (i.e., Big Trees Village and Blue Lake Springs), two of the utility systems in the unit have been upgraded to tie in with public systems, even though the utility infrastructures are largely state-owned and maintained. These are water (in the North Grove area) and electricity. The water supply for Oak Hollow Campground, and all sewage systems in the unit, are still operated by the park staff.

Trespass

The park is subject to various trespass-related problems, the most serious of which is the result of summer grazing on private property in Tuolumne County, adjacent to the South Grove. Cattle often cross onto park property through weak or damaged portions of a fence maintained by Western Fibreboard, the landowner and lessor of grazing rights. The problem is particularly critical since the trespasses and resulting resource damage typically occur in the very sensitive Calaveras South Grove Natural Preserve.

Winter trespass by snowmobiles is a recurring problem in the Calaveras County portion of the park, when snow causes elimination of vehicle patrols beyond the North Grove area. The Love Creek and Big Trees Village areas pose particular problems in this regard.

Anticipated Special Operational Considerations

North Fork Stanislaus River Hydroelectric Project

While not a current major problem, it is expected that hydroelectric projects along the North Fork Stanislaus River (both above and below the park) and along Beaver Creek (below the park only) will lead to public trespass problems in the Tuolumne County portion of the park. The projects are scheduled for completion by 1990.

The hydroelectric project will also result in more favorable conditions for commercial and noncommercial whitewater rafting on the Stanislaus River. Current users favor the park as a take-out point, and increased use will result in a major shift in the visiting public's use of the park's river-related resources. At the present time, limited commercial rafting during the spring runoff is not in competition with traditional river recreation, which is summer-oriented. The activity is also regulated by permits, and does not currently present a major workload to the park staff. However, increased summer flows could make commercial rafting the most significant purely recreational visitor activity in the park, and, as such, would require a major reorientation in visitor and maintenance services.

The permit process tends to insure that commercial rafting is essentially self-regulating. This is not true with noncommercial rafting. Based on the department's experience with rafting along the American River, it is expected that an increase in this unregulated activity will result in a disproportionate increase in park staff workload, particularly in the areas of medical emergencies and litter pickup.

Cooperative studies are currently being undertaken by CCWD, its agent (Northern California Power Agency), and the park, in order to determine the long-term impacts the project will have on natural resource values and recreational activities along the North Fork. Some of these impacts may result in mitigation measures conducted in the park that may significantly change both operation of the park and the features on which this General Plan is based. Such changes will therefore require a re-evaluation of at least portions of this plan.

Relations With Other Agencies

Coordinated Resource Management Planning (CRMP)

The park is a member of the Arnold Fuel Break System Coordinated Resource Management Planning Team. The team consists of representatives of public land management agencies and private landowners, including the U.S. Forest Service, the California Department of Forestry, the California Department of Fish and Game, the Ebbetts Pass Fire Department, and the Georgia Pacific Corporation. The purpose of the team is to develop and manage a fuel reduction zone around the greater Arnold area, including portions of the state park.

California Department of Forestry and Fire Protection (CDF)

The park maintains close relations with CDF. The responsibility for fire protection in the park rests with CDF, which is also responsible for authorizing burning under the park's Prescribed Fire Management Program. In addition, CDF uses park roads to provide access to a seasonal fire station (Skull Creek) located south of the South Grove. Finally, in conjunction with the California Department of Corrections, CDF provides the park with an inmate fire crew that performs resource- and maintenance-related tasks. This provides approximately 2,800 person hours per month of labor for park operations, with a 17-person crew. Management of the program is the responsibility of the district resource ecologist.

California Conservation Corps (CCC)

The CCC maintains two labor crews in the nearby community of Murphys. These crews are available to the park on an as-needed basis to provide labor for a variety of projects, from resource management to crowd control at special events. Use of CCC crews provides from 480 to 960 person hours per month. Coordination of CCC crew operations in the park is the responsibility of the district resource ecologist.

Calaveras County Water District (CCWD)

Hydroelectric projects being built by CCWD (as of 1988) located upstream of the park are expected to result in major changes in the physical characteristics and recreational use of the North Fork Stanislaus River. The park has entered into various studies with CCWD to determine the pre-project condition of the river so changes or losses can be mitigated.

United States Forest Service (USFS)

Calaveras Big Trees State Park is located within the general boundary of the Stanislaus National Forest, and that agency manages parcels of land that share boundaries common with the park. The park has occasional contact with USFS in regard to these parcels, and in regard to USFS activities and projects that have potential impacts on the park, park visitors, and park values. In addition, the park and USFS share responsibility for administering commercial rafting activity on the North Fork Stanislaus River. This relationship will become more important as anticipated changes in that river's flow will allow for more rafting activity.

Projected Staff Deficiencies

Implementation of the recommendations contained in this General Plan will result in an increased workload beyond the capacity of the current staff.

Implementation of the General Plan with facilities development, resource management and protection programs, and interpretive programs and events will correspondingly result in greater visitation and staff load. To meet the needs at the unit, further staff increases to the park may be anticipated. The district superintendent shall recommend to the department appropriate increases in staffing, equipment, and operational expenses as may be required to fulfill operational responsibilities at Calaveras Big Trees State Park.



Unresolved Issues

UNRESOLVED ISSUES

This General Plan was developed with consideration given to both the current condition of Calaveras Big Trees State Park and the deficiencies recognized under the current condition. Yet the park should not be characterized as being in a static state. Even without the influence of a general plan, new or changing external and internal forces assure that the park's condition will always be in a state of evolution. As in the case of the changing water flows projected for the North Fork Stanislaus River (after completion of the North Fork Project), some of these forces are well enough known to allow for predicting their effects on the park. However, the planning team did not involve these speculations in the planning process. Instead, they are presented here as factors that may, at some future date, have significant influences on the park.

North Fork Hydroelectric Project

Expansion of Spicer Reservoir, located upstream of the park, will result in greatly altered flow regimes for the North Fork Stanislaus River. These flows will be substantially greater in volume and velocity during the summer months, and water temperatures will be cooler. Department staff has predicted that these changes will result in (1) a decrease in traditional recreational use, and (2) mortality to streamside non-riparian vegetation. In addition, the winter flows, which will be largely retained for summer release, will not move sediment downstream at the same rate. The effect this will have on aquatic habitat, riparian vegetation, and recreational use is unknown, but under study.

If recreational use of the river changes drastically after these altered flows begin, this fact could modify the need for new facilities as called for in this plan -- principally, the River Picnic Area, River Access Area, and associated vehicle parking. Changes made to these facilities prior to establishment of significant data on any altered recreational use patterns should reflect this uncertainty.

The project management is required, under terms of the license issued by the Federal Energy Regulatory Commission (FERC), to mitigate for recreational loss in the park. Studies have been conducted during the 1987 and 1988 season to determine current visitor use of the river, and these will be followed with post-project surveys to determine the resulting changes. The project manager will then respond with any proposals for mitigation. It is possible that these proposals will involve new uses of park resources and facilities, and may also call for creation of new facilities. In either event, the proposals would have to be evaluated in terms of compliance with this General Plan.

Calaveras Bigtree National Forest

This national forest (the history of which is described in Appendix A) is not only the smallest (379 acres) in the nation, but also the only one totally protected from development and commercial use. Its significance is based on the presence not only of a small number of Sierra redwoods, but of magnificent, untouched stands of sugar pines as well. Administered by the Stanislaus National Forest, this unit has long been recognized by the department as a logical and desirable addition to the park. Consideration has also been given

to the possibility of establishing an agreement for management -- without title -- of the property by the department. Either action would result in a change in operation of the park, and would require a reevaluation of all elements of the General Plan.

The department's interest in the national forest is based on the following factors: (1) half of the forest is essentially an inholding, being almost entirely surrounded by park land; (2) acquisition would allow for more expedient management of natural resources; (3) the Sierra redwoods located there are "outriders" of the Calaveras South Grove, and as such, would be managed as an integral part of the state park; and (4) integration with the park would allow for improved visitor access to, and thus interpretation of, the national forest.

Realignment of State Route 4

In 1969, the California Department of Transportation (Caltrans) created a plan for realignment and overall improvement of State Route 4, the Ebbetts Pass Highway. The plan called for, among other things, bypass of the park core area by establishing a route in the San Antonio Creek drainage (Map 2). In 1976, Caltrans dropped most of its plans for the highway, although the bypass of the park was retained. There are as yet no efforts being made by that agency to implement the plan.

The route adoption was made both in recognition of the intrusion created by the highway to the esthetic quality of the North Grove and the substandard design of the road.

The Department of Parks and Recreation has consistently supported the bypass proposal, and should continue to do so. Advantages to the department in moving the highway have focused on visitor safety and removing highway noise from the North Grove use areas.

If the proposed realignment does occur, considerations and concepts used in developing this General Plan would change significantly, and would require a revision of the document. Public access, recreational use patterns, and facility development would all require reassessment. Additionally, a portion of privately owned land would be isolated between the road and the park, while a roughly equivalent (in size) portion of department land would become isolated from the rest of the park. It may be desirable for management purposes to exchange these parcels with the landowner.



Environmental Impact Element

ENVIRONMENTAL IMPACT ELEMENT

The Environmental Impact Element (EIE) predicts the environmental effects that would result from implementation of the General Plan. Together with the other elements of the General Plan, it constitutes an Environmental Impact Report, as required by the California Environmental Quality Act (CEQA).

The Calaveras Big Trees State Park General Plan describes the department's long-term plan for the unit. Since this plan is necessarily generalized, predictions of the environmental impacts must be correspondingly general. When specific plans are being implemented, they will require more detailed investigations on their environmental effects, in order to comply with CEQA and CEQA guidelines.

In addition to predicting environmental effects, the EIE also proposes mitigation measures designed to lessen, eliminate, or compensate for these effects.

Each recommendation in the General Plan was evaluated for potential impacts. When sufficient information was not present in existing documents (principally the unit resource inventory), additional field work was done. An Initial Study identified possibly significant environmental impacts on which the EIE focuses. The General Plan is therefore a focused Environmental Impact Report, as described in the state CEQA guidelines.

Summary

This summary provides brief descriptions of the impacts and proposed mitigations for various resource categories that would result from implementation of the proposals contained in the General Plan. Complete descriptions are contained in the body of the EIE.

Unavoidable Significant Impacts - Class I Impacts

There will be no impacts associated with implementation of this General Plan which are both unavoidable and significantly adverse to the environment.

Mitigable Significant Environmental Impacts - Class II Impacts

<u>Impacts</u>	<u>Mitigation</u>	<u>Comments</u>
Hydrology		
Diversion of water from Oak Leaf Spring.	Design should ensure sustained flows throughout the year suitable for wildlife use.	Initial studies on flow rates and wildlife use will be required for proper design. Complete mitigation.
Wildlife		
Campground construction at Old Moran Road site.	Restore habitats at North Grove Campground and old group camp.	Wildlife use studies will be required. May result in only partial mitigation.

Impacts

Mitigation

Comments

Noise

Noise from new campgrounds being heard in residential areas.

Locate campground no nearer than 600 feet from park boundary.

Complete mitigation.

Provide adequate notice of noise regulations in the campgrounds.

Ensure frequent patrols by rangers during evening hours.

May only be possible during summer use periods.

Cultural Resources

Construction of various facilities throughout the park.

Avoid construction near known archeological and historic sites.

Will require site review by archeologists. Complete mitigation.

Provide for site monitoring during construction phase.

Removal of CCC-era camping facilities.

Save some features, and relocate to new use areas.

Incorporate into interpretive development. Partial mitigation.

Placement of new camping facilities near early 20th-century dump site.

Develop site management plans prior to public use of facilities.

This plan may call for thorough excavation and documentation, burying, daily patrols, or other actions, as determined by department archeologists, to achieve complete mitigation.

Improvements at the River Picnic Area may affect a known lithic scatter.

Develop site management plan prior to public use of facilities.

As above.

Development of a hiking trail from the Stanislaus River to Beaver Creek will pass near a historic cabin.

A thorough site survey will be conducted at the cabin. Interpretive signing will urge proper care of such resources by the public.

The trail will follow a historic route of travel. This appropriate use of a historic feature will be more significant than potential damage to the structure. Complete mitigation.

The cabin may be considered for reconstruction.

Adverse But Not Significant Impacts - Class III Impacts

<u>Impacts</u>	<u>Mitigation</u>	<u>Comments</u>
Soils		
Soil erosion may occur during construction of new facilities.	Exposed surfaces will be watered during construction. Fill will then be compacted and surfaced or revegetated.	Complete mitigation.
Exposed soil in camping areas may erode due to heavy public use.	Soils in camping areas will be protected by appropriate materials. Rotational closure will reduce long-term erosion.	Complete mitigation.
Sensitive soils at the East Moran site may be eroded if disturbed.	Disturbance of soils will be minimized by importing fill material for leveling.	Imported fill shall be free of artifacts, and as sterile as is practical. Surface protection with appropriate material may be applied as needed. Mitigated to insignificance.
Noise		
Temporary noise problems created during the construction phase.	Use of heavy equipment or other items causing adverse noise will be limited to daylight hours.	Partial mitigation of a temporary impact.
Traffic		
A possible slight increase in traffic on State Route 4.	Intersections on the state highway with park roads will be improved with turn and acceleration lanes and wider sightlines.	Complete mitigation.
Air Quality		
Dust raised during construction of proposed facilities.	Disturbed soil will be watered frequently to suppress dust.	Complete mitigation.
Water Quality		
Increased use of the area along the North Fork Stanislaus River may increase erosion from volunteer trails into the river.	Trails will be designed and constructed according to department standards. Volunteer trails will be removed.	Complete mitigation.

Project Description

Detailed description of the recommendations contained in the General Plan are found in individual elements, and are summarized in the General Plan Summary. For the most part, the plans and policies referred to in the EIE are contained in either the Resource or Facilities Elements. Policies concerning management of the park's natural and cultural resources are contained in the Resource Element, which also describes these resources. Plans for development of facilities are found in the Facilities Element. Other elements contain guidelines and objectives for land use, interpretation, concessions, and operations.

Current developed areas in the park are (Map 6):

North Grove Core Area: This is the most highly developed portion of the park, and also the most heavily used. A complete description of the facilities found there is provided in the Facilities Element of the General Plan. Existing features include the North Grove Campground (74 family sites), a group campground, group and family picnic areas, a visitor center/auditorium, a meeting hall (Big Trees Hall), the park entrance, a maintenance yard, an employee residence area, and ancillary structures.

Oak Hollow Campground: Located approximately 4 miles from the park entrance, this is the only other portion of the park that is highly developed, with 55 family campsites and related facilities.

Other Developed Areas: Currently, the park has limited facilities at (in order of decreasing development): the River Picnic Area, Beaver Creek Picnic Area, River Access Area, South Grove Trailhead, Scenic Overlook, Lava Bluffs Trailhead, and Oak Leaf Springs Picnic Area.

Environmental Impacts and Mitigations

Geology, Soils, and Hydrology

Existing Conditions

Geology: The geology of the park primarily consists of Cretaceous granitic rocks of the Sierra Nevada pluton, overlain by tertiary volcanic flows and pyroclasts. There are no indications of active faulting in the park, and the major geologic hazards are landslides associated with highly weathered granitics, particularly where other disturbances, such as road cuts, are present. There are three significant, though not major, landslides active in the park, all associated with the cut banks of the Smith Parkway. Two are located on the north side of the North Fork Stanislaus River, and the third is on the south side.

Soils: The soils associated with granite bedrock are typically deep and highly productive, with a tendency to be unstable on steeper slopes. Soils associated with the volcanic rocks are, due to exposure and ease of erosion, typically shallow, rocky, and low in productivity.

Hydrology: The hydrology features of the park consists of the North Fork Stanislaus River, Beaver Creek, minor tributaries, and groundwater associated with bedrock fracturing (rather than aquifers). This groundwater occasionally surfaces to form small springs.

Flooding is not a major problem in the park. The most significant impacts from severe flooding are to natural features, and do not threaten existing facilities. For instance, the heavy runoff in March 1986 represented a 20-year flood for the North Fork Stanislaus River (22,000 cfs), and no damage was noted.

Park facilities with the highest likelihood of damage during extreme peak flows are along Beaver Creek. The estimated peak flow for Beaver Creek during the 1986 period was 4,000 cfs, and no damage was noted to a vehicle bridge and a foot bridge crossing the stream. However, some damage did occur to the local water system as a result of stream bed and bank erosion, and the banks adjacent to the Beaver Creek picnic area were also severely eroded, causing a hazardous condition for the public. Estimated flows during a 50-year flood recurrence interval (@ 6,000 cfs) could result in foundation undermining and/or damage from floating debris to the bridge along the creek, and more extensive erosion damage to the facilities mentioned above.

Impacts

Geology: Implementation of the recommendations contained in this General Plan will have no significant impact on the geologic structures of the park. The landslide features associated with granite substructures are not located near any of the areas proposed for development, which do not display any tendency toward instability.

Soils: Soil disturbance associated with construction of the various facilities called for in the General Plan may result in aeolian, hydrologic, and mechanical erosion. Post-construction erosion may continue to be a problem at the proposed West Moran Campground and the new group campground, where foot traffic will be heavy and stabilizing vegetation and forest litter reduced. The soils of the proposed East Moran Campground are sensitive to disturbance due to the unconsolidated nature of the parent material.

Hydrology: Elimination of the spring and well water system at the Oak Hollow Campground will result in a net increase in subsurface water in the local watershed, and a possible increase in flows and duration of flow in the small seasonal creek that flows through the campground. These changes will not be significant.

The General Plan also calls for development of Oak Leaf Spring as a water source for the Stanislaus River day use area. This will disrupt the flow of water from the spring, which could be significant if the amount of water removed is a large enough percentage of the total flow.

Proposed Mitigation

Geology: The Resource Element of the General Plan prescribes that no development occur on slopes known to be at risk of failure. The proposed areas of development comply with this policy.

Soils: The potential for soil erosion during construction shall be reduced by regular watering of exposed soil, compaction of fill, and stabilization of exposed areas with vegetation or native forest litter. Protection of the soils of the West Moran Campground after construction will be facilitated by rotational closure of sections for management and restoration, as described in the Facilities Element of the General Plan. Other protective measures for this area and the group campground should include covering exposed soil surfaces with appropriate material (asphalt, forest litter, chips, etc.), and revegetation.

The more sensitive soils of the East Moran Campground should be disturbed as little as possible. Leveling of campsite features, including parking spurs and tent pads, should be accomplished with compacted fill rather than by excavation, and all exposed surfaces protected with appropriate material. Fill should be free of any archeological material, and as sterile as possible. Sources outside the park may be used, but excavated material from other development in the park would be preferable.

Hydrology: The proposed reduction of existing picnic sites in the Beaver Creek facility should concentrate on those located nearest the creek, and thus most susceptible to damage during extreme flooding. Any developed access to the creek should be located in areas unlikely to suffer bank erosion during periods of flooding.

No hydrology development of Oak Leaf Spring shall occur until hydrologic studies of the feature have been completed, and a determination made on the effect diversion will have on downstream flow. The planned development will allow for continued flow of the spring (see Impacts and Proposed Mitigation: Wildlife).

Discussion

The proposed rotation of camping areas in the West Moran Campground will allow for intensive resource restoration in areas that traditionally have been difficult to manage. By reducing visitor disturbance for an extended period of time, it should be possible to restore soil-protecting ground cover.

Vegetation

Existing Conditions

The plant life of the park is described in the Resource Element. Two plant communities, Sierra redwood and montane meadow, are of particular significance, and are considered to be the prime resources of the park. However, as logging activities and urbanization continue throughout the Sierra Nevada, mature mixed-coniferous forests of the type found at Calaveras Big Trees are becoming much less common, and the necessity of preservation of greater importance.

North Grove Core Area: This area consists of various forest aggregations characterized by their dominant tree species. Of the highest significance is the Sierra redwood community of the North Grove itself. Outside the grove, however, are other stands variously dominated by ponderosa pine (Pinus ponderosa), sugar pine (P. lambertiana), white fir (Abies concolor), and other plant communities such as the North Grove Meadow and remnant oak woodlands.

All of these areas have been affected by humans to varying degrees. Although considered to be protected, the North Grove itself shows the effects of heavy foot traffic along the trail (erosion, compaction, exposed roots), previous fire control efforts (downed snags, tree thinning), and historic use (tree dedication plaques, vehicle roads). Some non-sequoia stands are second growth as a result of clearing and harvesting (i.e., North Grove Campground sites 1-29), while others are essentially devoid of regeneration as a result of human impact (sites 36-59). The net result is that, through continuous human use since 1853, the vegetation of the North Grove Core Area is worn out, and in need of significant intervention.

West Moran Campground: The vegetation of this proposed camping area consists of a second-growth overstory of ponderosa pine/mixed conifer forest; an understory of snow brush (Ceanothus cordulatus), deer brush (C. integerrimus), and mixed conifer reproduction; and a ground cover of grasses, mountain misery (Chamaebatia foliolosa), and scattered forbs.

East Moran Site: This area, proposed for campground development, occurs along a narrow, well-exposed ridge. Vegetation is dominated by an open stand of ponderosa pine, with a mixed conifer understory. Ground cover consists of scattered grasses and forbs. There are also scattered patches of various shrub species, including greenleaf manzanita (Arctostaphylos patula), deer brush, and Sierra coffeeberry (Rhamnus rubra var.).

Sierra Redwood Groves: The Sierra redwoods (Sequoiadendron giganteum) are found in two stands known as the Calaveras North and Calaveras South Groves. (The South Grove is contained in the Calaveras South Grove Natural Preserve. No proposals in the General Plan significantly affect this area.) The North Grove is the focus of most visitor use in the park, and is centrally located in the most heavily developed portion of the park. Many of the recommendations in this document will have direct or indirect impacts on the North Grove area.

North Grove Meadow: The North Grove Meadow is twelve acres in size, and is located immediately south of the North Grove. It is surrounded by the North Grove Campground, and is a primary focus of the General Plan. The meadow has been subjected to major modifications designed to lower the water table, including installation of drain tiles and channeling of Big Tree Creek along the meadow's north edge. The vegetation currently includes native forbs and grasses typical of dry or decadent montane meadows, although typical wet meadow species are still present. The remainder of the vegetation consists of introduced species (Boyd & Woodward, 1988).

Remainder of the Park: Aside from the Sierra redwoods, the park also possesses extensive coniferous forests typical of the western slope of the Sierra Nevada. These are generally mixed conifer forests, although individual stands are dominated by one or two tree species, usually ponderosa pine and white fir. The two other common conifers of the park, sugar pine and incense cedar, are major botanical features, but rarely occur as dominant species in stands.

Acquisition of land at Calaveras has occurred in many separate actions during the history of the park, as opportunities have presented themselves. As a result, some areas were acquired prior to, and others subsequent to,

harvesting of existing timber resources. Portions of Calaveras Big Trees State Park are therefore excellent examples of mature coniferous forests, while others are in the process of recovery from logging activity.

Lands adjacent to the park have been either highly developed (as in the case of Blue Lake Springs and the Big Tree Village housing tracts) or extensively logged. The only exception is the Calaveras Big Trees National Forest, a 379-acre stand of untouched forest, and one of the few forest stands in the area dominated by sugar pines. This forest is located immediately north of the Calaveras South Grove Natural Preserve.

Prescribed Burning: Since 1975, the department has conducted an intensive program of prescribed burning in all major vegetation types located in the park. This program has a primary goal of restoring low-intensity fire to its role as a disturbance factor in the ecosystem of the park, with the ancillary objective of reducing high levels of forest fuels to more manageable levels. The program is conducted in conformance with established departmental guidelines (Department of Parks and Recreation, 1985), and pays particular attention to maintenance of esthetic values, through the combined use of low-intensity fire and pre- and post-burn mitigation. Burns are conducted during the late summer, fall, and winter months when proper environmental conditions exist for both low-intensity fire and effective ecological disturbance (Department of Parks and Recreation, ca. 1980).

Vegetation Management: The park is currently conducting an extensive program of vegetation management, consisting of deliberate reduction of tree densities and modification of species composition. This program may also include plantings of various tree species at some time in the future. The vegetation management program is designed to meet different objectives, depending on the specific location, but in all cases, the overall goal is restoration of forest stands to conditions considered to be reflective of pre-settlement ecosystems. In areas of high development where prescribed burning is not feasible, stand modification is intended to mimic the effects of fire in order to create a more natural condition, and to reduce the occurrence of trees hazardous to life and property. In areas of high scenic quality, the program is intended to maintain or improve esthetic values, while insuring that local plant communities reflect appropriate densities and compositions. Finally, vegetation management is used in ecologically sensitive areas where the long-range effects of prescribed burning need to be accelerated in order to prevent further system degradation. This is the case in the Sierra redwood groves, where forest trees, principally white firs, are being reduced.

Fuel Reduction Zones: As part of a wildfire management program (Department of Parks and Recreation, 1988), the park currently maintains three areas classified as fuel reduction zones. These are located around the rim of the South Grove, along the north/south park boundary south of the Oak Hollow Campground, and along the north/south park boundary adjacent to the Big Trees Village. The need for a fourth zone located along the ridge between the Oak Hollow and North Grove Campgrounds has been identified by fire control authorities.

These zones are typically 100 to 150 yards in width, and have been manually treated to reduce the amount of wildfire fuel and vegetation typically found in surrounding forests. Maintenance of these zones consists of using prescribed burning whenever possible, and manual methods.

Impacts

Implementation of the proposals contained in this General Plan will expand visitation to areas of the park that are currently rarely used by the public. These developments will result in a loss of vegetation cover, primarily grasses and forbs. Shrub and tree species will not suffer as significantly in these areas, although long-term damage will occur. Addition of public use facilities will require that some trees be removed. Also, concentrated public use of these areas will reduce or prevent successful reproduction of many plant species.

At the same time, two areas currently developed for public use are proposed for either abandonment (North Grove Campground) or a change and reduction in use (Group Camp).

Old Moran Road: Campgrounds are, by their very presence, disturbing to the environment. Development of the Moran sites will inevitably cause damage to trees, shrubs, and ground cover. The damage may be immediate and obvious (i.e., vandalism to trees), or long-term (i.e., elimination of successful reproduction due to trampling). The severity of such effects is dependent on campground design and management considerations.

The West Moran site, consisting primarily of young second-growth ponderosa pines, will be less subject to damage than areas with an old-growth overstory. Young trees are generally more resistant to stress and injury-induced disease.

Four young (ca. 50 years) Sierra redwoods are known to exist adjacent to the proposed West Moran Campground. The proximity of these trees to an intensely used campground could subject them to inadvertent or deliberate damage, during both the construction and post-construction phases.

The location of the campgrounds along a ridge top will require that areas downslope of the sites be treated as fuel reduction zones, in order to reduce the risk of wildfire. This will include thinning of forest stands. However, with proper planning, this thinning can have a beneficial impact on plant communities and wildlife habitat by increasing diversity.

North Grove Core Area: Proposals contained in the General Plan affecting the North Grove Core Area will have an overall positive impact on vegetation resources. This is particularly true in regard to the North Grove Meadow, which is proposed for rehabilitation. No significant negative impacts are expected from proposed developments in the core area.

The proposed location of the new visitor center is in an open and already affected area, with no important vegetation features. Some "specimen" conifers are nearby, however, and these could be damaged by construction activities.

Other Areas: Improvements proposed for the Stanislaus River Picnic and day use areas, installation of new underground utilities to existing and proposed developments, and extension of the park's network of hiking trails will have impacts on vegetation. However, with proper planning, no significant impacts are expected.

Proposed Mitigation

General: Areas proposed for abandonment or use reduction will be restored. Such restoration shall take into consideration estimates of pre-development vegetative characteristics (such as species composition and frequency), as well as maintenance of the stand's genetic character.

Old Moran Road: In order to minimize long-term stand deterioration, and to provide for overall forest vigor, a tree hazard inspection will be conducted at areas proposed for development prior to the facility design phase. This will allow for retention of the trees most likely to survive the impacts of construction and recreational use.

The design of the West Moran Campground allows for periodic rotational closure of approximately one third of the campsites for restoration. The department shall develop a vegetation management plan for the campground based primarily on this closure period. This plan will include soil rehabilitation, vegetation propagation and planting, and pathogen control.

No development will be allowed within 100 feet of any of the four Sierra redwoods located near the West Moran site.

Prior to development of new camping facilities along Old Moran Road, the department will design and place fuel reduction zones around the sites. The design of these zones will be based on sound ecological principles, and will seek to restore the pre-settlement vegetative character of the areas involved (see also Impacts and Proposed Mitigation: Wildlife).

North Grove Core Area: Restoration of the North Grove Meadow and the site of the North Grove Campground will be conducted with particular attention to duplicating both quantitative and qualitative characteristics predicted for the various plant communities and associations represented there.

The department shall consider and, if possible, integrate the surrounding forest in design of the new visitor center.

Discussion

Rotational closure of portions of the West Moran campground is vital to long-term management of the facility. It is possible that visitors might demand that the closed sites be made available for general use, particularly during the peak use season, when all other sites are occupied. It is important that the department maintain an aggressive public information campaign that explains the goals of the closure program, as well as the necessity for it.

Foremost in all planning efforts stemming from this General Plan must be realization that the various plant communities present in the park represent an increasingly rare resource. Preservation of these communities through sound management and, when necessary, restoration programs is essential.

Wildlife

Existing Conditions

Although the dominance of the mixed-conifer forest in Calaveras Big Trees State Park results in a limited diversity of habitat for wildlife, the fauna found in the park are rich when compared to other nearby areas that have suffered disturbance. All of the expected levels of animal life forms are present, from soil-dwelling decomposers through herbivores to carnivores and omnivores. This diversity is complemented by localized habitats such as riparian, aquatic, meadow, chaparral, and oak woodland, each of which expands the list of animals found in the park.

Many of the forest stands in the park have become overgrown and decadent, however, through decades of fire suppression. This tends to degrade the value of such areas for wildlife, reducing the diversity of species that can occupy the areas to those best suited for dense forest stands.

Animal Species of Special Interest

A reptile known to occur in the park - the sharp-tailed snake - is designated as a species of special concern by the California Department of Fish and Game (CDFG).

One bird listed as rare by the State of California has been seen in the park: Swainson's hawks were spotted in 1957, and again in 1988 (park files). Other species listed as being of special concern to the California Department of Fish and Game that are known to occur in the park include the northern goshawk, sharp-shinned hawk, Cooper's hawk, spotted owl, and willow flycatcher. Other birds of special concern that may occasionally occur in the park are the golden eagle, California gull, great grey owl (California-endangered), long-eared owl, and yellow-breasted chat.

There is no resident population of deer using the park. Instead, two herds migrate through the park on their way between summer and winter grounds. The Railroad Flat herd passes through the Calaveras County portion of the park, while the Stanislaus herd uses the Tuolumne County portion.

North Grove Core Area: Although heavily used by park visitors, this area still possesses a fairly complete faunal assemblage. The portions that are the most heavily developed, such as the camping and picnic grounds, are most used by animals that are well adapted to the presence of people, such as raccoons, rodents, and stellar jays. Those areas that are not as frequently visited by park visitors are still occupied by more secretive animals, such as deer, bears, and mountain lions.

Spotted owls have been seen in the North Grove at various times, and heard at the employee residence area as recently as 1988.

Old Moran Road: Located along a ridge, the habitat present here is an open montane forest, with little diversity. This area is only infrequently used by park visitors, and has not been well surveyed for wildlife. Random sightings include mountain lions, bears, coyotes, and deer. Spotted owl surveys conducted during the summer of 1988 did not result in any sightings of these birds.

Impacts

Some of the recommendations in this General Plan call for development of new facilities in areas of the park that have not been significantly human-disturbed. Any such disturbance will necessarily result in a loss of habitat, and an impact on fauna. Species that are well adapted to the presence of humans will probably increase in such areas, while the rest will either decrease in numbers or disappear from the sites. Of the areas proposed for development, only the new campgrounds will be extensive enough to have a significant impact on local wildlife.

North Grove Core Area: The General Plan also calls for elimination of the North Grove Campground and restoration of the North Grove Meadow. This will have an opposite effect to that mentioned above, as species that are normally inhibited by the presence of people will begin to use these habitats more extensively.

The presence of a restored meadow surrounded by a mixed conifer forest will improve the diversity of habitat located in the park. This will be particularly important to animal species that use both habitats, such as deer and pygmy owls.

The General Plan also calls for elimination of group camping from the current site, changing its use to seasonal housing. This will reduce the overall impact on the surrounding habitat, and should allow for improved habitat use.

Old Moran Road: Development of campgrounds along this road will directly eliminate approximately 30 acres of habitat, and reduce the viability of the habitat of the surrounding area. Reclusive animals such as deer and mountain lions will be displaced. The significance of this impact is difficult to measure, but it should not be severe, considering the abundance of favorable habitat throughout the park.

Other Areas: The proposed development of Oak Leaf Spring could have a significant impact on the various forms of wildlife that use it, both as a source of water and as a predation site. The spring is the only source of water in that portion of the park, aside from the North Fork itself.

Proposed Mitigation

The loss of portions of the intermediate state open forest located along Old Moran Road will be only partially mitigated by restoration of the North Grove Meadow area, since the types of habitat are not completely comparable. Further mitigation will be realized through the change in use of the current group camp area, which is located in the vegetation type similar to the Old Moran Road sites. Finally, development of fuel reduction zones, which shall also be designed for wildlife enhancement, should provide enough new or upgraded habitat to compensate for losses due to development.

Before these areas are developed for public use, the Old Moran Road sites should be more completely surveyed by the department for wildlife use. Use of the ridge area by the migratory Railroad Flat deer herd shall be evaluated, and more extensive surveys of the area for spotted owls and other birds of prey should be conducted. The results should be incorporated into the more detailed mitigation plans required for CEQA compliance.

No development of Oak Leaf Spring will occur until the department conducts studies to determine use of the spring by wildlife, and uses this information to establish design criteria that will reduce potential impacts to insignificance. Flows sufficient for year-round wildlife use shall be maintained.

Noise

Existing Conditions

Calaveras Big Trees State Park is a quiet park overall, with few sources of human-caused noise resulting in significant environmental impact. Average ambient noise readings in undeveloped areas of the park range from 39.6dB to 44.7dB, which is typical of rural settings (EPA, 1978). In developed areas, i.e., picnic areas, campgrounds, and parking lots, average ambient noise readings ranged from 43.5dB to 57.3dB. Aside from the sounds produced by park visitors and in-park vehicle traffic, the only other consistently intrusive sources are air traffic, vehicle travel along State Route 4, and trespassing cattle.

Sound produced by generators contained in recreational vehicles is a common source of disturbing noise in a campground. Tests conducted by park staff indicate that a "worst case" generator produces measurable noise up to a distance of 600 feet.

Occasional or temporary sources of noise include logging trucks along the Railroad Grade, adjacent to the Calaveras South Grove Natural Preserve, and various sounds produced by construction associated with a nearby hydroelectric development.

North Grove Core Area: Noise is a significant problem in the North Grove core area, primarily due to the proximity of State Route 4 to major public use facilities. Studies conducted by park staff indicate that passenger and light truck traffic noise levels during peak (summer) use periods reach average levels of 72.9dB for uphill traffic and 71.4dB for downhill traffic. Logging trucks, which frequently use a brake augmentation system when traveling west on the highway, produce average sound levels of 87.8dB when travelling downhill, as opposed to 82.7dB for uphill traffic. All measurements were taken from a point 50 feet from the highway entrance. Vehicle traffic increases in volume before sunrise, with total traffic volume approaching 120 vehicles per hour by 7:00 a.m. This results in a significant deterioration in environmental quality, especially for park visitors using the North Grove Campground, where 14 campsites are located within 200 feet of the highway centerline, and highway noise levels can approach 68dB in the site furthest removed from the road.

These figures exceed acceptable values by large margins. For instance, the intelligibility of conversational speech at a distance of six feet is impaired when noise levels exceed 60dB. Noise levels in excess of 45dB are considered to be excessive for comfortable sleeping (EPA, 1978).

Highway vehicle noise can also be heard at the Group Camp and along the North Grove Trail.

Oak Hollow Campground: Sounds produced here are primarily associated with visitor use of the area. When users comply with existing regulations, as provided in the California Code of Regulations, Title 14, Section 43320, noise

is not considered to be a problem. Violations of this section often result in disturbance to other users, and require action by park staff. Such violations are not common, however.

Calaveras South Grove Natural Preserve: This area is far removed from traditional sources of noise pollution, with no sources of noise exceeding established standards. However, some sounds can be intrusive for their incongruity, such as air traffic and trespassing cattle. The park land in this area is surrounded by open rangeland, and cattle frequently enter onto park property. Many wear cowbells, which results in a sometimes startling distraction from the natural setting.

Impacts

Proposals contained in this General Plan would not result in any significant deterioration to sound quality in the park. Instead, removing a large portion of public use (i.e. camping in the North Grove and Group Camp facilities) from the proximity of State Route 4 would result in a net improvement to sound quality.

Creation of the proposed new campgrounds could result in sounds produced by campers being noticeable in the residential areas near the proposed East and West Moran Campgrounds. The East Moran site, which would be designed primarily for recreational vehicle camping, would be the most likely source of intrusive noise.

Construction of new park facilities will likely result in a temporary deterioration of sound quality, both in and outside the park.

By moving the camping area from the North Grove to the Moran Road Sites, and therefore away from operational facilities, enforcement of "peace and quiet" regulation may become more time-consuming.

Proposed Mitigation

In order to reduce noise impact in the Big Trees Village subdivision to acceptable levels, placement of the East Moran Campground will be no closer than 600 feet from any private residence. The West Moran Campground shall be designed so that any sites appropriate for recreational vehicles are located at least 600 feet from any private residences.

The current practice of posting state park rules and regulations at various locations frequented by campers and other park visitors should continue, as should active enforcement of Section 4320. The need for expanded patrols in the proposed campgrounds may become necessary if current practices fail.

No construction of new facilities shall begin any earlier than 7:00 a.m. each morning, if such construction requires use of heavy equipment likely to exceed established minimum noise levels.

Discussion

The current problem with noise produced by vehicles travelling on State Route 4 is significant, and reduction of its disturbance to visitors is a major goal of park management. Implementation of the recommendations of this

General Plan will reduce this problem by removing a primary target (the North Grove Campground), but the ultimate solution will be relocation of the highway to the north, and therefore away from the core area. The department should continue to encourage the California Department of Transportation to enact its plan to build this new portion of the highway.

Light and Glare

Existing Conditions

Most of the park is not subject to problems related to light and glare, originating from either inside or outside the unit. The only significant exception is the North Grove Campground and the adjacent portion of State Route 4. Nighttime vehicle traffic along the highway is a major source of disturbing light for campground users. At the same time, evening traffic on the highway is exposed to the typical campground light sources: lanterns and campfires. While this has not been evaluated as having a negative, positive, or neutral impact on drivers and passengers, it is certainly a distraction.

Impacts

Removal of camping facilities from the North Grove core area will eliminate the existing conflict with light and glare sources from State Route 4. The proposed locations for new camping areas are located so these facilities will not be a significant source of light for areas in or adjacent to the park, including nearby residential areas.

Proposed Mitigation

No impacts from light and glare will be significant enough to require mitigation.

Traffic

Existing Conditions

State Route 4: Access to the park is provided by State Route 4, a two-lane highway that passes through the northwest corner of the park. This highway is the principal route of travel in the area, connecting Angel's Camp to the west with the Bear Valley/Mt. Reba winter recreational areas to the east, and Ebbetts Pass across the Sierra Nevada. The highway is closed at Mt. Reba during the winter months.

The portion of the highway from approximately one mile west of the park to the east park boundary is considered to be substandard for modern transportation needs, and has been designated -- but not scheduled -- for abandonment and realignment to the north (Caltrans, 1986; Caltrans, 1988a; see Discussion).

Traffic Flow/Safety

Many more visitors travel to the park from the heavily populated urban centers to the west than come from the east (CDPR, 1986). Traffic along State Route 4 immediately west of the park entrance has an annual average daily traffic volume (ADT) of 3,700 vehicles, based on 1987 figures (Caltrans, 1988). The

ADT immediately east of the park entrance is 2,200 vehicles. The difference of 1,500 vehicles largely reflects the influence of the park on local traffic, including both administrative and visitor uses.

The traffic flow along State Route 4 varies seasonally, with peak volumes in the summer and winter periods, and low volumes in the spring and fall. This pattern reflects public recreational use both in the park and at various other recreational facilities to the east.

The substandard construction of the park portion of the highway is exemplified by narrowness, poor sightlines at intersections, steep gradients, and tight-radius curves. Safety is a concern at the park entrance, where vehicles either leaving the park or entering the park from the east must cope with obstructed views of oncoming traffic. Accident rates in the park are not significantly different in number than adjacent portions of the highway, but are different in nature, with a disproportionately higher frequency of single-car accidents. This could be the result of the winding, narrow nature of the road, and the tendency for downhill traffic to exceed the basic speed law.

There are no special provisions for entering or exiting the highway at the park entrance. Eastbound traffic must slow to less than 5 mph while still in the traffic lane in order to negotiate the right turn into the park. Westbound vehicles must often stop entirely to wait for an opportunity to turn into the park, making them vulnerable to rear-end collision. Prudent drivers will often abort their intention to turn into the park if vehicles approach from the rear, requiring them to continue west of the park, turn around, and enter from the eastbound lane. Similar conditions exist at two other highway/park intersections: the entrance to the maintenance yard and the Group Camp/residence road.

the Group Camp is located on the north side of the highway, while most park activities occur on the south side. To facilitate access for occupants of the Group Camp to the main part of the park, a crosswalk has been placed across State Route 4 at the Group Camp/residence road.

Once in the park, visitors must stop at an entrance station located approximately 500 feet from the state highway. On very busy days during the summer, incoming traffic may exceed the ability of park staff to conduct duties such as fee collection, camper registration, and information dispersal, resulting in backups that may extend to and onto the highway, further exacerbating conditions there.

Park Traffic: One road -- the Walter W. Smith Memorial Parkway -- traverses the length of the entire park. This road starts near the park entrance station, and travels to near the east boundary of the park, at Beaver Creek. The first six miles of the Smith Parkway is somewhat steep and winding, but it is reasonably wide for a two-lane road. The speed limit for this portion is 35 mph. After crossing the North Fork Stanislaus River, however, the road soon becomes very narrow and steep, in places a virtual one-lane road. The speed limit along this portion is 25 mph.

Although no figures for total vehicle flow on the parkway exist, records kept at the park office indicate that very few accidents occur on the road. This must be interpreted in light of the fact that the road itself is closed for

much of the year after the first heavy snowfall, generally from December through March. This not only reduces the total annual volume of traffic, but also eliminates accidents related to winter driving.

Special Events: Special events occur throughout the year at Calaveras Big Trees State Park. These may result in somewhat higher traffic volumes, but are significant only when they occur on days of already high visitor use, such as holidays. Their impact is most noticeable as a strain on already limited parking, rather than an inhibition to traffic flow.

Impacts

The General Plan calls for a small increase in camping, day use, and parking facilities, plus relocation of the Group Camp from the north to the south side of State Route 4. These changes will not significantly increase visitor attendance. Therefore, it can be expected that visitor use will be unusually high only on the few days a year that are at current capacity. The new location of the Group Camp, while not changing total traffic volume, will concentrate traffic at the State Route 4/park entrance intersection.

Traffic flow along the parkway will increase significantly between the entrance station and the Scenic Overlook, as campers use the road for access to the new camping areas. This particular stretch of road is 1.9 miles long, comparatively level, with few curves, and can easily handle the increased volume.

Use of this portion of the road by the camping public during the winter will often require snow chains for safe travel, and snow removal efforts by the park staff. It will also preclude use of the road as a cross-country ski trail.

Proposed Mitigation

State Route 4: The department will work with Caltrans to develop a plan to provide turn lanes for vehicles entering the park or maintenance yard from either direction on State Route 4. In addition, an acceleration lane will be provided to facilitate merging of traffic exiting the park into the eastbound lane of the highway. The department will also work with Caltrans on improving sight lines along the park entrance portion of the highway through selective removal of roadside vegetation.

Park Traffic: Use of the East Moran Campground for winter camping will require snow removal along the first 1.5 miles of the parkway. This activity will be performed by the park staff, and will receive the highest priority of all routine work.

The General Plan calls for development of a new cross-country ski trail to replace the portion of the parkway that is currently used for this activity, but will be lost due to proposed winter vehicle traffic.

Special Events: The park will develop a policy for scheduling special events to insure that parking capacities are not exceeded for any use area.

Discussion

The long-range plan to relocate State Route 4 to the north is endorsed by the department, and is considered necessary for proper management of the park and its resources. The current highway alignment, along with the ever-increasing volume of traffic, is both an esthetic intrusion for park visitors and a physical intrusion to the ecosystem.

Realignment of the highway would not result in complete abandonment. The roadway itself would be used as a park access road. Still, the resulting reduction in traffic volume would significantly ease the above-mentioned impacts.

Since realignment of the highway is not an active proposal of Caltrans, the probability of realizing the change within the next ten to twenty years -- the "life-span" of this General Plan -- is remote. For that reason, the proposal was not a factor in developing this document.

Air Quality

The state park is in the Mountain Counties Air Basin. Jurisdiction over the park's air quality lies overall with the State Air Resources Board, and locally with the Calaveras County and Tuolumne County Air Pollution Control Districts (depending on location in the park).

Existing Conditions

The location of the state park along the western slope of the Sierra Nevada, as well as the presence of topographic features such as the canyon of the North Fork Stanislaus River, provides for good to excellent air quality. During periods of stable air conditions, the downslope drainage of air insures that locally produced pollutants are removed or dispersed. The lack of industrial, commercial, or private development upslope insures that the same drainage does not bring other pollutants into the park.

Two types of air pollution are either produced in or otherwise affect the park: vehicle-related emissions (NO_x, hydrocarbons, carbon monoxide, etc.) and wood combustion (especially particulates). The low level of vehicular traffic in and around the park insures that the first type is not a significant problem. The principal type of air pollution in the park is suspended particulate matter produced by wood combustion. There are three major sources of this material: the campfires of park visitors, wildfires, and on-site prescribed burns. The last two are more significant, and of these, only prescribed burns are under the control and authority of park management.

Prescribed burns take place in the fall of each year, if weather conditions permit, and inevitably result in localized reductions in air quality. Such reductions are not always significant, however, since most burns occur in air drainages that are not inhabited by people. Burns conducted in the inhabited drainages can cause significant deterioration of air quality, especially to Blue Lake Springs and the community of Arnold. To avoid this problem, management of smoke is part of the planning process for each burn, and permits are obtained from local air pollution control agencies, when required.

Impacts

Implementation of this General Plan may create a minor increase in visitation, with a resulting increase in vehicle-related pollutants. This increase will be too low, however, to have a significant effect on air quality.

Dust generated by construction of new park facilities will create a minor deterioration in local air quality, but not enough to be in violation of minimum standards. However, the dust may be considered excessive in terms of park esthetic values.

Since the General Plan does not call for an increase in prescribed burning, there will be no change from existing conditions in this regard.

Proposed Mitigation

No mitigation is proposed for control of motor vehicle emissions or wood smoke. Dust control through watering will be included in any construction contract resulting from this General Plan.

Water Quality

Existing Conditions

Potable Water: The primary source of potable water for the park is the Calaveras County Water District. The treated water is pumped to a 100,000-gallon tank located northeast of the Group Camp, where it is gravity-fed to the North Grove core area.

Other sources of potable water include a chlorinated well and spring system supplying the Oak Hollow Campground, and an unchlorinated spring with a subsurface collection system serving the Beaver Creek Picnic Area.

All potable water systems are tested monthly for coliform. Other tests are conducted on yearly cycles, as required by law.

Non-potable Water: Naturally flowing water in the park, in the form of springs, streams, and the North Fork, are not considered potable, although the overall quality is generally high. Reductions to water quality do occur, primarily from up-stream human use (particularly on the North Fork Stanislaus River, where recreation areas east of the park are a source of phosphates and organic matter) and cattle grazing activities. Cattle trespassing into the park exacerbate this problem. Seasonal stagnation of water is another source of water quality reduction.

Near-surface hydrologic features occur in the form of seeps. These are characterized by moisture-loving plants such as sedges, rushes, and some species of monkey-flower.

Impacts

The General Plan calls for extension of the Calaveras County Water District delivery system to the Oak Hollow Campground. This will result in an increase in water quality by providing a more constant supply of water for park visitors, and by allowing spring water to flow naturally into existing drainages.

Development of public facilities in the Stanislaus River Day Use Area could result in lower water quality in the river through increased human contact with river water, surface runoff, and subsurface drainage from proposed leach fields. Using Oak Leaf Spring as a source of water for this development could lower water quality for vegetation and wildlife served by this feature.

Restoration of the North Grove Meadow could result in a slight increase in flows during the summer for Big Tree Creek, due to increased storage by meadow soils. This is a beneficial impact.

Proposed Mitigation

Mitigation proposed for diversion of water from Oak Leaf Spring is discussed under "Wildlife." No development or diversion of this water will occur until a detailed analysis of the spring is completed in order to determine discharge capacity and wildlife use.

Development of new facilities at the Stanislaus River Day Use Area shall include improved river access routes and eradication of volunteer trails on steep slopes adjacent to the river, in order to reduce surface runoff and erosion.

Restrooms and French drains shall be placed as far from the river as possible, and at least 100 feet from its peak flow level. Leach fields, if necessary, will be located outside the vicinity of any near-surface hydrologic features.

The design of the restrooms shall incorporate water-saving features.

Discussion

The current recreational use of the North Fork Stanislaus River may change significantly after upstream hydroelectric development alters summer flows, possibly making the river less hospitable for swimming. This, in turn, may affect the need for expanded development of recreational facilities at the Stanislaus River Picnic Area. No development should be contemplated until new public use patterns are determined.

Visual Resources

Existing Conditions

The current visual, or esthetic, quality of the park is generally high. Forest and river scenes and mountain landscapes are untouched by significant distractions, and are easily accessible for the average visitor. Hikers who travel off the beaten path can enjoy other views that are rarely seen by others.

There are a few notable exceptions, however. Some areas of the park have been heavily affected by public use, and by early planning decisions that are now recognized as mistakes. The North Grove Campground is an example for both cases. Intense public use over nearly 50 years has resulted in major resource problems, and this campground had been placed in an area of high sensitivity.

North Grove Core Area: This portion of the park suffers from a concentration of development and conflicting recreational uses. Camping, picnic, interpretive, administrative, and hiking facilities all occur in one area, with each use-type in view of the others. Compounding this problem is the presence of State Route 4, which distracts from the esthetic qualities of both the North Grove Campground and the North Grove Meadow. Similarly, the campground is a major distraction to the otherwise scenic qualities enjoyed by travellers along this highway.

The North Grove Meadow is a significant natural feature whose visual qualities suffer from the presence of the North Grove Campground. Throughout the summer months, tents, recreational vehicles, and campers may be seen at almost any point along the meadow's perimeter, while morning and evening campfires fill the forest opening with smoke.

Old Moran Road: This historic route of travel is currently closed to public vehicle traffic. Park visitors do use the existing dirt road for hiking, access to two environmental camping sites, mountain biking, and cross-country skiing. Portions of the roadway, particularly between the parkway and Big Trees Village, offer exceptional views to the crest of the Sierra Nevada (to the east) and the Central Valley (to the southwest).

Impacts

North Grove Core Area: Proposals contained in this General Plan will improve the visual quality of the North Grove core area by separating recreational use-types into more distinct and defined areas. Removal of the campground will especially improve the visual quality of the state highway corridor and the North Grove Meadow.

Old Moran Road: Providing camping facilities along this ridgetop road will reduce the visual quality of the immediate area to the small number of current users. At the same time, it will increase public access to the vistas provided by the locations proposed for development (the West and East Moran Campgrounds and the Moran Group Camp). These locations are not in the viewshed of any other scenic points in the park, nor are they in the view of any developed areas outside the park.

Proposed Mitigation

No mitigation measures are proposed for visual quality.

Cultural Resources

Although primarily known for its natural resources, Calaveras Big Trees possesses a varied and interesting cultural history. The earliest known use was by the Miwok Indians, although regional archeology suggests that earlier cultures may have occupied the area as well. It is also known that the present park location was on a portion of an established trade route that regularly brought Washoe Indians from the eastern slope of the Sierra Nevada.

Beginning with discovery of the North Grove by Euroamericans in 1852, and up through the modern period as a state park, the Calaveras Big Trees area has been in continuous operation as a tourist facility. Logging was also part of the park's history, mainly during the first half of the twentieth century.

All of these periods are represented at various historic and pre-historic sites located throughout the park. Many have been recorded during recent surveys conducted by department historians and archeologists, others are still being located from time to time, and still others are known from historic records, but have yet to be located.

Existing Conditions

North Grove Core Area: This is perhaps the richest location for historic and pre-historic sites and artifacts. Native American sites -- principally bedrock mortars -- are common along the course of Big Tree Creek and near the North Grove Meadow. Euroamerican sites are centered around the Calaveras North Grove, and primarily associated with the extensive recreational development of the area. Only one building -- the caretaker's cottage -- remains from the earliest historical period (ca. 1863). This building is currently used as the unit/district office. All other cultural resources from this period are occupational sites (building sites, dumps, etc.).

The recent history of the park is well represented with structures and facilities associated with the Civilian Conservation Corps (CCC) (ca. 1940). A camp was established at the park, which currently functions as the maintenance yard. Public use facilities built by the CCC include Big Tree Hall, camping and picnicking furniture, and a comfort station.

The North Grove Meadow, already the locale for surface features associated with the Miwok Indians, could also have subsurface features as yet undiscovered.

Old Moran Road: The portion of Old Moran Road in the park is a historic route of travel which dates back to the original Emigrant Road (later the Big Tree -- Carson City Turnpike, ca. 1856; Kraft, 1988).

Aside from the roadway itself, there are no known historic features along the eastern half of Old Moran Road. The portion west of the parkway does have a few sites, however, consisting of one large- (CAL-284H) and one medium-sized (unregistered) garbage dump. The former is most likely associated with operation of the Mammoth Grove Hotel, but also contains post-hotel period artifacts; the latter seems to cover the same time period, but does not contain artifacts likely to be associated with the hotel (Reinoehl, 1988).

CAL-284H is located between the proposed sites of the West Moran Campground and the Moran Group Camp. The unregistered site is located near the eastern tip of the West Moran site.

Other Areas: The River Picnic Area is in the center of a concentration of archeological sites, most of which are associated with the Miwok Indians. These include bedrock mortars and lithic scatters. Euroamerican features include old road and trail remnants and a trash scatter.

The proposed route of a trail extending from the North Fork Stanislaus River to the Beaver Creek drainage will likely pass near a collapsed historic cabin south of Oak Leaf Spring. Little is known about this site.

Impacts

North Grove Core Area: The proposals for the North Grove Core Area contained in this General Plan could have significant impacts on historic and pre-historic features, particularly since subsurface disturbance will be occurring in areas about which little is known, but which almost certainly contain artifacts. Road realignment in the vicinity of the Mammoth Grove Hotel site and excavation for a new visitor center are examples.

Restoration of the North Grove Meadow will likely include raising the existing water table to pre-settlement conditions. This could make exploration for, and excavation of, archeological sites difficult to impossible, and may increase the rate of deterioration of any "soft" artifacts.

Elimination of the North Grove Campground will eradicate features of the CCC period of the park's history. This will include camp stoves, picnic tables, and the NPS-type restroom located at the southeast end of the meadow.

Old Moran Road: Use of the original roadbed for access to the proposed camping areas will eliminate this as an identifiable historic feature. Also, placement of the camping areas near the dump sites mentioned above will increase the opportunity for vandalism, principally by bottle hunters.

Other Areas: The developments proposed for the River Picnic Area will increase the chance for disturbance to the lithic scatters located there, through construction activities and increased visitation.

Proposed Mitigation

North Grove Core Area: No new development will occur in the North Grove core area without extensive archeological site studies. These may include pre-construction excavations, if necessary, and at the least will require the presence of an archeologist at any construction-related excavations.

A thorough site investigation will be conducted prior to any effort to raise the water table in the North Grove Meadow. This study will include remote sensing (i.e., ground-penetrating radar or seismic survey) of subsurface structures, and will be primarily designed to determine the possibility of pre-historic sites being located in or around the meadow. If potential or actual sites are located, data gathering studies will be conducted prior to any meadow restoration efforts.

As proposed in the Facilities and Interpretive Elements of this General Plan (pages ___ and ___, respectively), samples of the CCC-Era camping and picnicking features in the North Grove will be recorded, moved to new locations, interpreted, and kept in public use. If possible, this will also be done to the NPS-type comfort station. If this is not possible, alternatives such as reconstruction to original specifications shall be considered. Thorough design and construction measurements will be made of the existing building, in any case.

Old Moran Road: The original roadbed shall be documented prior to any development to modern standards. This will include mapping as well as estimations of subsequent alterations. Portions of the old road which are not to be used for campground access will receive the minimum possible alteration.

Historic dump sites shall be recorded more thoroughly prior to campground development, at which time department personnel shall determine further mitigation measures that may be required for protection from vandalism.

Other Areas: No excavation will occur in the vicinity of the River Picnic area without the presence of an archeologist. Fill dirt will be used whenever possible, in preference to excavation, for site leveling.

Recreation

Existing Conditions

Specific descriptions of the recreational facilities and resources located at Calaveras Big Trees State Park are contained in the Facilities and Resources Elements of this General Plan.

Calaveras Big Trees is a popular recreational facility of local, regional, and statewide significance. Local visitors tend to use the park for more active pursuits, such as hiking, fishing, and swimming, while those travelling from further away are more attracted to the camping facilities and viewing the Sierra redwood groves.

The popularity of the park is exemplified by the number of return visitors. Approximately 50% of all campers have camped there at least once before, and nearly 56% of all trail users were return visitors (DPR, 1986). In addition, many visitors are foreign travellers.

Impacts

Overnight Use - Family Camping: The General Plan provides for a gross increase of forty family campsites. However, due to the planned rotational closure of sections of the proposed West Moran Campground, the net increase in available campsites is ten. Two proposed "mini" group camps are designed to serve groups of campers fewer than 50 in number that occupy two or more family sites in the park's existing campgrounds. This could increase the number of sites actually available to traditional users by another four to eight.

Overnight Use - Group Camping: The new Moran Group Camp would replace the existing facility in kind: no change in availability or capacity would result. The two "mini" group camps would provide additional opportunities for groups of under 50 people, but are designed primarily to keep such groups from having to occupy a number of sites in the family campground.

Overnight Use - Winter Camping: Use of the new East Moran Campground for winter camping will increase the number of available sites from twelve to approximately twenty-four.

Overnight Use - Environmental Camping: Development of new camping facilities along Old Moran Road will eliminate three existing environmental campsites. These are not scheduled for replacement, resulting in a reduction in available sites from five to two.

Day Use: Most of the proposals related to day use areas involve facility improvements, including restrooms, utilities, and parking, rather than development of new day use areas. Increases in available day use facilities may occur through improvements designed to provide for more efficient use of a site, but these increases are not significant.

Interpretation: Major portions of this General Plan deal directly or indirectly with interpretation and interpretive resources. A new and expanded visitor center, an additional campfire center and two campfire "circles", increased involvement with local schools, and interpretation of an expanded trail system are all recommended. This may increase the desirability of Calaveras as a destination for park visitors.

Proposed Mitigation

No measures are proposed to mitigate the impacts on recreation.

Discussion

An unknown factor in the future of recreation at Calaveras Big Trees State Park is the effect upstream hydroelectric development will have on public use of the North Fork Stanislaus River.

At present time, recreation on the river is highest during the summer months, when temperate water and low velocities make the North Fork popular with swimmers. Fishing, while also popular, is a secondary activity. Higher flows during the spring runoff have recently been used by commercial rafters; this has the potential to become an important form of recreation on the river between Sourgrass and the park. This activity is only possible for a brief period of time, however, usually from late April to early June.

Post-project flows in the river are expected to be lower during the winter and spring (due to upstream retention), but higher during the summer months (when public use is the greatest). The higher summer flows will also be cooler, and the combined result may eliminate the current recreational use patterns on the river. Swimming may become unpopular with most visitors, while an improved fishery may make fishing more common. The period of time during which river rafting is possible will be extended into and perhaps through the summer months, creating the possibility of conflicting recreational uses.

The effect the project will have on recreational use of the river in the park is of great importance to the department, and is being studied by the project's managing agency (the Northern California Power Agency - NCPA). As a condition of its license, NCPA is required to mitigate for any loss of recreational river use in the park. Any proposal for mitigation will occur only after post-construction studies have been completed, in order to determine the impact the project has had on recreation.

Cumulative Impacts

The expected growth in visitation to Calaveras Big Trees State Park, while not significant in itself, could contribute to a significant cumulative impact on traffic along State Route 4, if and when development of proposed major recreational facilities to the east of the park occurs. These developments

include an unspecified expansion of camping facilities by the United States Forest Service, and proposed expansion of a winter sports area near Bear Valley. The cumulative impact on highway traffic will be partially mitigated by the improvements suggested for State Route 4 (see Impacts and Proposed Mitigation: Traffic).

Alternatives

Various alternatives were considered in developing this General Plan, ranging from taking no action to significantly increasing park facilities. These alternatives are, in many respects, similar to the preferred project (as described by this plan), and are summarized below only to the extent that they differ from the General Plan.

Because of the overall similarity in these alternatives, complete versions were not presented to the public during the Alternative Phase of the planning process. Instead, alternative concepts for land use in the various land use categories were presented for public consideration. For instance, campground designs of various densities were presented. Responses were then used in developing the proposed plan.

Alternative A - No Project

In this alternative, there would be no new facilities or resource protection measures at the park. The "no project" alternative avoids the adverse environmental impacts associated with development of new facilities, especially the proposed campgrounds located along Moran Road. However, it would not deal with various existing environmental problems, including those associated with facilities, such as the North Grove Campground and some hiking trails. Taking no action would at least perpetuate these adverse impacts, and perhaps intensify them.

Alternative B - Less Development

This alternative differs from the proposed General Plan in that, although environmental problems currently identified in the park would be rectified, facilities removed as a means of mitigation would not be replaced. Principally, the North Grove Campground would be eliminated to allow for meadow restoration, but no new campgrounds would be developed elsewhere. Expanded day use facilities in the vicinity of the North Grove would not be included in this alternative, nor would relocation of the existing group campground. Minor alterations to existing facilities to allow for improved traffic circulation and resource protection would be allowed under this alternative.

Impacts

This alternative would avoid the adverse impacts associated with development of the Moran Road campground, but, unlike Alternative A, would allow for other improvements that would reduce existing impacts. The North Grove Meadow would be restored. Hiking trails would be improved or realigned. Facilities related to improving parking and traffic flow would be included in this alternative.

Adverse impacts associated with this alternative would be related to loss of recreational facilities. Elimination of the North Grove Campground would place increased demand on the Oak Hollow Campground, and would therefore increase the rate of deterioration of the facilities and natural features located there. A similar result could be expected for day use facilities at Stanislaus River and Beaver Creek. Unfulfilled demand for camping at Calaveras Big Trees would probably result in a corresponding increase in use of regional camping facilities.

This is the environmentally preferred alternative.

Alternative C - Less Development

This alternative differs from Alternative B in that, although available camping would be reduced from the current condition, the reduction would not be as severe. Additionally, all new campgrounds called for in this General Plan would be developed, but to a lesser degree. Specifically, the West Moran site would be designed with 60, rather than 90, sites. These would be subject to rotational closures on a three-year cycle, thus resulting in only forty sites being available at any one time. This would correspond to a net decrease from the current condition of ten sites.

Impacts

This alternative would result in slightly less area being devoted to family camping, and thus a slightly less impact to the natural environment. This impact can be considered as insignificant. The only significant impact is the reduction in recreational facilities, which, at eight percent of the total at Calaveras Big Trees, would be an important change.

Alternative D - Comparable Development

This alternative provides for the same scope of development as called for in the proposed General Plan, but differs in that certain facilities would be located elsewhere. Primarily, the location of new family camping facilities would be to the south of the Oak Hollow Campground. An access road would be constructed into this area, which is currently undeveloped. The road would extend from the existing Love Creek Road, and might require crossing the existing park boundary onto private property.

Impacts

The area proposed for development by this alternative is largely untouched, and does not have any existing facilities that can be used as part of the new camping areas. All access roads, service roads, group and family camping areas, and support facilities would have to be constructed from scratch. This would result in adverse environmental impacts that are more significant than those resulting from the preferred plan.

The location of the proposed camping area is far removed from other park features, such as park offices and maintenance facilities, the North Grove Trail, the visitor center, and the Smith Parkway. This would be an inconvenience both to park visitors and park staff, and could be a critical factor during emergencies.

This is the alternative with the greatest potential for adverse environmental impacts.

Alternative E - More Development

The key feature of this alternative is development of 104 family campsites along Moran Road, instead of the 84 proposed in the General Plan. This was presented at the public meeting held on October 28, 1987 as Alternative D. This alternative would result in campsite densities of six units per acre, which is considered the maximal optimum density.

Impacts

While the environmental impacts of this alternative would not differ greatly from those resulting from the General Plan, the higher campground density would reduce the quality of the recreation experience provided park visitors.

Effects Not Found To Be Significant

Should the proposed General Plan be implemented as described, there should not be significant adverse effects involving the following aspects of the local environment: geology, vegetation, light and glare, air quality, visual resources, and recreation.

With mitigation measures defined in the Environmental Impact Element, the proposed General Plan should not cause significant adverse effects on the following aspects of the local environment: hydrology, soils, wildlife, noise, traffic, water quality, and cultural resources.

See the Initial Study Checklist (Appendix C) for further information.

Significant Effects That Cannot Be Avoided

There are no unavoidable significant environmental effects that would result from implementation of the proposed General Plan for Calaveras Big Trees State Park.

Relationship Between Short-Term Use and Long-Term Productivity

The goal of management of Calaveras Big Trees State Park is perpetuation of ecosystems that are becoming increasingly uncommon along the western slope of the Sierra Nevada. The various plant and animal associations active in the park are to be perpetuated through a program of resource management directed at the dynamic processes responsible for those associations, rather than specific organisms. To that end, most of the land within the park boundary has been placed in the most restrictive land use classifications. Categories I and II of the Allowable Use Intensity Map of the Resource Element (Map 4) total 4,400 acres of park land, or 70% of the total area of the unit. This includes the 1,450-acre Calaveras South Grove Natural Preserve.

The General Plan, having defined the goals for maintaining long-term productivity of the park's various cultural and natural resources, has further delineated the levels of development appropriate for public appreciation of those resources. It is expected that these resource values will not only be perpetuated, but enhanced, through enactment of this plan.

Growth-Inducing Impacts

Since this General Plan for Calaveras Big Trees State Park does not provide for major expansion of the existing public use facilities, it will not induce significant new growth in the area, either through increased employment or expanded local tourism.

Organizations and Individuals Contacted in Preparation of the Environmental Impact Element

Calaveras Big Trees Association

Wendy Faris

Calaveras County Water District

Linda O'Keefe

Northern California Power Agency, Jim Lynch

State of California: Department of Fish and Game, Gordon Gould, Richard York

Department of Forestry and Fire Protection, Tuolumne-

Calaveras Ranger Unit, Del Albright, Art Hastings

Department of Transportation, District 10

U. S. Forest Service, Stanislaus National Forest, Aileen Palmer



Appendix

APPENDIX A
USFS, STANISLAUS NATIONAL FOREST

You may have noticed it on a forest or area map...measuring in at 378.7 acres, the Calaveras Bigtree National Forest is the smallest in the National Forest system. Its creation was authorized by a Congressional Act in 1909 that was not implemented until 1953 when the land of which it is comprised was acquired from private ownership. The present and future of the Calaveras Bigtree National Forest is and becomes woven from its past; this article offers a short history of this interesting place.

The political background of the 1909 Act is fascinating in its own right, but suffice here to say that the Act was largely the product of persistent efforts of women in an activist group called the California Club. The aim of the Club, in this instance, was to protect the "Sequoia washingtoniana." Their lobbying coupled with the atmosphere of President Theodore Roosevelt's conservation policies, led Congress to pass "An Act to Create the Calaveras Bigtree National Forest, and other purposes" on February 18, 1909. The Act empowered the Secretary of Agriculture to obtain complete title of specified lands on both sides of the Stanislaus River's North Fork expressly to prolong "the existence, growth, and promote the reproduction of said big trees." The Act also prescribed the name of the reserve to be the Calaveras Bigtree National Forest. No special appropriation was included in the Act with the thought that acquisitions could be made via land for land and/or land for timber value exchanges.

Following passage of the Act, the Forest Service pled lack of money and lack of latitude in land acquisition for lack of action in carrying out provisions of the Act. To remedy this, Congress passed an amendment on May 7, 1912. The amendment broadened land acquisition means and appropriated \$10,000 for fulfilling the parent legislation. The major element in this broadening was that nonmineral national forest lands could be all or part of the exchange package rather than strictly unreserved, unappropriated nonmineral public lands. A clue to the background of the land acquisition issue is found in the June 1911 issue of Stanislaus Review, an employee newsletter for the Stanislaus National Forest:

The purchase of the Calaveras Grove is again in Congress. Mr. (Robert B.) Whiteside, it is claimed, is again offering the two groves (Calaveras North and South) to the Government for \$1,000,000. He will not sell to any other party, nor will he accept the terms of the Perkins law (1909 Act).... Mr. Whiteside will exchange for timber land if he is allowed to select land for timber in a National Forest....

At the request of Representative Raker of California R. B. Whiteside of Duluth, Minn., owner of Calaveras big trees in California, has consented to come to Washington to attend a conference to be held early next week with Chief Forester Graves. Representatives Raker and Kent and the attorney for the Department of Agriculture to arrange terms whereby the Government may acquire, by purchase, this property for a National Park. (Emphasis added.)

Evidenced by the wording of the amendment, Congress stuck to its desire to have the reserve be a National Forest administered by the Secretary of Agriculture. However, it opened the door to using national forest land in exchange transactions and to providing the actual dollar purchases -- though far short of Whiteside's million dollar tag placed on the Calaveras Groves.

The Forest Service completed a report on the government holdings in the area that noted terrain, timber volumes by species and similar information. It was called the Big Trees Project and was done by O. M. Evans during the 1924 field season. Local meetings with Mr. Whiteside and another meeting between he and the (Chief) Forester occurred in March 1925, but again the barrier of money brought an end to negotiations.

Possibly because of impasse and apparent inaction in fulfilling the 1909 Act, attention was turned toward protecting the Calaveras giant sequoias by route of State acquisition and park status. This was a major component of the Calaveras Grove Association's program. Formed in 1926 as a coalition of conservation groups, the Association enlisted the support of the renowned Frederick Law Olmsted Jr. In 1928, Olmsted visited and included the Calaveras Groves as part of a California State Park Commission survey of potential State Park sites. Largely through the Association, enough momentum and clout was applied that several parcels in the Calaveras North Grove were gained by the State in the years 1931 through 1933. Further, Olmsted's 1928 report laid the groundwork for the California State Park system.

Again due to persuasion by various conservation groups to preserve the Calaveras Groves, a special act of Congress (HR 5545) was passed in 1928. An identical bill passed the House (HR 16472) in the previous Congressional session but did not make it into law. The 1928 Act provided that, upon conveyance and acceptance by the State of either or both the North or South Groves and their dedication as a State Park, the Secretary of Interior at the request of the Governor of California and with concurrence of the Secretary of Agriculture, should issue a patent for the government "corridor land" between the Groves. The Act further prescribed that the patent be issued within six years of the passage of the Act. Seeking opinions of local officials on the 1927 proposal, (Chief) Forester, Colonel W. B. Greeley had directed the Stanislaus to perform a survey and cruise that would provide a "scientific" basis of decision. The resulting report, with the blessing of Forest Supervisor J. R. Hall, expressed favor of the two Groves being acquired by the State, but saw no reason for the government corridor lands to become State land in order to connect the Groves. S. B. Show, then the Regional Forester, was sympathetic to both camps, believing in the virtue of having the Park "round out" its holdings but not convinced it required transfer of the entire 1200 acres of corridor lands. After State acquisitions in the North Grove in 1931 and 1932, the Secretary of Agriculture was promptly requested to comply with the patent provisions of the 1928 Act. Basing his decision on the legislative intent of the bill to connect the Groves for administrative, road and fire protection purposes, the Secretary of Agriculture nixed the transfer of title until it was clear that the state was earnest in acquiring the South Grove.

The Association then focused pressure for State acquisition in the South Grove. O. M. Evans, the forester in charge of the Forest Service Calaveras Bigtree timber survey project, wrote in a 1945 memo to the files:

...Mrs. Joseph Grinnell, Chairman of the D.A.R. Conservation Committee, invited me over last evening to meet Lt. Packard, who represents a Mrs. Edge and a Mr. Van Name, both rabid conservationists.... There was also present a Miss Austin who says she is a belligerent conservationist. Lt. Packard was later to meet Frederick Law Olmsted, who ... has been given carte blanche authority to lay out the boundaries of the South Grove Big Trees State Park. A committee representing several conservation groups (presumably the Calaveras Grove Association) says they will abide by Mr. Olmsted's decision.... (Letter dated April 10, 1945 located in STNF, SO, Lands: 5510 Modification/Calaveras Big Tree National Forest.)

Olmsted's 1945 study report on the South Grove emphasized the case for protecting the Grove on the other side of the river. Renewed urgency was added to the brew as the Pickering Lumber Company's railroad logging operations neared the South Grove in 1948. On the bureaucratic side, the Forest Service joined conservation groups in urging Pickering to defer logging. The Forest Service was also working closely with the Chief of California's Division of Beaches and Parks. Bolstering conservation group efforts, the California War Memorial Park Association was organized to save the South Grove by dedicating it as a war memorial. Despite the Secretary of Agriculture's stance that preservation of the Grove was a state responsibility, the War Memorial group concentrated on federal responsibilities of the 1909 Act. Additionally, Secretary of Agriculture Brannan was memorialized in 1949 by the entire California Congressional delegation to move forward with securing preservation of the giant sequoias and sugar pines vis-a-vis the 1909 Act.

In the crossfire of activity between the North and South Groves, the Forest Service completed a detailed "Valuation Report of Corridor Lands" in 1949. The report was the basis for the corridor lands being used as matching values in the State's purchase of the South Grove; thus satisfying the State's policy that required matching funds for lands acquired for the State Park system. (The Valuation Report of Corridor Lands was prepared by John S. Edwards, Forester, October 10, 1949. Report is located at STNF, SO, Lands Section: 5510 Modification/Calaveras Big Tree National Forest.) Assured by the commitment of the State to acquire the South Grove and at the request of Governor Earl Warren, 1200 acres of land administered by the Stanislaus National Forest were transferred to the State in 1952 under the 1928 Act. Except for one parcel, these lands were not included in the legal descriptions of the 1909 Act.

During the time of this pivotal appraisal work, the eminent Duncan Dunning of the Forest Service California Range and Experimental Station responded to an inquiry by Milton Hildebrand of the University of California at Davis Division of Zoology and of the Sierra Club. This inquiry was regarding the giant sugar pines in the South Grove area -- these unusually large pines far outnumber the sequoia. Expressing his concern for preservation of these stands, Dunning reported that white fir was generally overrunning the sugar pine due to various advantages of fire, such as superior seed production, seed dispersal, germination and shade tolerance. He estimated that "the present valuable old specimen trees will be greatly reduced in number in 50 to 100 years and nearly all will be gone in 250 to 300 years." (Letter dated October 31, 1949, Ibid.)

Possibly through Olmsted's influence and connections with the conservation movement to save the coastal redwoods mixed with the persistence of preservation groups, the South Grove was purchased as a State Park site in 1954. A million dollar gift from John D. Rockefeller, Jr. to the Save-the-Redwoods League was passed through the League to the California State Park Commission; matching State funds and donations secured the \$2,800,000 transaction for 2155 acres. This resolution followed a long history of negotiations with the Pickering Lumber Corporation who then owned the lands in question. Appraisal differences were the primary stumbling blocks which were partially assuaged by allowing Pickering to cut trees off about thirty acres containing about \$50,000 worth of stumpage.

In 1909 and 1912, it is unlikely that Congress anticipated inclusion of the Calaveras giant sequoias in a state park; after all, Olmsted's 1928 survey was the framework for that system. But work for State acquisitions did not kill pressure on the Forest Service to bring the 1909 Act to fruition. The Calaveras Grove Association, the California War Memorial Park Association and others actively kept the heat on the Forest Service. An interesting aside is that J. R. Hall, the influential past Forest Supervisor on the Stanislaus National Forest, was on the Calaveras Grove Association Board of Directors. The Forest Service began serious negotiations with the Pickering Lumber Corporation during the 1940s, but progress repeatedly became mired in wide gulfs between Forest Service and Pickering timber cruises and appraisals. At the same time, local publics were objecting to the Forest Service acquiring the land from Pickering and managing it as a preserve because of loss of county receipts for timber sales. Groups such as the California War Memorial Park Association, based in Los Angeles, were accused of being out-of-town bleeding hearts, insensitive to the needs of the local communities (c.f. Editorial in March 10, 1949 issue of Calaveras Californian by Senator Jesse M. Mayo).

When an agreement was finally struck in 1953, Pickering balked at the eleventh hour. The Corporation's reluctance was rooted in the deal being authorized by the 1909 Act. Pickering contended that there were only a few giant sequoia on the exchange parcels and, therefore, the Forest Service could not "secure and protect for all time the Big Trees..." (c.f. January 29, 1954 letter to the U.S. Attorney General from Office of the Solicitor General, USDA. Located in STNF, SO, Lands Section: 5510 Modification/Calaveras Big Tree National Forest.) After legal assurances to Pickering that the proposed exchange was appropriately authorized by the 1909 Act, Pickering and the Forest Service consummated the transaction that created the Calaveras Bigtree National Forest. It was formally approved and classified in August 1955 and titled the "War Memorial Exchange." In return for the 378.7 acres, Pickering received the right to cut specified tracts of timber on the Stanislaus National Forest valued at \$830,567.60. Because of various special interest groups' part in prodding its creation, it was variously known as the "Calaveras Memorial Scenic Area of Giant Sugar Pines and Sequoias," the "War Memorial Sugar Pine Area" and the "Calaveras Memorial Scenic Area." Policy was forged to assign administration of Calaveras Bigtree National Forest to the Stanislaus National Forest. Further, the new National Forest was designated as the first scenic area in the Pacific Southwest Region. Scenic classification prescribes maintaining the area in as close to an undisturbed condition as possible and allows no form of commodity use.

The Calaveras Bigtree National Forest remains an oddity: being primarily preserved for its sugar pine (fast-succumbing to white fir) when legislative intent was primarily to perpetuate the giant sequoia, being the smallest National Forest and encompassed by the outer administrative bounds of another National Forest, being managed wholly as a preserve rather than by the typical guiding maxim of multiple use... just to list a few anomalies. Management direction, such as that written in the Calaveras Ranger District Multiple Use Plan, has been to "maintain the area in near natural condition; maintain and improve timber, recreation and scenic values; protect existing specimens and promote reproduction of big trees" (p. 53.2). Improvements were to be limited to hiker foot trails, directional and informational signs. Partially due to poor access, however, management has generally been laissez faire.

Periodically over the last thirty years, the Forest Service, the State and special interest groups have endeavored to shift the lands in the Calaveras Bigtree National Forest to State stewardship to come under the wing of the Calaveras Big Trees State Park. The 1909 legislated stipulations that the Forest remain a distinct National Forest and that the Secretary of Agriculture "secure and protect for all time the big trees" has created barriers to such a transfer or sale. In 1976, Stanislaus Forest Supervisor, Gary Cargill proposed writing special legislation to enable sale or transfer of the Calaveras Bigtree National Forest to the State, along with a few neighboring isolated Stanislaus tracts. He noted the value of the land as in excess of a million dollars, but evidenced flexibility by commenting: "We are far less concerned about wringing out every nickel's worth of value than getting the job done quickly and having direct purchase funds available." (Letter dated May 3, 1976, designated 5430(2320). Located at STNF, S0, Lands Section: 5510 Modification/Calaveras Bigtree National Forest.) In a January 1979 letter to Stanislaus National Forest Supervisor, Blaine Cornell, the State Department of Parks and Recreation Director, Russell Cahill urged consideration of transferring the Calaveras Bigtree National Forest to the Big Trees State Park. As late as 1981, at a meeting of the California Park and Recreation Commission, a member of DPR reported that the Department had been encouraging local people interested in State acquisition of the Calaveras Bigtree National Forest to press for federal enabling legislation. A Commissioner added that, in light of the Reagan administration's policy of asset management, the State Parks would be in an improved position to persuade the federal government that "this is legitimately part of the (Calaveras Big Trees) Park and ask them to just hand it to us rather than buying it." (Ibid.)

In a Report to the Legislature on State Park System Projects Nominated for Financing From the California Parklands Act of 1980, DPR consented to entering into an interagency agreement or to operating the lands, if donated to the State. However, purchase of the Calaveras Bigtree National Forest with Parklands Act money was not recommended. Cohering with the sentiment to eventually partially or wholly divest its administration of the Calaveras Bigtree, the Stanislaus National Forest's current proposed Land Management Plan preferred alternative includes entering into a memorandum of understanding with Calaveras Big Trees State Park "to manage this area consistent with the intent of Congress." (Published October 1985, p. IV-115.)

The political activism, glacial speed of bureaucracy, changes in philosophies and priorities of all participants, cooperation and persistence are all entwined in the formation of the Calaveras Bigtree National Forest... and they will surely figure in its future.

Written by
Pam Conners, Historian
Stanislaus National Forest
1985

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INITIAL STUDY CHECKLIST

State Clearinghouse # 88050219

I. BACKGROUND INFORMATION

A. Name of Project: GENERAL PLAN: CALAVERAS BIG TREES STATE PARK

B. Checklist Date: 4/26/88

C. Contact Person: WAYNE HARRISON

Telephone: 1209 1795-2334

D. Purpose: IMPROVEMENTS AND ADDITIONS TO PARK FACILITIES; RESTORATION OF NATURAL RESOURCES.

E. Location: UNIT WIDE

F. Description: THE CALAVERAS GENERAL PLAN PROVIDES FOR NEW AND ADDITIONAL CAMPING, DAY USE, INTERPRETIVE AND OPERATIONAL FACILITIES; CHANGES TO UTILITY AND TRANSPORTATION SYSTEMS; AND, THE RESTORATION OF PARK NATURAL AND CULTURAL RESOURCES. IMPORTANT RECOMMENDATIONS INCLUDE: NEW FAMILY AND GROUP CAMPGROUNDS; THE ELIMINATION OF THE NORTH GROVE CAMPGROUND AND SUBSEQUENT SITE RESTORATION; THE ECOLOGICAL RESTORATION OF THE NORTH GROVE MEADOW; THE CONSTRUCTION OF A NEW VISITOR CENTER; IMPROVED TRAFFIC FLOW; AND MISCELLANEOUS IMPROVEMENTS.

G. Persons and Organizations Contacted: NONE TO DATE

II. ENVIRONMENTAL IMPACTS. (Explain all "yes" and "maybe" answers)

A. Earth. Will the proposal result in:

- 1. Unstable earth conditions or changes in geologic substructures?
2. Disruptions, displacements, compaction, or overcovering of the soil?
3. Change in topography or ground surface relief features?
4. The destruction, covering, or modification of any unique geologic or physical features?
5. Any increase in wind or water erosion of soils, either on or off the site?
6. Changes in deposition or erosion of beach sands, or changes in siltation, deposition or erosion which may modify the channel of a river or stream or the bed of the ocean or any bay, inlet, or lake?
7. Exposure of all people or property to geologic hazards such as earthquakes, landslides, mudslides, ground failure, or similar hazards?

Yes Maybe No

Grid of checkboxes for Yes, Maybe, and No responses for each impact item.

		Yes	Maybe	No
B. Air. Will the proposal result in:				
1.	Substantial air emissions or deterioration of ambient air quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	The creation of objectionable odors?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.	Alteration of air movement, moisture or temperature, or any change in climate, either locally or regionally?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C. Water. Will the proposal result in:				
1.	Changes in the currents, or the course or direction of water movements, in either marine or fresh waters? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	Changes in absorption rates, drainage patterns, or the rate and amount of surface water runoff?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3.	Alterations to the course or flow of flood waters?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.	Change in the amount of surface water in any water body?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5.	Discharge into surface waters, or in any alteration of surface water quality, including but not limited to temperature, dissolved oxygen or turbidity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6.	Alteration of the direction or rate of flow of ground waters?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7.	Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8.	Substantial reduction in the amount of water otherwise available for public water supplies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9.	Exposure of people or property to water-related hazards such as flooding or tidal waves?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10.	Significant changes in the temperature, flow or chemical content of surface thermal springs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D. Plant Life. Will the proposal result in:				
1.	Change in the diversity of species, or number of any species of plants (including trees, shrubs, grass, crops, and aquatic plants)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	Reduction of the numbers of any unique, rare or endangered species of plants?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.	Introduction of new species of plants into an area, or in a barrier to the normal replenishment of existing species?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.	Reduction in acreage of any agricultural crop?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
E. Animal Life. Will the proposal result in:				
1.	Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, or insects)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.	Reduction of the numbers of any unique, rare or endangered species of animals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3.	Introduction of new species of animals into an area, or result in a barrier to the migration or movement of animals?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4.	Deterioration to existing fish or wildlife habitat?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
F. Noise. Will the proposal result in:				
1.	Increase in existing noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2.	Exposure of people to severe noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
G. Light and Glare. Will the proposal result in:				
1.	The production of new light or glare?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H. Land Use. Will the proposal result in:				
1.	A substantial alteration of the present or planned land use of an area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I. Natural Resources. Will the proposal result in:				
1.	Increase in the rate of use of any natural resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2.	Substantial depletion of any nonrenewable resources?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

		Yes	Maybe	No
J.	Risk of Upset. Does the proposal result in:			
	1. A risk of an explosion or the release of hazardous substances (including, but not limited to, oil, pesticides, chemicals, or radiation) in the event of an accident or upset conditions?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	2. Possible interference with emergency response plan or an emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
K.	Population. Will the proposal result in:			
	1. The alteration, distribution, density, or growth rate of the human population of the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
L.	Housing. Will the proposal result in:			
	1. Affecting existing housing, or create a demand for additional housing?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
M.	Transportation/Circulation. Will the proposal result in:			
	1. Generation of substantial additional vehicular movement?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	2. Affecting existing parking facilities, or create a demand for new parking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	3. Substantial impact upon existing transportation systems?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	4. Alterations to present patterns of circulation or movement of people and/or goods?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Alterations to waterborne, rail, or air traffic?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	6. Increase in traffic hazards to motor vehicles, bicyclists, or pedestrians?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
N.	Public Services. Will the proposal have an effect upon, or result in a need for new or altered governmental services in any of the following areas:			
	1. Fire protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	2. Police protection?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	3. Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	4. Parks and other recreational facilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Maintenance of public facilities, including roads?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	6. Other governmental services?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
O.	Energy. Will the proposal result in:			
	1. Use of substantial amounts of fuel or energy?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	2. Substantial increase in demand upon existing sources of energy, or require the development of new sources? ..	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P.	Utilities. Will the proposal result in a need for new systems, or substantial alterations to the following utilities:			
	1. Power or natural gas?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	2. Communication systems?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	3. Water?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	4. Sewer or septic tanks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	5. Storm water drainage?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	6. Solid waste and disposal?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Q.	Human Health. Will the proposal result in:			
	1. Creation of any health hazard or potential health hazard (excluding mental health)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
	2. Exposure of people to potential health hazards?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
R.	Aesthetics. Will the proposal result in:			
	1. The obstruction of any scenic vista or view open to the public, or will the proposal result in the creation of an aesthetically offensive site open to public view?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
S.	Recreation. Will the proposal result in:			
	1. An impact upon the quality or quantity of existing recreational opportunities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

T. *Cultural Resources.*

- | | Yes | Maybe | No |
|---|--------------------------|-------------------------------------|-------------------------------------|
| 1. Will the proposal result in the alteration of or the destruction of a prehistoric or historic archeological site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 2. Will the proposal result in adverse physical or aesthetic effects to a prehistoric or historic building, structure, or object? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Does the proposal have the potential to cause a physical change which would affect unique ethnic cultural values? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 4. Will the proposal restrict existing religious or sacred uses within the potential impact area? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

U. *Mandatory Findings of Significance.*

- | | | | |
|--|--------------------------|-------------------------------------|-------------------------------------|
| 1. Does the project have the potential to degrade the quality of the environment, reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 2. Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 3. Does the project have impacts which are individually limited, but cumulatively considerable? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 4. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

II. DISCUSSION OF ENVIRONMENTAL EVALUATION (See Comments Attached)

V. DETERMINATION

On the basis of this initial evaluation:

- I find the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A NEGATIVE DECLARATION will be prepared.
- I find the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

Date: 4/26/88

R. Wayne Brown

INITIAL STUDY CHECKLIST

SCH # 8805219

III. DISCUSSION OF ENVIRONMENTAL EVALUATION

(Y) = Yes (M) = Maybe

- A.2 (Y) The development of new camping facilities along Old Moran Road will require small amounts of soil displacement, compaction, and overcovering. Compaction and overcovering are called for to mitigate against subsurface disturbance of sensitive soils.
- C.2 (M) Restoration of the North Grove Meadow will likely involve the redirection of surface runoff into the meadow area, as a means of restoring natural flows.
- The elimination of "volunteer" trails along the North Fork Stanislaus River shore line may improve a degraded surface drainage.
- C.7 (Y) The restoration of the North Grove Meadow will increase the amount of ground water held there.
- E.1 (M) Development of the Moran Road campgrounds will utilize approximately 30 acres of wildlife habitat.
- G.1 (Y) The new campgrounds will be sources of light and glare in areas that are currently free of such. These will not, however, impact upon any population centers.
- H.1 (Y) The developments called for along Old Moran Road, and the restoration of other areas to a natural state will alter current land use practices.
- M.4 (Y) The development of the Moran Road campgrounds will increase traffic flow along a 2 mile portion of the parkway, and create new traffic flows currently undeveloped roads.
- The plan calls for the redesign and improvement of traffic flow patterns in the areas of the entrance station and the North Grove.
- N.1 (M) Implementation of this plan will call for revision of the unit wildfire management plan, which will reflect new facilities and locations. It will not require new or expanded fire protection services.
- N.2 (M) Enforcement procedures by park rangers will be changed to reflect the new location of facilities, but should only create a change in driving time during routine patrols.
- N.4 (Y) The focus of this plan is on general improvements to park and recreational facilities.

- N.5 (Y) Implementation of this plan would alter, but not substantially change most maintenance activities conducted by the park staff. Increased maintenance workload would be created at a new (and substantially larger) visitor center, and by the addition of approximately 1.5 miles of additional roadways requiring plowing during winter snowfalls (to the East Moran Campground).
- P.1 (Y) New electric systems would be required to provide service to the Moran Road campgrounds.
- P.2 (M) Telephone service may be added to campgrounds.
- P.3 (Y) The plan calls for new water systems joined to the existing county system.
- P.4 (Y) The plan calls for the development of new septic systems at various locations throughout the park.
- S.1 (Y) The plan is predicated upon the need to improve the quality existing recreational facilities operated by the park. A slight increase in camping facilities are also planned.
- T.1 (M) Some historic and prehistoric sights may be located at or near projected sites for new facilities. No major sites are known to exist at these locations, however.

Historic facilities constructed by the Civilian Conservation Corp (ca. 1940) will be removed from the area of the North Grove Campground. A representative sample of these facilities will be incorporated into an interpretive display.

- U.3 (M) A slight increase in visitation could result from this plan, which will, in turn, have an insignificant impact on traffic volume along State Route 4. However, this could contribute to other future increase in traffic that would cumulatively be significant.

APPENDIX D
CAMPGROUND SURVEY

Objectives

The Calaveras Big Trees State Park Campground Survey was designed to provide the following information:

- camper demographics
- attitudes about the campgrounds
- attitudes about the campground facilities
- attitudes about the computerized reservation system
- specific likes and dislikes about the campgrounds

Method

The Campground Survey is a one page form completed by oral interview with the respondent. The interviewer would randomly select fifteen campsites each day interviews were given, and would give the interviews early in the morning before sites were vacated. Only ten interviews would be given each day, with the five remaining selected sites used in case of vacancies.

Results

A total of 185 surveys were given over a period of 48 days, from 8/7/86 to 9/21/86. During the same period, visitor use figures for the days on which surveys were taken show a total campground occupancy of 18,340 persons. Thus approximately one of every 100 campground users were surveyed.

In general, visitor attitudes to the campgrounds at Calaveras Big Trees State Park were extremely positive, both in ratings against other State Park campgrounds, and in solicited comments.

Visitor Demographics

Respondents were asked to characterize their party by total number, age and sex. Figures indicate that the average party consisted of 3.9 persons, with a ratio of men to women of 49:51. For both sexes, slightly over half of the campground users were in the 18-55 year age group. Only ten percent of the users were in the 55+ group, fewer by three percent than the teenage group, and by nearly ten percent than the 2-12 group.

Virtually all (96%) of the campground users were from California, with almost half (47%) from the San Francisco/Oakland Bay Area. In descending order of geographic

representation, other portions of the state included the Stockton area (16.5%), Los Angeles basin (13%), Sacramento area (12%) and Central California (6%). (Map 1)

- 2) IS THIS THE FIRST TIME YOU HAVE CAMPED AT CALAVERAS BIG TREES STATE PARK?
3) HAVE YOU CAMPED AT OTHER STATE PARKS IN CALIFORNIA WITHIN THE LAST 5 YEARS?

The overall total for these questions shows that virtually half of all campers are here for the first time. However, by a significant margin more returning campers were found in the North Grove Campground (77%), than in Oak Hollow Campground (45%). This implies a preference for the North Grove among all returning campers, although the value of this preference can only be determined by a more specific question. The above figures were found to be significant to the 99.9% level. 79% of the campers interviewed indicated that they have camped in California state parks before.

- 3b) IF YOUR ANSWER WAS YES, ON A SCALE OF 1 to 5, WITH 1 BEING MUCH WORSE AND 5 BEING MUCH BETTER, HOW WOULD YOU COMPARE THIS CAMPGROUND WITH THESE OTHER STATE PARK CAMPGROUNDS?

The average rating of the two Calaveras campgrounds, on a scale of 1 to 5 with one the lowest and five the highest rating, was 4.089, with a standard deviation of 0.813. The individual campgrounds showed similar values, although the North Grove (ave = 4.151; s.d. = .817) was rated higher than Oak Hollow (ave = 4.014; s.d. = .807). However, the difference is not statistically insignificant ($p < .70$).

In analyzing the data for each campground, there were evident differences between the ratings given to the campground based on the respondents' campsite locale. Therefore, responses to question 3b were divided into similar campsite groupings for the North Grove and Oak Hollow campgrounds. The resulting average ratings never achieved statistical significance when compared with the overall rating for each respective campground, which could be the result of low sample size instead of no real differences in visitor attitude. These results are:

NORTH GROVE ($\bar{x}=4.151$)						OAK HOLLOW ($\bar{x}=4.014$)					
Unit	\bar{x}	s.d.	n	t	t(0.10)	Unit	\bar{x}	s.d.	n	t	t(0.10)
A	4.28	.89	18	.61	1.74	A	3.96	.87	26	.32	1.71
B	4.00	.71	5	.47	2.13	B	4.10	.56	10	.48	1.83
C	4.18	.87	11	.14	1.76	C	3.88	.84	8	.45	1.90
D	4.15	.83	19	.15	1.73	D	4.00	.85	12	.06	1.80
E	4.67	.82	6	1.57	2.02						
F	4.43	.81	16	1.4	1.75						
G	3.50	.83	6	1.9	2.02						

4) MANY PEOPLE HAVE TOLD US OF THE DIFFICULTY THEY'VE HAD IN RESERVING A CAMPSITE HERE DURING THE SUMMER. ONE POSSIBLE ANSWER IS TO ADD MORE CAMPSITES, BUT THIS COULD RESULT IN MORE PEOPLE AND LESS PRIVACY. OF THE FOLLOWING THREE CHOICES, WHICH WOULD YOU PREFER?

- MORE CAMPSITES, WITH A POTENTIAL LOSS OF PRIVACY, BUT EASIER RESERVATIONS
- FEWER CAMPSITES, WITH MORE PRIVACY BUT MORE DIFFICULTY IN GETTING RESERVATIONS
- THE CURRENT SITUATION

By a significant margin, campers preferred the current situation. This may indicate that the question was poorly phrased since it did not adequately segregate the responses. The obvious alternative of "more sites with privacy" was left off the list of potential selections since this would have been an obviously preferable selection.

However, considering the visitor views on the campgrounds in general, it is likely that the public does not feel motivated to change the current campground(s) character and availability.

5) DID YOU RESERVE THE CAMPSITE YOU CURRENTLY OCCUPY? IF YES, DID YOU HAVE ANY PROBLEMS GETTING YOUR PREFERRED DATE? DID YOU HAVE ANY OTHER PROBLEMS IN MAKING A RESERVATION?

This question was added because of the new reservation system initiated in the Spring, 1986, and has no direct applicability to the Calaveras General Plan. Results have not, as yet been systematically analyzed, but seem to bring up the following major points:

- Communication with Myxtix was the major problem;
- Mystix was not well versed in the State Park fee structure and facility design system;
- Mystix staff was rude and/or unhelpful
- Procedure errors
- Non-Mystix related complaints

6) WHAT DO YOU LIKE ABOUT THIS CAMPGROUND?

7) IS THERE ANYTHING YOU DISLIKE ABOUT THIS CAMPGROUND?

Visitor likes and dislikes of the campgrounds fell into four categories: social, natural, operational, and miscellaneous. All comments were placed into these categories, even when multiple comments were offered. Miscellaneous comments were inapplicable or too general to classify.

Discussion

The results of questions 6 and 7 show that, for both Oak Hollow and North Grove, the most popular aspects were quiet, privacy, setting, the North Fork Stanislaus River, campsite size and facilities. The least popular aspects were operational in nature, with dust and no hot water topping the list. The dust problem has already been handled administratively.

Social aspects rated higher in Oak Hollow than the North Grove, while natural and operational considerations were higher in the North Grove. The lower relative positive rating for the facilities in Oak Hollow, coupled with the high number of negative comments indicate that the general plan process should address this issue.

8) HOW WOULD YOU RATE THE RESTROOM FACILITIES IN THIS CAMPGROUND?

This question was poorly structured in that the range should have more extreme on the high end. However, the interviewer was able to mitigate the problem by rephrasing the scale to "below average, average, and above average". Based on this, the overall restroom facility rating is high (av 4.180, s.d. 0.946). However, the difference between the two campgrounds is noteworthy. The North Grove Campground average rating is 4.326, with a s.d. of 0.834. Oak Hollow's rating is 4.011, with a wide s.d. of 1.040. The difference is significant to the 95% confidence level, and again indicates a major difference in the facilities in the two campgrounds.

9) WOULD YOU BE WILLING TO PAY FOR A CAMPSITE WITH HOOK-UPS FOR WATER AND POWER?

This question was only asked of campers with an RV. With only 21 responses, a binomial distribution such as this cannot be analyzed with normal analytical techniques.

CAMPGROUND QUESTIONNAIRE

Date _____

No. In Party 3907

By Age Group 24 %

Age Group of Respondent _____

11.3	11.1
20.6	17.8
33.1	13.6
46.1	15.0
59.3	11.4

Sex _____
 Campsite # _____
 OH _____ NG _____

1. First, do you live in the United States? Yes No
 (If yes,) what is your Zip Code? _____
 (If no,) in what nation do you live? _____

2. Is this the first time you have camped at Calaveras Big Trees State Park?
 Yes No
93 92 50.2 % / 49.7 %

3. a) Have you camped at other State Parks in California within the last 5 years? Yes No
146 38
 b) If your answer was Yes, on a scale of 1 to 5, with 1 being much worse and 5 being much better, how would you compare this campground with these other State Park campgrounds? av- 4.089 sd. 0.813

Much Worse	About the Same	Much Better
1-0	2-3 3-33	4-58 5-52

4. Many people have told us of the difficulty they've had in reserving a campsite here during the summer. One possible answer is to add more campsites, but this could result in more people and less privacy. Of the following three choices, which would you prefer?
 -More campsites, with a potential loss of privacy, but easier reservations.
 -Fewer campsites, with more privacy but more difficulty in getting reservations.
 -The current situation

5. a) Did you reserve the campsite you currently occupy? Yes No
148 36
 b) If yes, did you have any problems getting your preferred date? Yes No
35 113
 c) Did you have any other problems in making a reservation?

6. What do you like about this campground?

7. Is there anything you dislike about this campground?

8. How would you rate the restroom facilities in this campground?

Unsatisfactory	Average	Satisfactory	
1-1	2-6 3-44	4-40 5-92	av. 4.180 sd. 0.946

9. ASK ONLY IF CAMPER HAS AN RV-
 Would you be willing to pay for a campsite with hook-ups for water and power? Yes No
14 7

CAMPGROUND QUESTIONNAIRE

Date Northern Grove

No. In Party _____

By Age Group M F

1		
2		
3		
4		
5		

Age Group of Respondent _____
 Sex _____
 Campsite # _____
 OH _____ NG _____

1. First, do you live in the United States? Yes No
 (If yes,) what is your Zip Code? _____
 (If no,) in what nation do you live? _____

2. Is this the first time you have camped at Calaveras Big Trees State Park?
 Yes No
 44 54

3. a) Have you camped at other State Parks in California within the last 5 years? Yes 79 No 19

b) If your answer was Yes, on a scale of 1 to 5, with 1 being much worse and 5 being much better, how would you compare this campground with these other State Park campgrounds?

Much Worse		About the Same		Much Better
1-0	2-1	3-18	4-28	5-32

4. Many people have told us of the difficulty they've had in reserving a campsite here during the summer. One possible answer is to add more campsites, but this could result in more people and less privacy. Of the following three choices, which would you prefer?

- 7 -More campsites, with a potential loss of privacy, but easier reservations.
- 2 -Fewer campsites, with more privacy but more difficulty in getting reservations.
- 85 -The current situation

5. a) Did you reserve the campsite you currently occupy? Yes No
 79 19

b) If yes, did you have any problems getting your preferred date? Yes No
 14 65

c) Did you have any other problems in making a reservation?

6. What do you like about this campground?

7. Is there anything you dislike about this campground?

8. How would you rate the restroom facilities in this campground?

Unsatisfactory		Average		Satisfactory
1-0	2-0	3-23	4-20	5-55

9. ASK ONLY IF CAMPER HAS AN RV-
 Would you be willing to pay for a campsite with hook-ups for water and power? Yes No

CAMPGROUND QUESTIONNAIRE - Oak Hollow

Date _____

No. In Party _____

By Age Group M F

1		
2		
3		
4		
5		

Age Group of Respondent _____

Sex _____

Campsite # _____

OH _____ NG _____

1. First, do you live in the United States? Yes No
 (If yes,) what is your Zip Code? _____
 (If no,) in what nation do you live? _____

2. Is this the first time you have camped at Calaveras Big Trees State Park?
 Yes No
 49 38

3. a) Have you camped at other State Parks in California within the last 5 years? Yes No
 67 19

b) If your answer was Yes, on a scale of 1 to 5, with 1 being much worse and 5 being much better, how would you compare this campground with these other State Park campgrounds?

Much Worse About the Same Much Better
 1-0 2-2 3-15 4-30 5-20

4. Many people have told us of the difficulty they've had in reserving a campsite here during the summer. One possible answer is to add more campsites, but this could result in more people and less privacy. Of the following three choices, which would you prefer?

- 4 -More campsites, with a potential loss of privacy, but easier reservations.
- 2 -Fewer campsites, with more privacy but more difficulty in getting reservations.
- 72 -The current situation

5. a) Did you reserve the campsite you currently occupy? Yes No
 69 17
 b) If yes, did you have any problems getting your preferred date? Yes No
 21 48
 c) Did you have any other problems in making a reservation?

6. What do you like about this campground?

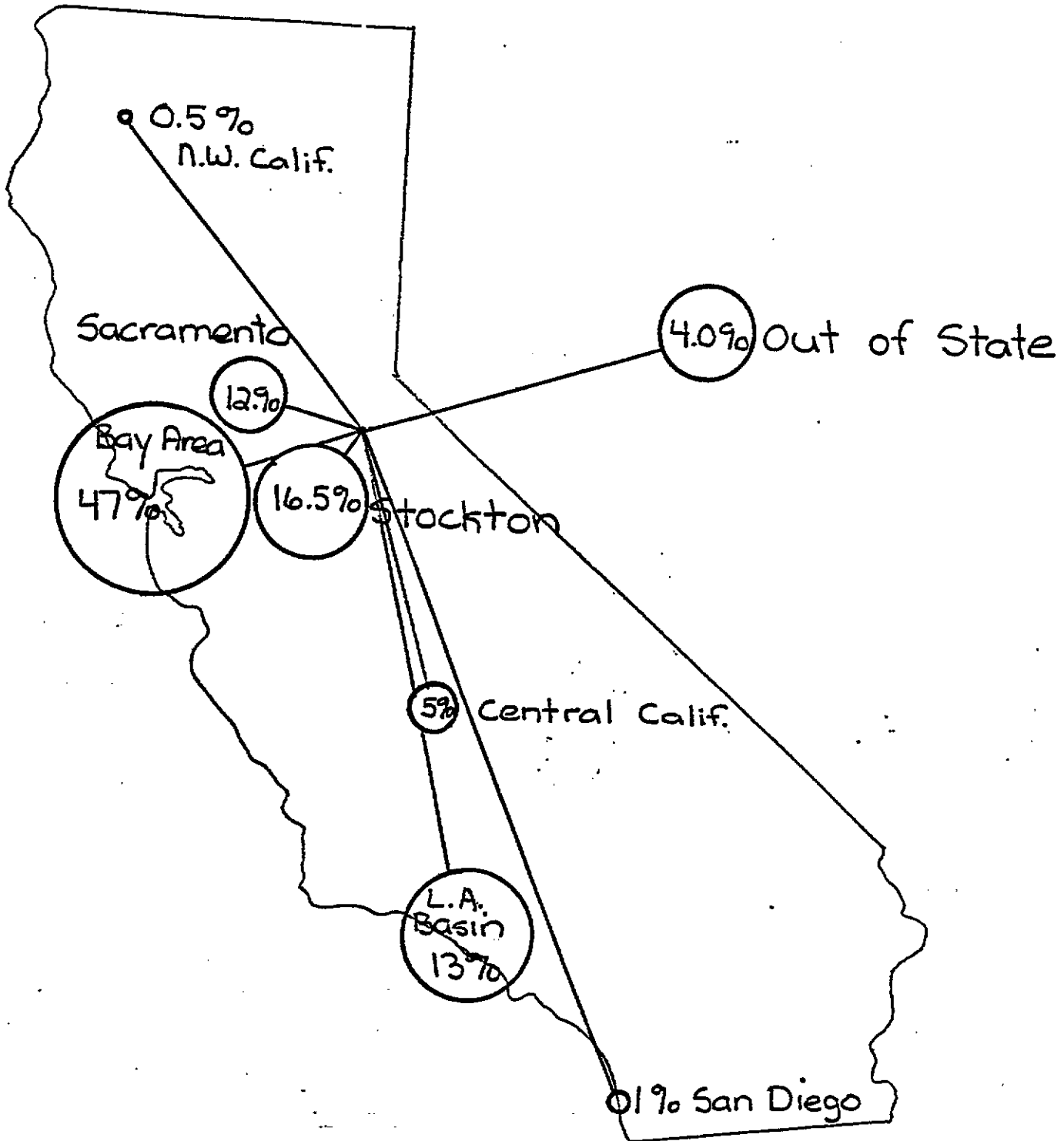
7. Is there anything you dislike about this campground?

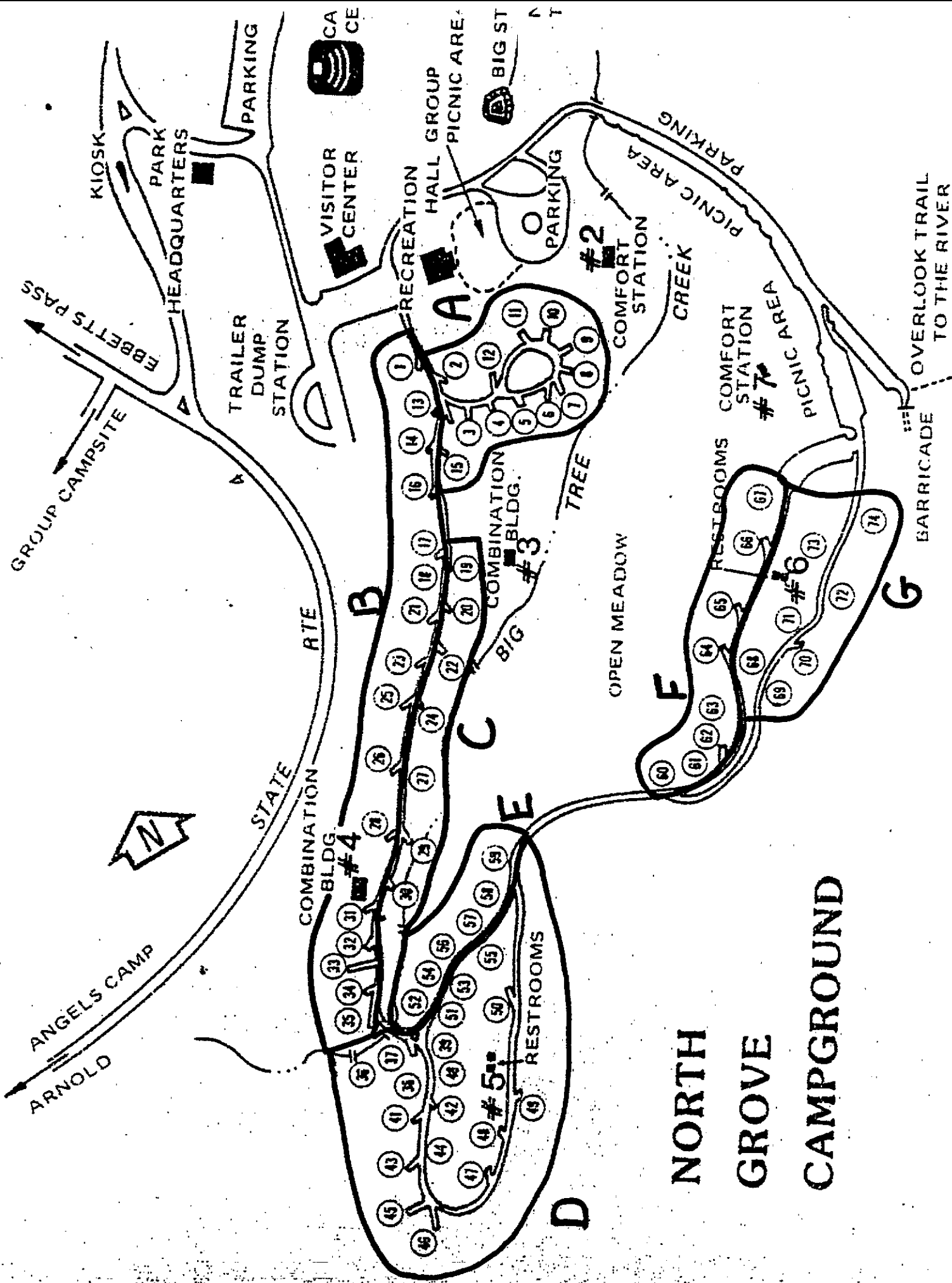
8. How would you rate the restroom facilities in this campground?

Unsatisfactory Average Satisfactory
 1-1 2-6 3-21 4-20 5-37

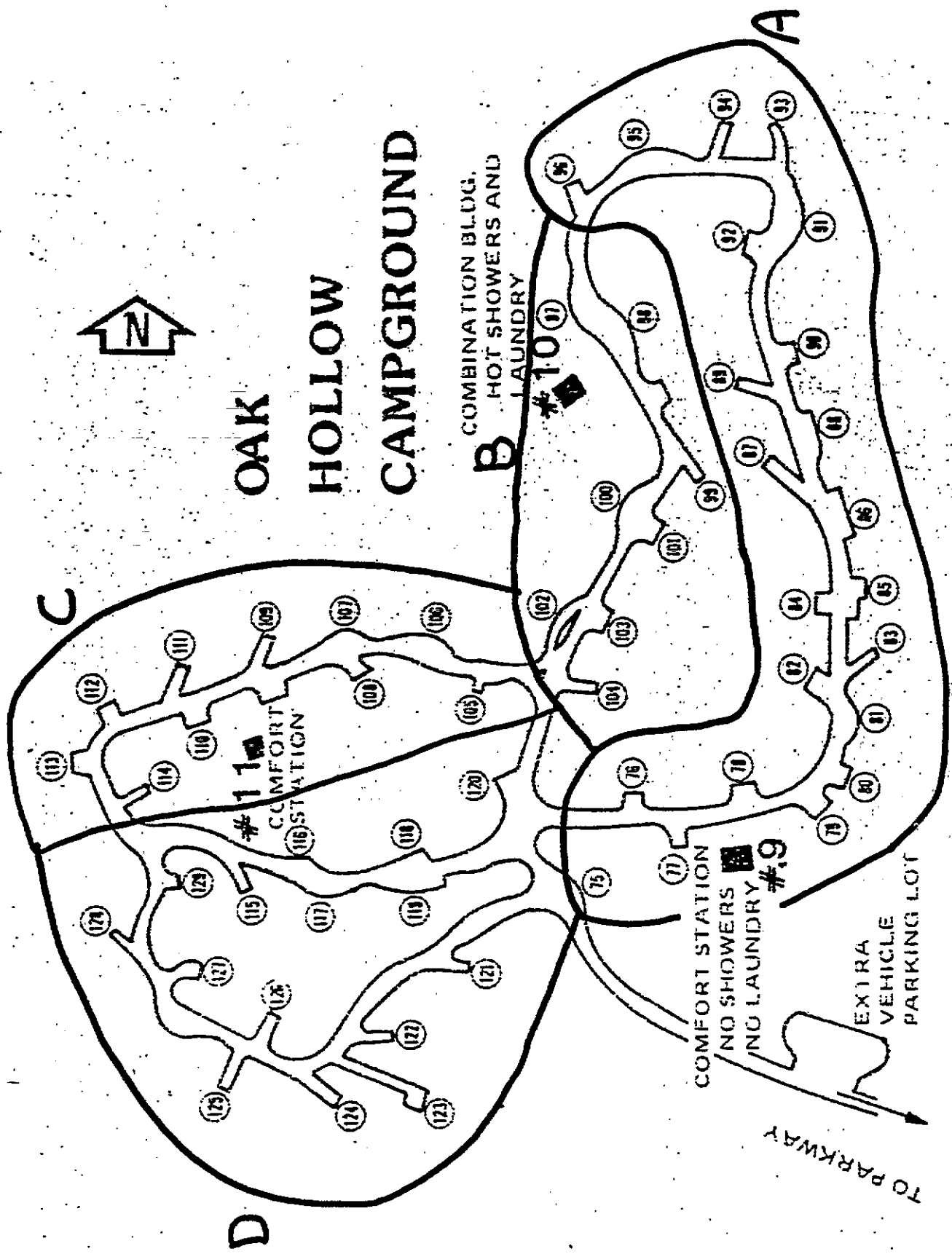
9. ASK ONLY IF CAMPER HAS AN RV-
 Would you be willing to pay for a campsite with hook-ups for water and power? Yes No

CAMPGROUND VISITOR USE
ZIP CODE DISTRIBUTION





NORTH GROVE CAMPGROUND



OAK
HOLLOW
CAMPGROUND

COMBINATION BLDG.
HOT SHOWERS AND
LAUNDRY

#1
COMFORT
STATION

COMFORT STATION
NO SHOWERS
NO LAUNDRY #9

EXTRA
VEHICLE
PARKING LOT

TO PARKWAY

APPENDIX E
TRAIL QUESTIONNAIRE

Objectives

This survey was designed to determine the following:

- Trail visitor demographics
- Visitor use of the trail system
- Visitor evaluation of trails

Methods

Visitors were met at the trail head by the interviewer, although at times surveys were left on a windshield with a request to return the completed questionnaire to the entrance station. Surveys returned in this manner that were improperly completed were deleted.

Results

Eighty four Trail Surveys were given over a 43 day period, from 8/7/86 to 9/16/86. Of the total surveys, there were 52 for the South Grove, 25 for the North Grove and 8 for the Lava Bluff Trail. The data cannot be used to determine comparative frequency of use.

Visitor Demographics

Although the overall average party size is 3.070, the large standard deviation (1.445) indicates a wide range of figures. In fact, by examining the average party size figures for the individual trails, it seems that the Lava Bluffs Trail is primarily used by small groups (av: 2.25, s.d. 0.463), the South Grove Trail by slightly larger groups (2.87/1.28), and the North Grove by many larger groups (3.64/1.85).

Of the 255 people represented, 111 were men and 144 women. While this figure is significant to the 95% confidence level, the results may have been skewed by a higher proportion of women than men returning surveys left on cars. Otherwise we can conclude that more women use the trails than men.

- 1) IN GENERAL WOULD YOU CONSIDER YOURSELF TO BE A FREQUENT HIKER, OCCASIONAL HIKER, OR INFREQUENT HIKER?
- 3) DURING THIS VISIT TO CALAVERAS BIG TREES STATE PARK, HAVE YOU HIKED ANY OF THE OTHER TRAILS?

Without analyzing the results statistically, it can be assumed that the high proportion of infrequent hikers using the North Grove Trail is significant, and reflects the character of the trail, the ease of access to the trail head, and the more transient nature of its users. This last point is supported by the answers to question 3, which show that most North Grove Trail hikers (65%) did not plan to hike any other trails during their visit, while only 30% of the South Grove Trail users, and 42% of the Lava Bluff Trail users planned to hike only one trail.

- 2) IS THIS YOUR FIRST TRIP TO CALAVERAS BIG TREES STATE PARK IN THE LAST 10 YEARS?
- 2a) IN THE PAST TEN YEARS, HOW OFTEN WOULD YOU SAY YOU HAVE VISITED THIS PARK?
- 2b) DID YOU HIKE ANY OF THE PARK'S TRAILS ON YOUR PREVIOUS VISITS?

The results show that most trail users (60%) have been to the park before, although 60% of the North Grove Trail users were first time visitors.

- 3a) WHICH OTHER TRAILS DID YOU HIKE?

No analysis offered.

- 3b) IN TERMS OF ENJOYMENT HOW WOULD YOU RATE THIS TRAIL YOU HAVE JUST FINISHED WITH THE OTHERS YOU HAVE HIKED?

This question could have resulted in better information if a 1-5 scale had been used. However, the results do indicate that the visitors rate Lava Bluffs as an inferior to average trail, the North Grove as an average to superior trail, and the South Grove as a superior trail.

- 3c) DO YOU THINK THE PARK: HAS ENOUGH TRAILS, TOO MANY, OR NEEDS MORE?

No analysis offered.

4) WHAT DID YOU LIKE ABOUT THIS TRAIL?

Lava Bluffs

The favorable comments regarding the Lava Bluffs Trail centered on the variety offered, particularly in that a major portion is a loop, thus eliminating traversing much of the same ground. Also the "remoteness" was popular.

North Grove

Naturally, the sequoias were most popular on this trail. Otherwise, the most common comment was that it was an easy trail to hike, and was well interpreted.

South Grove

The majority of favorable comments on the South Grove Trail focused on the natural setting and the sense of remoteness and isolation.

5)WHAT DID YOU DISLIKE ABOUT THIS TRAIL?

Lava Bluffs

Negative comments on the Lava Bluffs expressed disappointment that the destination was a let down, and that the trail is not well interpreted. Other comments were concerned with mosquitoes and poison oak.

North Grove

The major concern expressed over the North Grove Trail was that it was too dusty. A few felt that the self guided nature trail markers were hard to find.

South Grove

Aside from dust, the most frequent concern raised was the lack of information on the length of the trail. Some people did not know what they were getting themselves in for. Craig, one person also preferred the old Beaver Creek foot bridge.

6) IS THERE ANYTHING WE COULD DO TO MAKE THIS TRAIL MORE ENJOYABLE FOR YOU?

Lava Bluffs

Only two suggestions were made for improvements to the Lava Bluffs Trail. The first urged that the trail be extended to the bluffs. The second was for improved interpretation along the trail.

North Grove Trail

The primary suggestion is that something be done about the dust. (This should be accomplished by an upcoming major cap 87/88 project). Other suggestions included more benches along the trail, a water fountain, more interpretive information and the cessation of prescribed burning.

South Grove Trail

The largest group of comments called for improved interpretation of the South Grove, either through brochures or signing. Next, the need for improved trail description was called for. Another large group of comments called for facility development in the form of water fountain (at trail head) restrooms, and benches in the South Grove. Alterations to the trail were suggested, in the form of an Agassiz trail loop, access to the creek, and a ridge trail.

7) WAS THIS TRAIL: TOO LONG; TOO EASY; VISUALLY INTERESTING; WORTH YOUR TIME AND EFFORT; ALL THAT YOU EXPECTED?
WOULD YOU LIKE TO SEE THIS TRAIL: SHORTENED; MADE EASIER TO HIKE; LENGHTENED; HAVE MORE INTERPRETIVE SIGNS; HAVE A SELF GUIDED BROCHURE AVAILABLE?

The one sided nature of the answers to most of question 7 indicate that no meaningful information was obtained, other than to maintain the status quo.

TRAIL SURVEY QUESTIONS:

No. In Party	sd. 1.445	By Age Group		M	F
		2	12	10	0
		17	215	102	14
		8	37	63	9
		62	45	64	295
22	50	18	26		
		111	144		

Location _____
 Age Group of Respondent _____
 Sex _____
 Date _____

1. In general would you consider yourself to be a:
frequent hiker? (10+ per year) 13
occasional hiker? (3-9 per year) 43
infrequent hiker? (0-2 per year) 30

2. Is this your first trip to Calaveras Big Trees State Park in the last 10 years? Yes No
33 50

2a In the past ten years, how often would you say you have visited this park?
 1-3 times 21
 3-5 times 6
 5-10 times 13
 10 or more 10

2b Did you hike any of the park's trails on your previous visits? Yes No
50 18

3. During this visit to Calaveras Big Trees State Park, have you hiked any of the other trails? Yes No
 (If YES go to 3a, if NO go to 4) Y-47 N-33

3a Which other trails did you hike?
58 -South Grove 61 -North Grove
20 -Lava Bluff 7 -Fire roads
14 -River Trail

3b In terms of enjoyment how would you rate this trail you have just finished with the others you have hiked?
 Inferior Average - 14 Superior - 31

3c Do you think the park: has enough trails, too many, or needs more?
31 6 23

4. What did you like about this trail?

5. What do you dislike about this trail?

6. Is there anything we could do to make this trail more enjoyable for you?

7. Finally, the following is a short list of questions, as I ask them, please answer yes or no.

Was this trail:

Y-9 N-75 too long? Y-83 N-2 visually interesting?
Y-3 N-80 too easy? Y-82 N-3 worth your time and effort
Y-77 N-9 all that you expected? Y-82 N-2 in good condition

Would you like to see this trail:

Y-7 N-76 shortened? lengthened? Y-17 N-64
Y-7 N-75 made easier to hike? have more interpretive signs? Y-48
Y-72 N-8 have a self guided brochure available? N-37

TRAIL SURVEY QUESTIONS:

No. In Party 2.25 By Age Group 10% 0 Location Lava Bluffs
.463 0 20 02 0
2 37 92 1 Age Group of Respondent _____
5 47 91 10 Sex _____
0 5 0 Date _____

1. In general would you consider yourself to be a:
frequent hiker? (10+ per year) 1
occasional hiker? (3-9 per year) 6
infrequent hiker? (0-2 per year) 1

2. Is this your first trip to Calaveras Big Trees State Park in the last 10 years? Yes No
3 5

2a In the past ten years, how often would you say you have visited this park?
 1-3 times 2
 3-5 times 0
 5-10 times 3
 10 or more 0

2b Did you hike any of the park's trails on your previous visits? Yes No
3 2

3. During this visit to Calaveras Big Trees State Park, have you hiked any of the other trails? Yes No
 (If YES go to 3a, if NO go to 4) Y-4 N-3

3a Which other trails did you hike?
3 -South Grove 3 -North Grove
~~1~~ -Lava Bluff 1 -Fire roads
1 -River Trail

3b In terms of enjoyment how would you rate this trail you have just finished with the others you have hiked?
 Inferior - 3 Average - 3 Superior - 0

3c Do you think the park: has enough trails, too many, or needs more?

4. What did you like about this trail?

5. What do you dislike about this trail?

6. Is there anything we could do to make this trail more enjoyable for you?

7. Finally, the following is a short list of questions, as I ask them, please answer yes or no.

Was this trail:
 Y-0 n-8 too long? visually interesting?
 Y-0 n-8 too easy? worth your time and effort
 Y-3 n-5 all that you expected? in good condition
 Would you like to see this trail:
 Y-1 n-6 shortened? lengthened? Y-2 N-4
 Y-1 n-7 made easier to hike? have more interpretive signs?
 Y-8 n-0 have a self guided brochure available? Y-5 N-3

TRAIL SURVEY QUESTIONS:

No. In Party 3.64 By Age Group | M | F | 0
 sd. 1.84 | 62 | 17 | 9 | 5
 | 13 | 3 | 6 | 3
 | 16 | 44 | 54 | 29
 | 11 | 31 | 31 | 17
35 | 54

Location North Grove
 Age Group of Respondent _____
 Sex _____
 Date _____

1. In general would you consider yourself to be a:
 -frequent hiker? (10+ per year) 2
 -occasional hiker? (3-9 per year) 7
 -infrequent hiker? (0-2 per year) 17
2. Is this your first trip to Calaveras Big Trees State Park in the last 10 years? Yes No
15 10
- 2a In the past ten years, how often would you say you have visited this park?
 - 1-3 times 4
 - 3-5 times 3
 - 5-10 times 2
 - 10 or more 1
- 2b Did you hike any of the park's trails on your previous visits? Yes No
9 1
3. During this visit to Calaveras Big Trees State Park, have you hiked any of the other trails? Yes No
 (If YES go to 3a, if NO go to 4) Y-8 n-15
- 3a Which other trails did you hike?
 - 2 -South Grove -North Grove
 - 2 -Lava Bluff 0 -Fire roads
 - 2 -River Trail
- 3b In terms of enjoyment how would you rate this trail you have just finished with the others you have hiked?
 - Inferior Average - 4 Superior - 4
- 3c Do you think the park: has enough trails, too many, or needs more?
4. What did you like about this trail?
5. What do you dislike about this trail?
6. Is there anything we could do to make this trail more enjoyable for you?
7. Finally, the following is a short list of questions, as I ask them, please answer yes or no.
 - Was this trail:
 - Y-2 n-22 too long? Y-24 n-0 visually interesting?
 - Y-1 n-23 too easy? Y-24 n-0 worth your time and effort
 - Y-24 n-0 all that you expected? Y-24 n-0 in good condition
 - Would you like to see this trail:
 - Y-2 n-21 shortened? Y-3 n-19 lengthened?
 - Y-2 n-21 made easier to hike? Y-17 n-0 have more interpretive signs?
 - Y-17 n-3 have a self guided brochure available?

TRAIL SURVEY QUESTIONS:

No. In Party	<u>2.87</u>	By Age Group	M	F	0	Location	<u>South Grove</u>	
	<u>1.28</u>		11	216	11	9	Age Group of Respondent	_____
			5	37	6	5	Sex	_____
			41	460	71	56	Date	_____
			11	516	11	9		
			69			79		

1. In general would you consider yourself to be a:
frequent hiker? (10+ per year) 10
occasional hiker? (3-9 per year) 30
infrequent hiker? (0-2 per year) 12

2. Is this your first trip to Calaveras Big Trees State Park in the last 10 years? Yes No
15 37

2a In the past ten years, how often would you say you have visited this park?
 1-3 times 17
 3-5 times 3
 5-10 times 8
 10 or more 9

2b Did you hike any of the park's trails on your previous visits? Yes No
29 5

3. During this visit to Calaveras Big Trees State Park, have you hiked any of the other trails? Yes No
 (If YES go to 3a, if NO go to 4) Y-35 N-15

3a Which other trails did you hike?
 -South Grove 33 -North Grove
10 -Lava Bluff 6 -Fire roads
11 -River Trail

3b In terms of enjoyment how would you rate this trail you have just finished with the others you have hiked?
 Inferior Average - 7 Superior - 27

3c Do you think the park: has enough trails, too many, or needs more?

4. What did you like about this trail?

5. What do you dislike about this trail?

6. Is there anything we could do to make this trail more enjoyable for you?

7. Finally, the following is a short list of questions, as I ask them, please answer yes or no.

Was this trail:
Y-7 N-45 too long? Y-52 N-0 visually interesting?
Y-2 N-50 too easy? Y-51 N-0 worth your time and effort
Y-49 N-3 all that you expected? Y-51 N-1 in good condition

Would you like to see this trail:
Y-5 N-47 shortened? Y-11 N-41 lengthened?
Y-4 N-48 made easier to hike? Y-25 N-27 have more interpretive signs?
Y-47 N-5 have a self guided brochure available?

APPENDIX F PICNIC AREA SURVEY

Objectives

The Picnic Area Survey was designed to obtain the following information:

- Visitor use of the picnic area
- Visitor attitudes about the picnic areas
- Visitor demand for improvements

Methods

All surveys were completed by interview. Due to generally low useage, no attempt at random selection was made by the interviewer. Whenever possible the interviewer contacted all parties in a picnic area. Time constraints often prevented the interviewer from contacting picnickers on some days.

Results

A total of seventy surveys were given over a 60 day period from 7/16/86 to 9/14/86. Eleven surveys were given in the Beaver Creek, 41 were given in the North Grove, and 18 in the River Picnic areas. No attempt was made to determine relative use between facilities in a statistically meaningful manner, but the ranking and proportion for each picnic area should reflect relative useage.

Visitor Demographics

Respondents to the survey were most commonly from the Stockton area (46%). In descending order, other locales included the San Francisco/Oakland Bay Area (33%), out-of-state (including international - 11%), Sacramento Area (7%) and Southern California (3%). The number of people represented in the survey is 304, with an average party size of 4.585. The high standard deviation shows a wide range of party sizes, however.

A significant result of the survey shows that, while use of the North Grove and Beaver Creek picnic areas is approximately equal in age groups 4 (18-55 years) and 5 (55+), the use of the River Picnic Area is larger for group 4 over group 5 by a factor of nine. The River Picnic Area is therefore more attractive to younger people, perhaps because of the recreational features of the river itself.

2) IS THIS THE FIRST TIME YOU HAVE USED THIS PICNIC AREA

No analysis offered.

3) AT THE PRESENT TIME, THIS PICNIC AREA IS RELATIVELY UNDEVELOPED. I'M GOING TO READ OFF A LIST OF POSSIBLE IMPROVEMENTS, AND WOULD LIKE YOU TO ANSWER "YES" IF YOU THINK AN IMPROVEMENT WOULD BE WORTH THE COST, OR "NO IF YOU THINK THEY WOULD NOT: RESTROOMS WITH FLUSH TOILETS? RUNNING WATER FAUCETS? BARBECUE PITTS? EASIER ACCESS TO THE RIVER? MORE PICNIC TABLES? MORE PARKING SPACES? MORE CHEMICAL TOILETS? INTERPRETIVE DISPLAYS?

The results of this question are mainly of value as they apply to individual picnic areas. Only one category, regarding interpretive display, is noteworthy. By a very wide margin, the public would prefer to see more interpretive effort in the picnic areas.

4) AS IT PRESENTLY EXISTS, WOULD YOU USE THIS PICNIC AREA AGAIN?

No analysis offered.

5) WHAT DO YOU LIKE ABOUT THE PICNIC AREA?

Beaver Creek (likes)

<u>Social</u>	<u>Natural</u>	<u>Facilities</u>	<u>Misc</u>
6 quiet	3 Beaver Creek	1 clean	1
3 privacy	2 naturalness		
2 appropriate for children	2 shade		
1 isolated	1 South Grove		
1 beauty			
1 scenic			

River Picnic (likes)

<u>Social</u>	<u>Natural</u>	<u>Facilities</u>	<u>Misc</u>
4 quiet	8 setting	Ø	4
3 privacy	4 river		
3 remote	2 river atmosphere		
1 not crowded	1 naturalness		
1 beauty	1 shade		
1 scenic			
1 convenience			

North Grove (likes)

<u>Social</u>	<u>Natural</u>	<u>Facilities</u>	<u>Misc.</u>
11 quiet	13 setting	5 clean	8
5 peaceful	8 shade	1 facilities	
4 beauty	7 naturalness	1 safety for children	
2 convenient	5 climate	1 spacious	
1 relaxing	2 wildlife		
1 scenic	1 Big Trees		
1 favorite			

6) IS THERE ANYTHING YOU DISLIKE ABOUT THE PICNIC AREA?

Beaver Creek (dislikes)

<u>Social</u>	<u>Natural</u>	<u>Facilities</u>
	Ø	3 no water 1 no camping 1 chemical toilets

North Grove (dislikes)

<u>Social</u>	<u>Natural</u>	<u>Facilities</u>
	1 mosquitoes	2 dust 2 more garbage 1 no ramada's 1 no wheel chair access

River Picnic (dislikes)

<u>Social</u>	<u>Natural</u>	<u>Facilities</u>
2 no interpretation	1 too hot	2 no water 1 no camping 1 need tables at west end

7) IS THERE ANY OTHER AREA HERE AT CALAVERAS BIG TREES STATE PARK WHERE YOU WOULD LIKE TO HAVE A DEVELOPED PICNIC AREA?

No comments offered by the public.

8) THERE ARE TWO OTHER LARGE PICNIC AREAS HERE IN THE PARK, THE _____
AND THE _____ PICNIC AREAS. HAVE YOU USED EITHER ONE BEFORE?

No analysis offered.

PICNIC AREA SURVEY

No. In Party ^{av.} 4.585
_{sd.}

By Age Group ²

	M	F
6	14	47
28	20	14
3	2	11
70	49	4
35	525	3048

Location _____
 Age Group of Respondent _____
 Sex _____
 Date _____

1. First, do you live in the United States? ¹⁴² Yes ¹⁶² No
 (If yes) What is your Zip Code _____
 (If no) In what nation do you live _____

2. Is this the first time you have used this picnic area? Yes ⁴⁰ No ²⁶

3. At the present time, this picnic area is relatively undeveloped. I'm going to read off a list of possible improvements, and would like you to answer "yes" if you think an improvement would be worth the cost, or "no" if you think they would not.

- Restrooms with flush toilets? Y³⁹ N 31
- Running water faucets? Y³⁶ N 33
- Barbecue pits? Y²¹ N 49
- Easier access to the river? Y 5 N 13
- More picnic tables? Y²⁷ N 43
- More parking spaces? Y²⁵ N 45
- More chemical toilets? Y²⁰ N 49
- Interpretive displays? Y⁶³ N 5

4. As it presently exists, would you use this picnic area again? Yes ⁶⁹ No |

5. What do you like about the picnic area?

6. Is there anything you dislike about the picnic area?

7. Is there any other area here at Calaveras Big Trees State Park where you would like to have a developed picnic area?

8. There are two other large picnic areas here in the park, the _____ and the _____ picnic areas. Have you used either one before? Yes No
 (If yes, specify which).

PICNIC AREA SURVEY

No. In Party _____

By Age Group M F

5	1	6	4	4
15	2	7	13	14
1	3	1	7	7
40	4	4	4	44
27	5	3	13	37
88				106

Location North Grove

Age Group of Respondent _____

Sex _____

Date _____

1. First, do you live in the United States? ¹⁰⁶ Yes No
 (If yes) What is your Zip Code _____
 (If no) In what nation do you live _____
2. Is this the first time you have used this picnic area? Yes 22 No 17
3. At the present time, this picnic area is relatively undeveloped.
 I'm going to read off a list of possible improvements, and would like you to answer "yes" if you think an improvement would be worth the cost, or "no" if you think they would not.

Restrooms with flush toilets?	Y23 N 14
Running water faucets?	Y13 N 27
Barbecue pits?	Y13 N 26
Easier access to the river?	Y- N-
More picnic tables?	Y13 N 23
More parking spaces?	Y16 N 25
More chemical toilets?	Y5 N 35
Interpretive displays?	Y40 N 5
4. As it presently exists, would you use this picnic area again? Yes No
41 0
5. What do you like about the picnic area?
6. Is there anything you dislike about the picnic area?
7. Is there any other area here at Calaveras Big Trees State Park where you would like to have a developed picnic area?
8. There are two other large picnic areas here in the park, the _____ and the _____ picnic areas. Have you used either one before? Yes No
 (If yes, specify which).

PICNIC AREA SURVEY

No. In Party _____

By Age Group	Σ		
	M	F	
0	1	0	2
8	2	4	17
1	3	3	21
22	4	6	55
3	5	9	5
<u>34</u>			<u>43</u>

Location River Picnic

Age Group of Respondent _____

Sex _____

Date _____

1. First, do you live in the United States? Yes No
 (If yes) What is your Zip Code _____
 (If no) In what nation do you live _____

2. Is this the first time you have used this picnic area? Yes 2 No 5

3. At the present time, this picnic area is relatively undeveloped. I'm going to read off a list of possible improvements, and would like you to answer "yes" if you think an improvement would be worth the cost, or "no" if you think they would not.

Restrooms with flush toilets?	Y	13	N	5
Running water faucets?	Y	14	N	4
Barbecue pits?	Y	3	N	15
Easier access to the river?	Y	5	N	13
More picnic tables?	Y	6	N	12
More parking spaces?	Y	7	N	11
More chemical toilets?	Y	10	N	8
Interpretive displays?	Y	17	N	0

4. As it presently exists, would you use this picnic area again? Yes 18 No 0

5. What do you like about the picnic area?

6. Is there anything you dislike about the picnic area?

7. Is there any other area here at Calaveras Big Trees State Park where you would like to have a developed picnic area?

8. There are two other large picnic areas here in the park, the _____ and the _____ picnic areas. Have you used either one before? Yes No
 (If yes, specify which).

PICNIC AREA SURVEY

No. In Party _____

By Age Group M² F²

1	1	5	5	1
5	2	5	5	1
1	3	5	10	2
8	4	40	35	7
5	5	25	45	9
20				20

Location Beaver Creek

Age Group of Respondent _____

Sex _____

Date _____

1. First, do you live in the United States? Yes No
 (If yes) What is your Zip Code _____
 (If no) In what nation do you live _____

2. Is this the first time you have used this picnic area? Yes 6 No 4

3. At the present time, this picnic area is relatively undeveloped. I'm going to read off a list of possible improvements, and would like you to answer "yes" if you think an improvement would be worth the cost, or "no" if you think they would not.

Restrooms with flush toilets?	Y3	N8
Running water faucets?	Y9	N2
Barbecue pits?	Y5	N6
Easier access to the river?	Y-	N-
More picnic tables?	Y3	N8
More parking spaces?	Y2	N9
More chemical toilets?	Y5	N6
Interpretive displays?	Y10	N0

4. As it presently exists, would you use this picnic area again? Yes 0 No 1

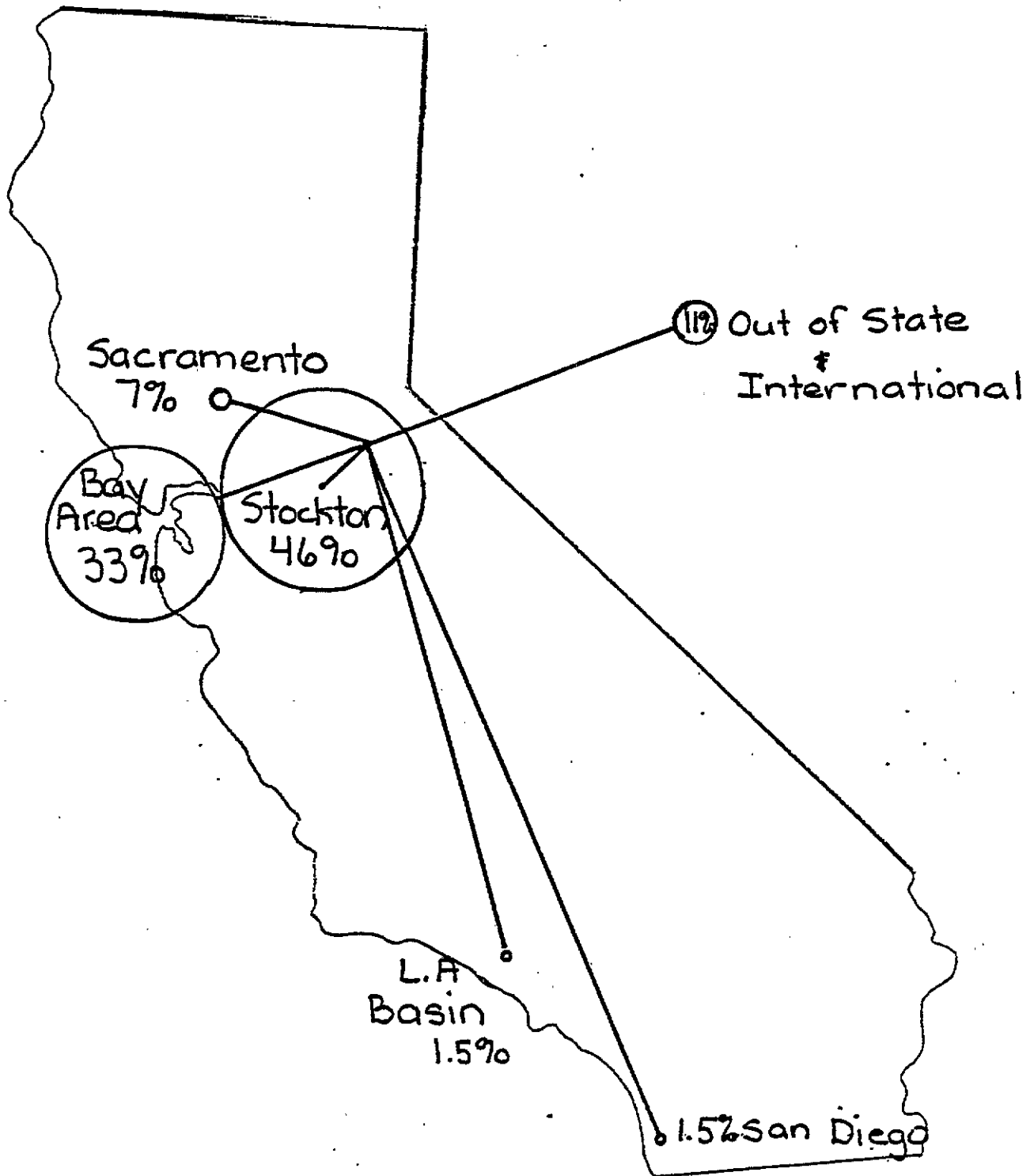
5. What do you like about the picnic area?

6. Is there anything you dislike about the picnic area?

7. Is there any other area here at Calaveras Big Trees State Park where you would like to have a developed picnic area?

8. There are two other large picnic areas here in the park, the _____ and the _____ picnic areas. Have you used either one before? Yes No
 (If yes, specify which).

PICNIC AREA
VISITOR USE



APPENDIX G

VISITOR CENTER QUESTIONNAIRE COVER SHEET

1. What type of group did you come here with? (check one)

Alone 1
 Couple 6
 Family 19
 Friends 3
 Family and Friends 3
 Club or organization 1
 School or city recreation program 0
 Other -

2. Do you live locally? Yes 3 No 29

3. How long do you plan to spend here at Calaveras Big Trees State Park on this trip?

Av. 3.312 SD. 1.447 hours days Av. 4.125 S.D. 2.362

4. Is this your first trip to Calaveras Big Trees State Park? Yes 13 No 19

5. If no, in the past ten years, how often would you say you have visited this park?

1-3 times 11
 3-5 times 3
 5-10 times 3
 10 or more 2

Age Group _____
Sex _____
Date _____

VISITOR CENTER QUESTIONNAIRE

1. First, do you live in the United States? Yes No
1a. (If Yes) what is your zip code _____
1b. (If No) in what nation do you live _____
2. Is this your first visit to Calaveras Big Trees State Park? Yes No
(If Yes, go to #3, if No, go to #4) 12 18
3. Is this your first visit to the Visitor Center? Yes 16 No 12
3a. If your answer is No, about how many times have you come here before? _____
4. One of the goals of the Visitor Center is to provide visitors with an orientation to the Park and its resources. Do you feel that this was provided for you? Yes 32 No 0
5. Do you feel that the Visitor Center should also provide an orientation to the entire Arnold/Ebbetts Pass area? Yes 20 No 10
6. From the following list of services provided by the Visitor Center, please rate them in importance to you, one through seven, with 1 being most important and 7 being the least important.
A.U. S.D.
1.912 Answering visitors' questions .997
1.939 Natural History Exhibits and Displays 1.321
3.25 Human History Exhibits and Displays 1.414
5.437 Sale of Photographs and Artwork 1.776
4.687 Sale of Books and Nature Guides 1.785
3.75 Slide Shows 1.684
5.218 Information on other parks 2.043
7. The possibility exists for enlarging the Visitor Center. Do you have any suggestions for improvements or changes?
8. The Visitor Center provides information on typical visitor activities here in the park, such as camping and hiking. It does not provide information on other types of activities in the area, such as backpacking, off road vehicle use or hunting. Do you think there is a need to provide this information? Yes 20 No 11
9. Our interpretive program covers a variety of topics, but usually "skims the surface" of technical information available on the park's natural history. If we also provided specific, "in depth" programs on some aspect of the park's ecology (for instance, a 2-3 hour lecture and field trip on stream biology or wildflowers) do you think you'd attend? Yes 18 No 14

10. I am now going to read you a list of different types of programs or techniques. Please indicate how interested you would be in participating in each. Your choices are "very interested", "interested", "not interested" and "don't know".

	VI	I	NI	DK
a. Self guided nature walks	<u>22</u>	<u>9</u>	<u>1</u>	<u>0</u>
b. Naturalist led nature walks	<u>12</u>	<u>16</u>	<u>4</u>	<u>0</u>
c. Visiting museums	<u>15</u>	<u>13</u>	<u>4</u>	<u>0</u>
d. "Clinics" on subjects such as fishing or photography	<u>7</u>	<u>9</u>	<u>16</u>	<u>0</u>
e. Evening campfire programs with a ranger talking about interesting topics	<u>18</u>	<u>8</u>	<u>4</u>	<u>1</u>
f. Evening campfire programs with high quality movies or slide shows	<u>18</u>	<u>11</u>	<u>3</u>	<u>0</u>
g. Sitting around a campfire talking informally with a ranger	<u>15</u>	<u>9</u>	<u>8</u>	<u>0</u>
h. Singing songs at campfires	<u>10</u>	<u>11</u>	<u>9</u>	<u>0</u>

11. Some people find that items such as binoculars, cameras and nature guides on birds or flowers can help them enjoy their visit. Others might appreciate these items, but don't have them available. If we rented such things as binoculars and cameras here at the Visitor Center, would you be willing to pay for their use? Yes 14 No 18

12. What types of interpretive programs have you or your family participated in while here in the park?

Toured museum 29
 Asked questions to rangers 18
 Asked questions to docents 20
 Campfire programs 11
 Self gided nature walks 28
 Junior rangers 8
 Auditorium shows 16

13. What are your favorite activities in the park?

Camping 20
 Fishing 8
 Picnicking 13
 Hiking 27
 Photography 20
 Nature Study 16
 Sightseeing by car 11
 Other 7

14. Please indicate with a "yes" or "no" which of the following areas of this park you have been to for more than a few minutes.
 (NOTE: USE MAP IF NECESSARY)

Beaver Creek	—	Y	=	15	C-15 - 5 1 1 5 0
Stanislaus River	—	Y	=	17	
Calaveras South Grove	—	-	=	12	
Calaveras North Grove	—	-	=	27	
Visitor Center	—	-	=	31	

15. For those areas for which you answered "no", please indicate why, if possible.

Didn't know about them	—	5
Not interested	—	1
No particular reason	—	15
Not enough time	—	1
Too far to go	—	1
Other	—	0

16. If you have been through the museum, which exhibit was your favorite? Your least favorite?

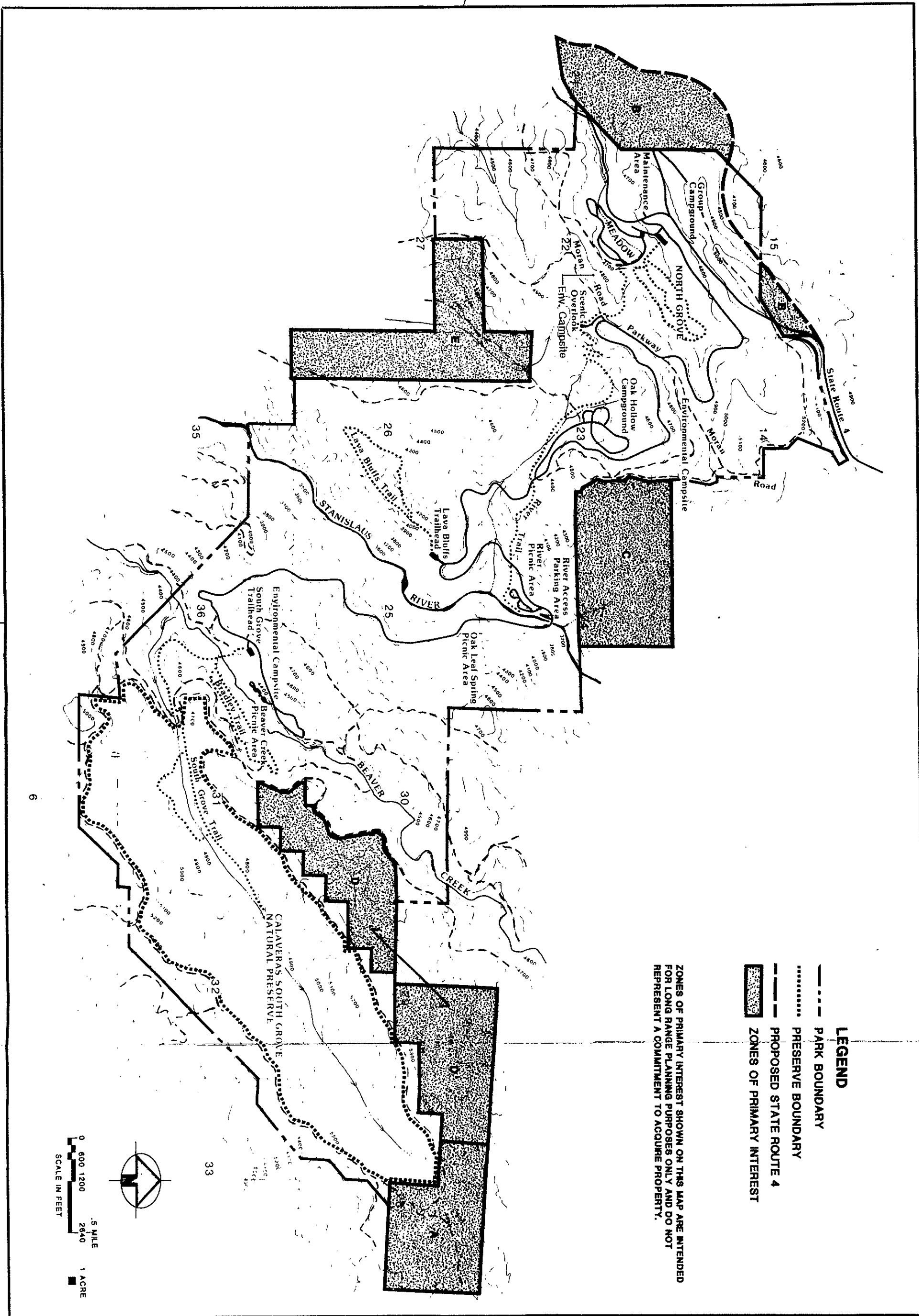


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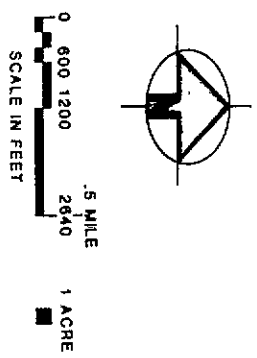
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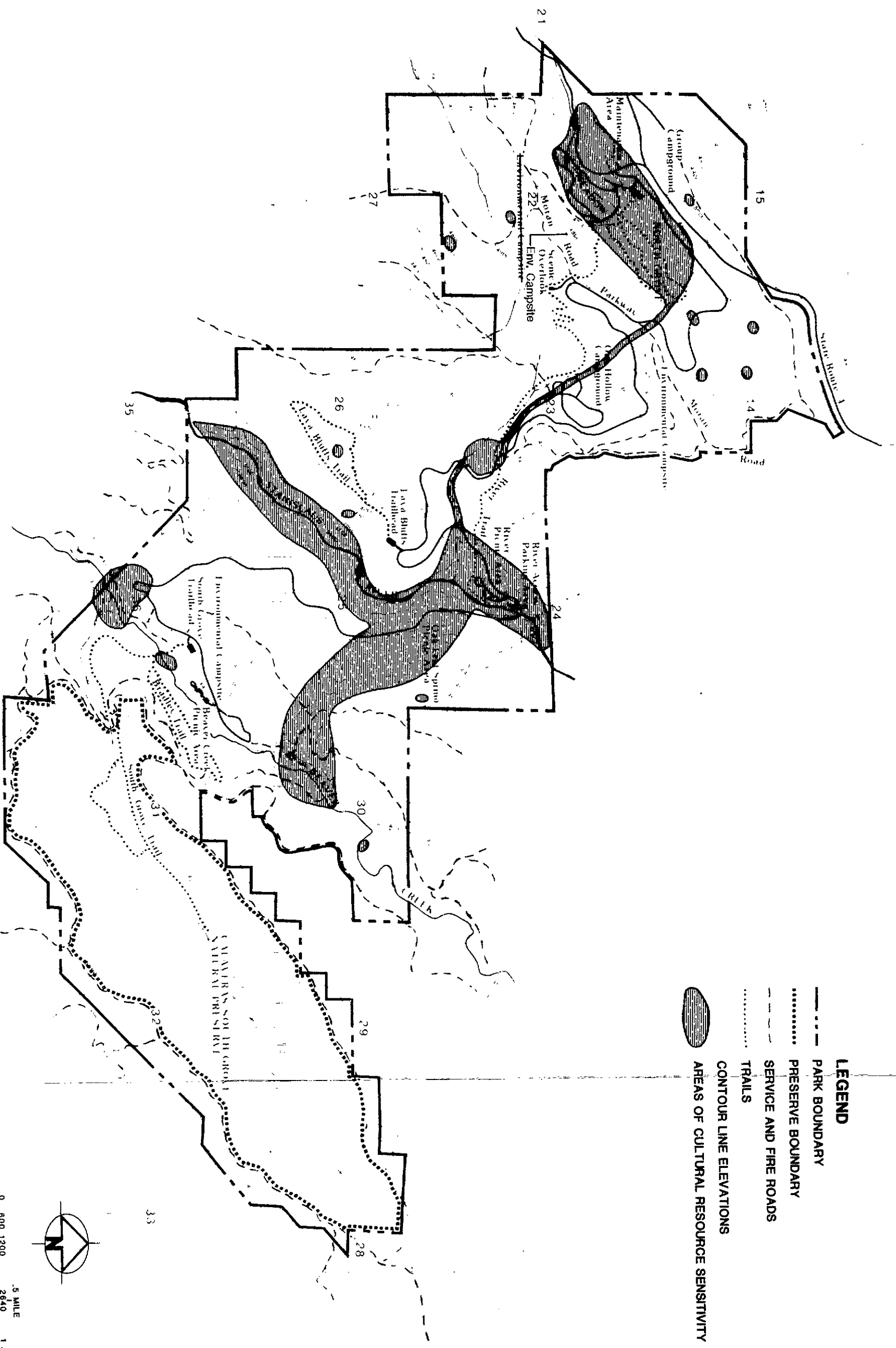
LEGEND

- PARK BOUNDARY
- PRESERVE BOUNDARY
- PROPOSED STATE ROUTE 4
- ▨ ZONES OF PRIMARY INTEREST

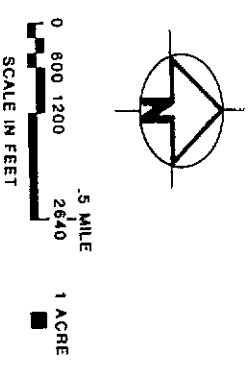
ZONES OF PRIMARY INTEREST SHOWN ON THIS MAP ARE INTENDED FOR LONG RANGE PLANNING PURPOSES ONLY AND DO NOT REPRESENT A COMMITMENT TO ACQUIRE PROPERTY.



CALAVERAS BIG TREES STATE PARK ZONES OF PRIMARY INTEREST GENERAL PLAN - RESOURCE ELEMENT	RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION		REVISIONS	DATE	DESIGNED
	APPROVED _____ DATE _____	DRAWN 12-88	CHECKED	DRAWING NO. 24460	MAP 2



- LEGEND**
- PARK BOUNDARY
 - PRESERVE BOUNDARY
 - - - SERVICE AND FIRE ROADS
 - TRAILS
 - CONTOUR LINE ELEVATIONS
 - ◐ AREAS OF CULTURAL RESOURCE SENSITIVITY



REVISIONS	DATE	DESIGNED
		DRAWN 12-88
		CHECKED

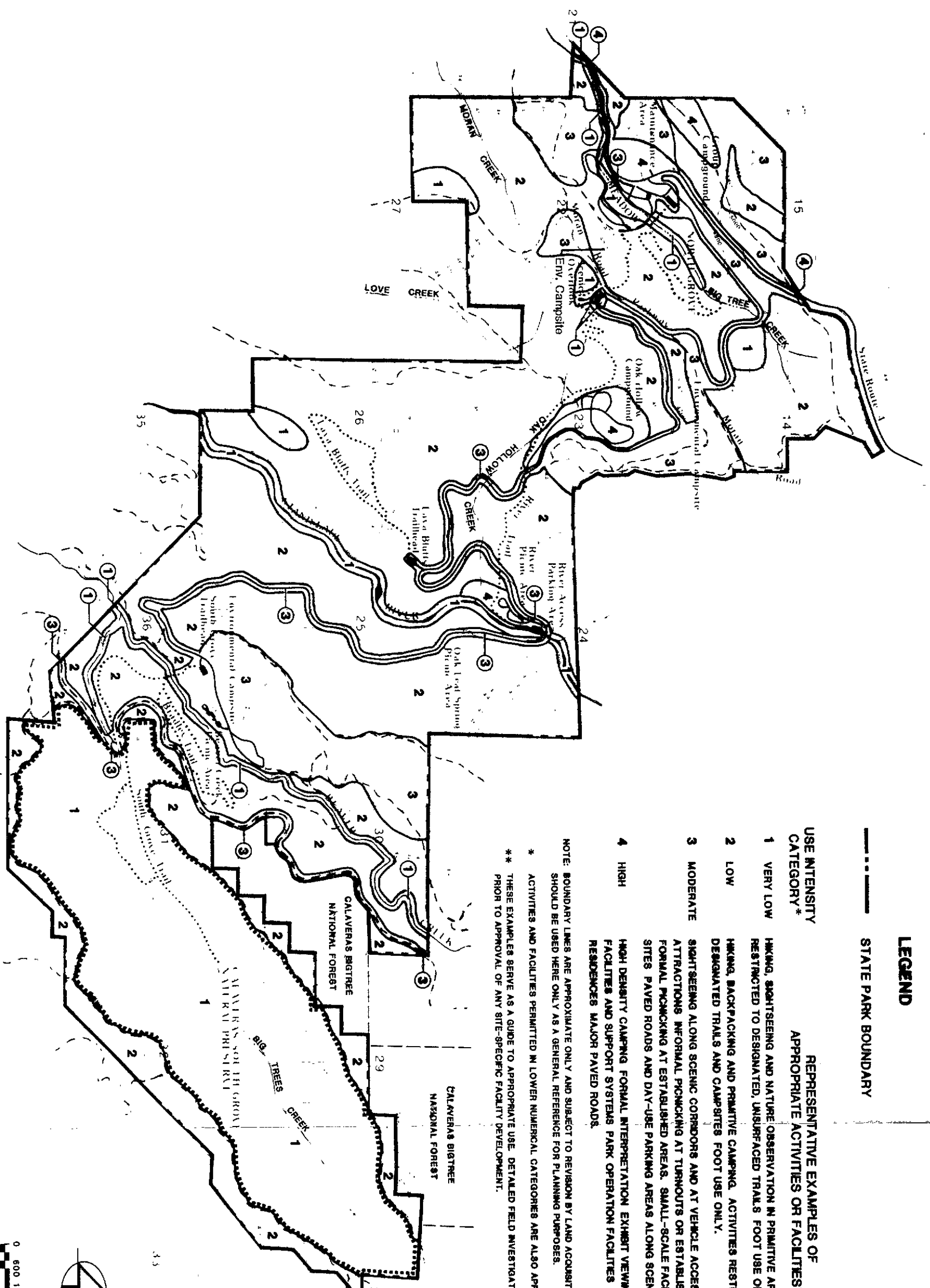
RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

APPROVED _____ DATE _____

CALAVERAS BIG TREES STATE PARK
CULTURAL RESOURCE SENSITIVITY
GENERAL PLAN - RESOURCE ELEMENT

DRAWING NO. 24461

MAP 3



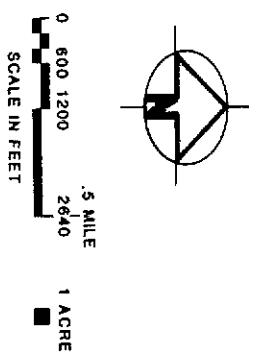
LEGEND

--- STATE PARK BOUNDARY

USE INTENSITY CATEGORY* REPRESENTATIVE EXAMPLES OF APPROPRIATE ACTIVITIES OR FACILITIES**

- 1 VERY LOW HIKING, SIGHTSEEING AND NATURE OBSERVATION IN PRIMITIVE AREAS. ACTIVITIES RESTRICTED TO DESIGNATED, UNSURFACED TRAILS. FOOT USE ONLY.
- 2 LOW HIKING, BACKPACKING AND PRIMITIVE CAMPING. ACTIVITIES RESTRICTED TO DESIGNATED TRAILS AND CAMPSITES. FOOT USE ONLY.
- 3 MODERATE SIGHTSEEING ALONG SCENIC CORRIDORS AND AT VEHICLE ACCESSIBLE SCENIC ATTRACTIONS. INFORMAL PICKNICKING AT TURNOUTS OR ESTABLISHED LOW USE SITES. FORMAL PICKNICKING AT ESTABLISHED AREAS. SMALL-SCALE FACILITIES AT PICKNIC SITES. PAVED ROADS AND DAY-USE PARKING AREAS ALONG SCENIC CORRIDORS.
- 4 HIGH HIGH DENSITY CAMPING. FORMAL INTERPRETATION EXHIBIT VIEWING. LARGE-SCALE FACILITIES AND SUPPORT SYSTEMS. PARK OPERATION FACILITIES. EMPLOYEE RESIDENCES. MAJOR PAVED ROADS.

NOTE: BOUNDARY LINES ARE APPROXIMATE ONLY AND SUBJECT TO REVISION BY LAND ACQUISITION OR EXCHANGE, AND SHOULD BE USED HERE ONLY AS A GENERAL REFERENCE FOR PLANNING PURPOSES.
 * ACTIVITIES AND FACILITIES PERMITTED IN LOWER NUMERICAL CATEGORIES ARE ALSO APPROPRIATE.
 ** THESE EXAMPLES SERVE AS A GUIDE TO APPROPRIATE USE. DETAILED FIELD INVESTIGATIONS SHALL BE MADE PRIOR TO APPROVAL OF ANY SITE-SPECIFIC FACILITY DEVELOPMENT.

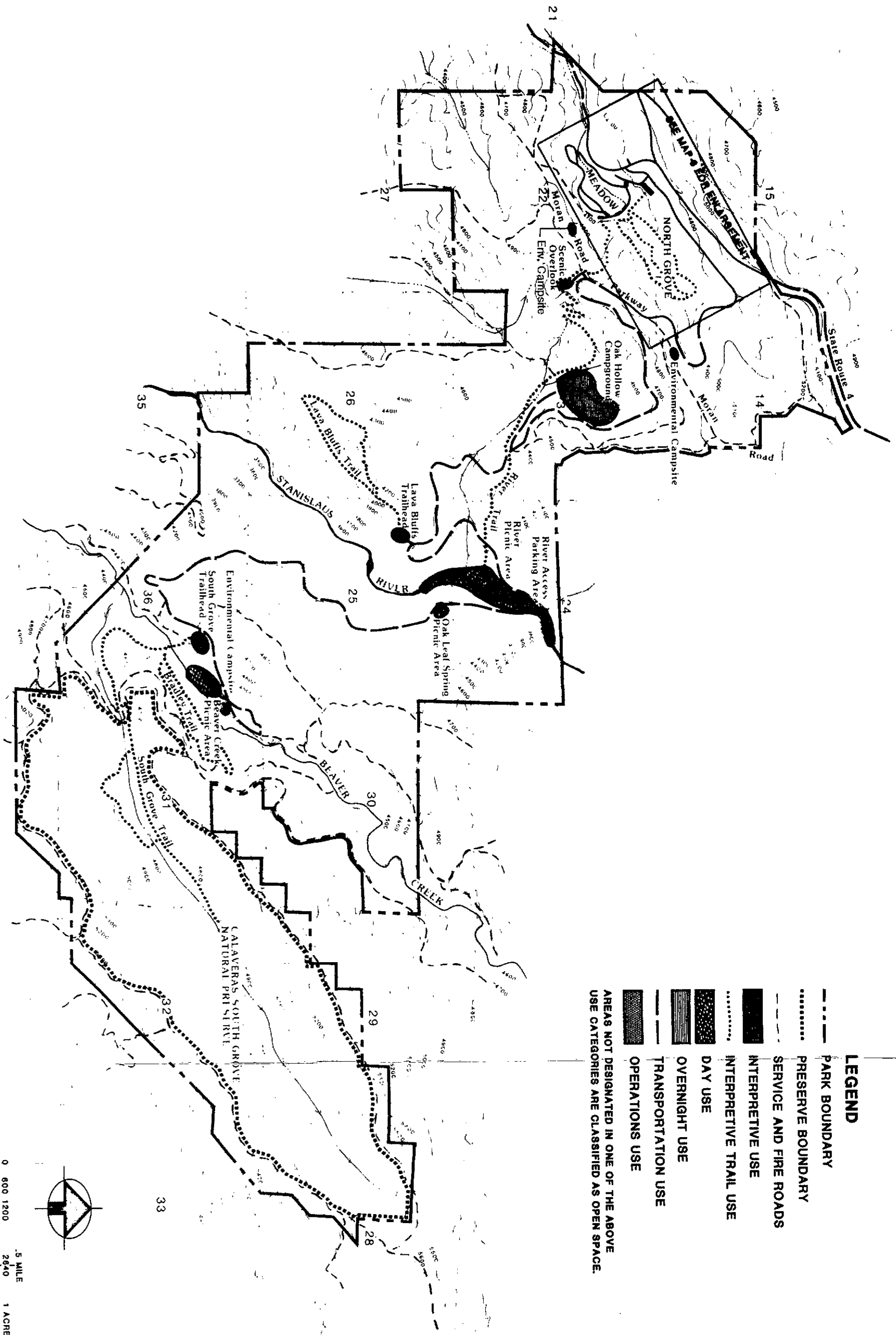


CALAVERAS BIG TREES STATE PARK
ALLOWABLE USE INTENSITY
 GENERAL PLAN - RESOURCE ELEMENT

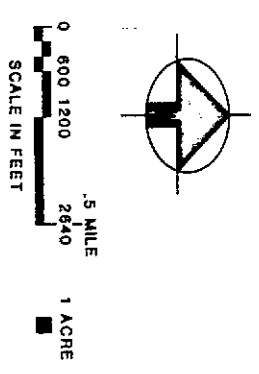
RESOURCES AGENCY OF CALIFORNIA
 DEPARTMENT OF PARKS AND RECREATION
 APPROVED _____ DATE _____

REVISIONS	DATE	DESIGNED

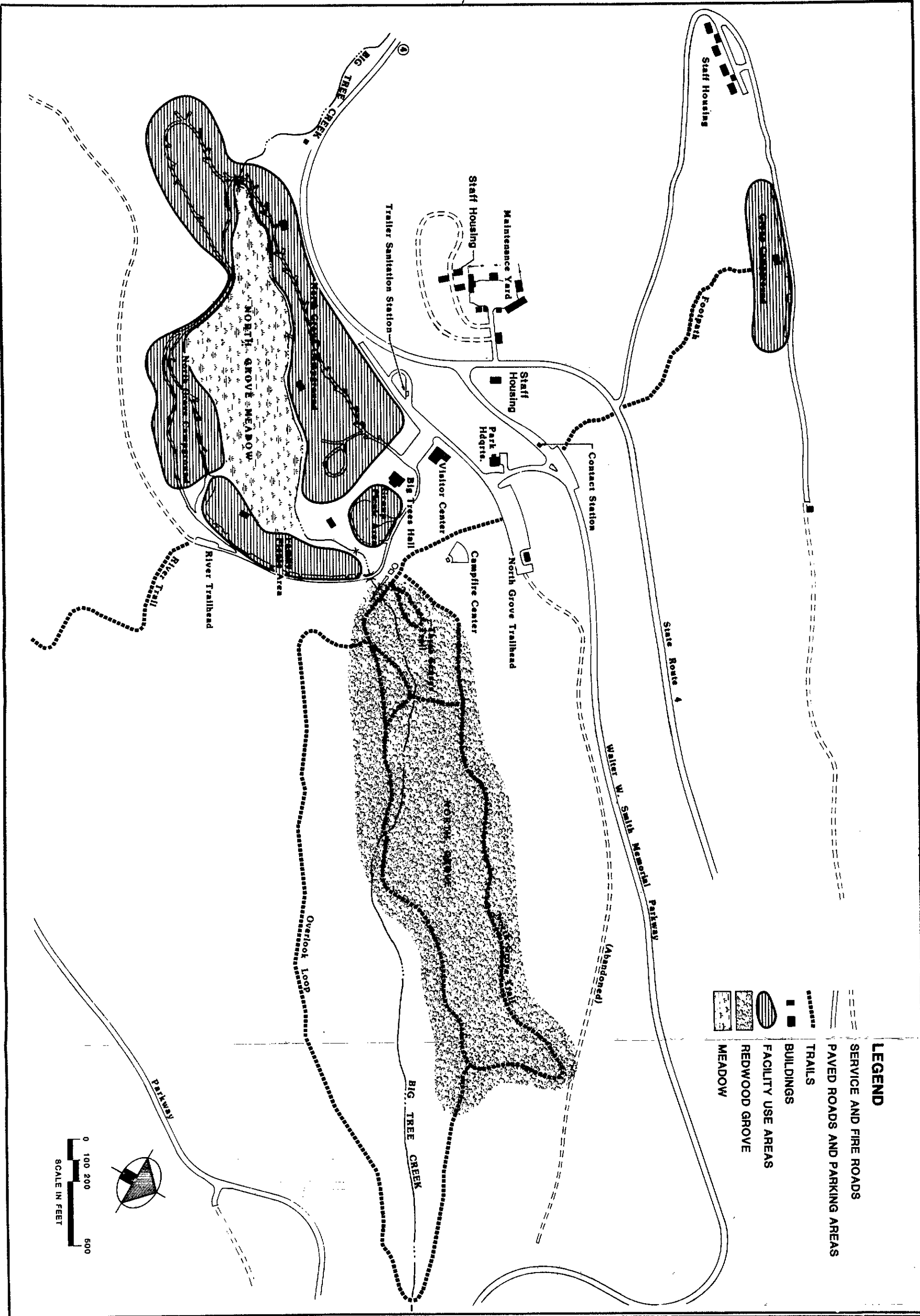
DRAWING NO. 24462
 MAP 4



- LEGEND**
- PARK BOUNDARY
 - PRESERVE BOUNDARY
 - - - SERVICE AND FIRE ROADS
 - INTERPRETIVE USE
 - INTERPRETIVE TRAIL USE
 - DAY USE
 - OVERNIGHT USE
 - TRANSPORTATION USE
 - OPERATIONS USE
- AREAS NOT DESIGNATED IN ONE OF THE ABOVE USE CATEGORIES ARE CLASSIFIED AS OPEN SPACE.

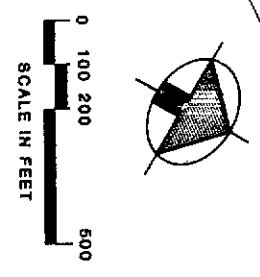


5	MAP	DRAWING NO. 24463	CALAVERAS BIG TREES STATE PARK EXISTING LAND USE GENERAL PLAN - LAND USE ELEMENT		RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION APPROVED _____ DATE _____	REVISIONS 	DATE 	DESIGNED
			DRAWN 12-88	CHECKED				

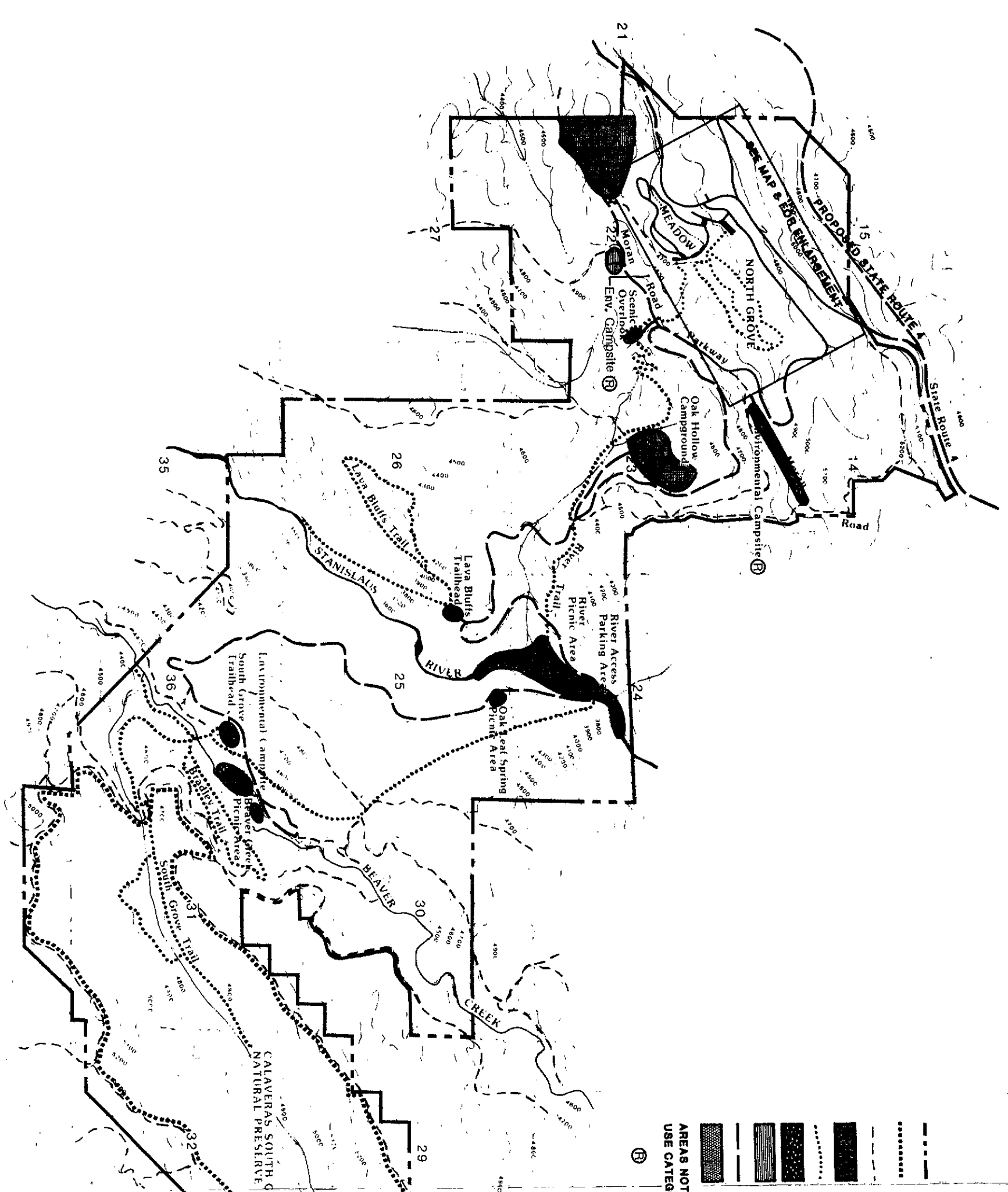


LEGEND

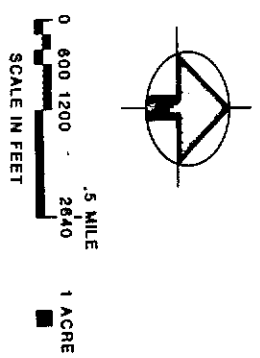
	SERVICE AND FIRE ROADS
	PAVED ROADS AND PARKING AREAS
	TRAILS
	BUILDINGS
	FACILITY USE AREAS
	REDWOOD GROVE
	MEADOW



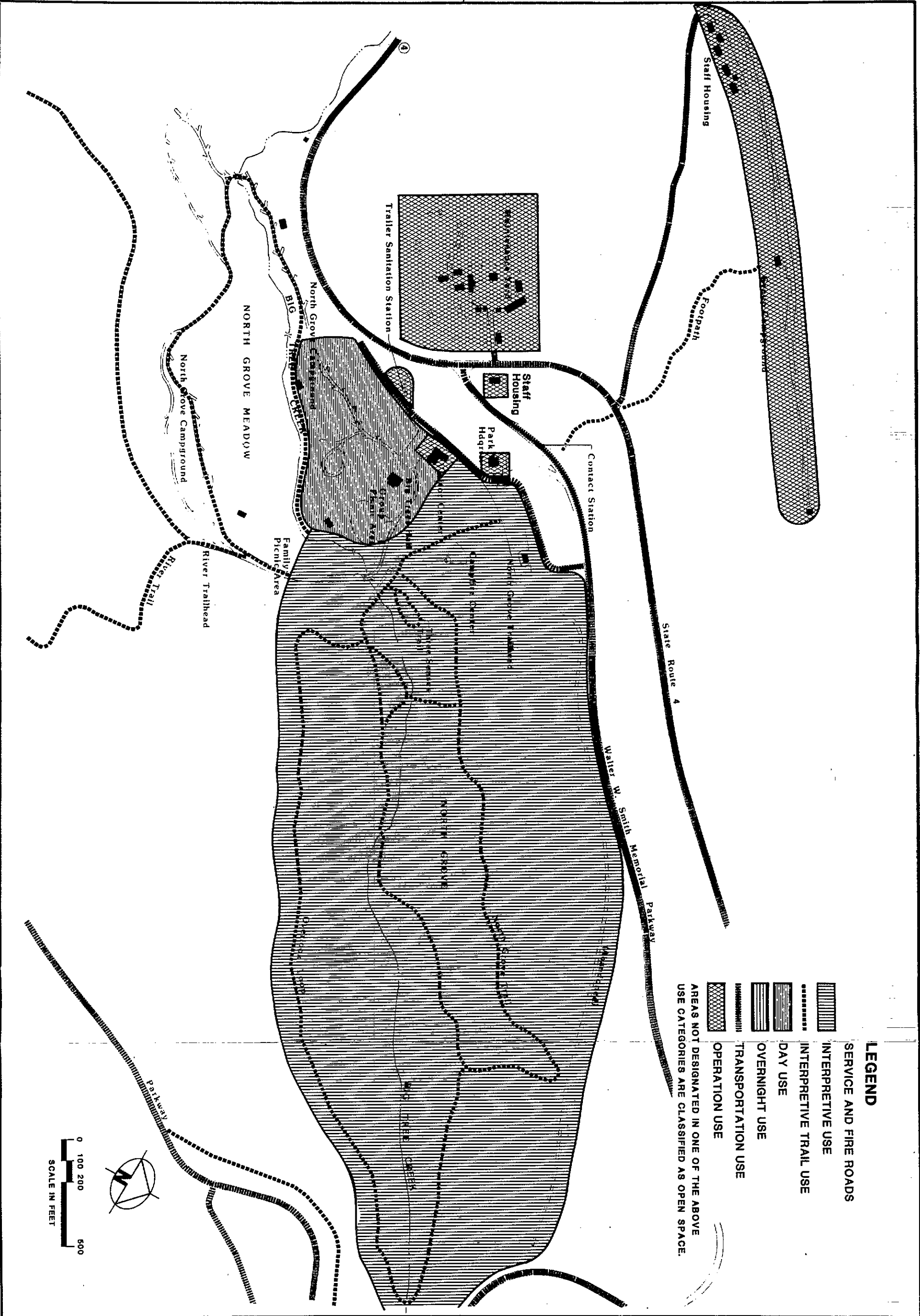
6 MAP	DRAWING NO. 24464	CALAVERAS BIG TREES STATE PARK EXISTING LAND USE & FACILITIES GENERAL PLAN - LAND USE AND FACILITIES ELEMENTS	RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION APPROVED _____ DATE _____	REVISIONS 	DATE 	DESIGNED
						DRAWN 12-88
						CHECKED



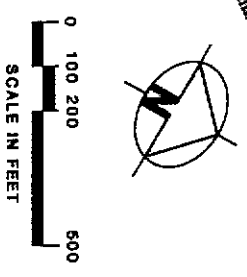
- LEGEND**
- PARK BOUNDARY
 - PRESERVE BOUNDARY
 - - - SERVICE AND FIRE ROADS
 - ▬ INTERPRETIVE USE
 - ▬ INTERPRETIVE TRAIL USE
 - ▬ DAY USE
 - ▬ OVERNIGHT USE
 - ▬ TRANSPORTATION USE
 - ▬ OPERATIONS USE
- Ⓟ AREAS NOT DESIGNATED IN ONE OF THE ABOVE USE CATEGORIES ARE CLASSIFIED AS OPEN SPACE.
- Ⓟ USE TO BE REMOVED



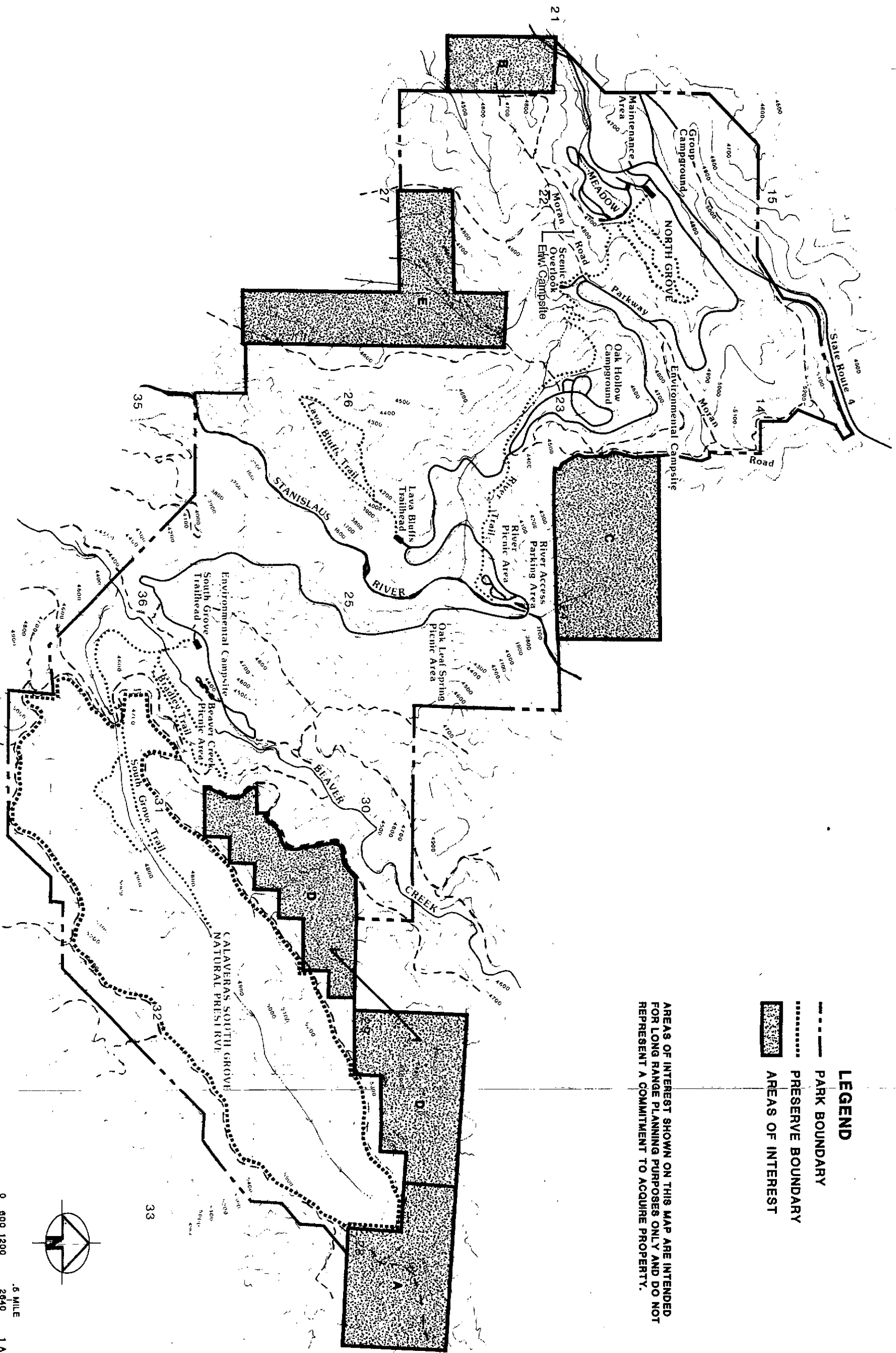
DRAWING NO. 24465	REVISIONS		DATE	DESIGNED
	MAP 7			DRAWN 12-88
CALAVERAS BIG TREES STATE PARK LAND USE PLAN GENERAL PLAN - LAND USE ELEMENT		RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION		CHECKED
APPROVED _____		DATE _____		



- LEGEND**
- ▨ SERVICE AND FIRE ROADS
 - ▨ INTERPRETIVE USE
 - ▨ INTERPRETIVE TRAIL USE
 - ▨ DAY USE
 - ▨ OVERNIGHT USE
 - ▨ TRANSPORTATION USE
 - ▨ OPERATION USE
- AREAS NOT DESIGNATED IN ONE OF THE ABOVE USE CATEGORIES ARE CLASSIFIED AS OPEN SPACE.

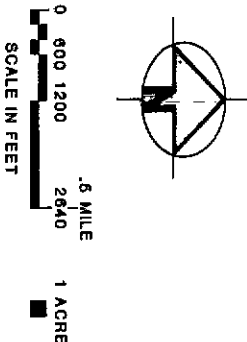


MAP 8	DRAWING NO. 24466	CALAVERAS BIG TREES STATE PARK LAND USE PLAN ENLARGEMENT GENERAL PLAN - LAND USE ELEMENT		RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION		REVISIONS	DATE	DESIGNED
				APPROVED _____ DATE _____				DRAWN 12-88 CHECKED

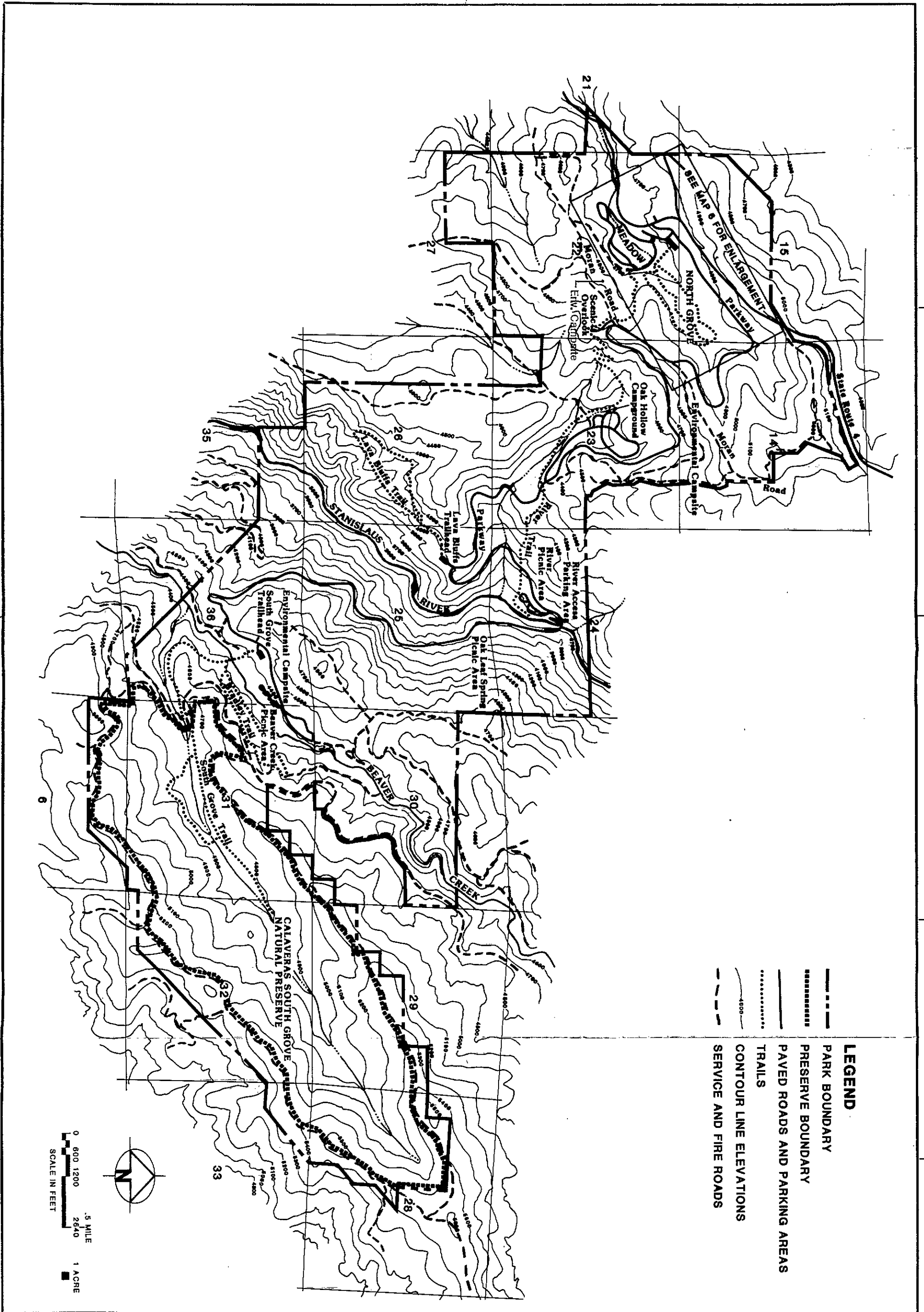


- LEGEND**
- PARK BOUNDARY
 - PRESERVE BOUNDARY
 - ▨ AREAS OF INTEREST

AREAS OF INTEREST SHOWN ON THIS MAP ARE INTENDED FOR LONG RANGE PLANNING PURPOSES ONLY AND DO NOT REPRESENT A COMMITMENT TO ACQUIRE PROPERTY.

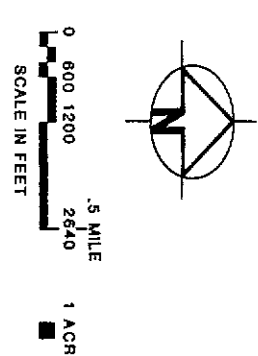


9 MAP	DRAWING NO. 24467	CALAVERAS BIG TREES STATE PARK RECOMMENDED ACQUISITION GENERAL PLAN - LAND USE ELEMENT		RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION		REVISIONS	DATE	DESIGNED
				APPROVED _____ DATE _____				DRAWN 12-88
								CHECKED

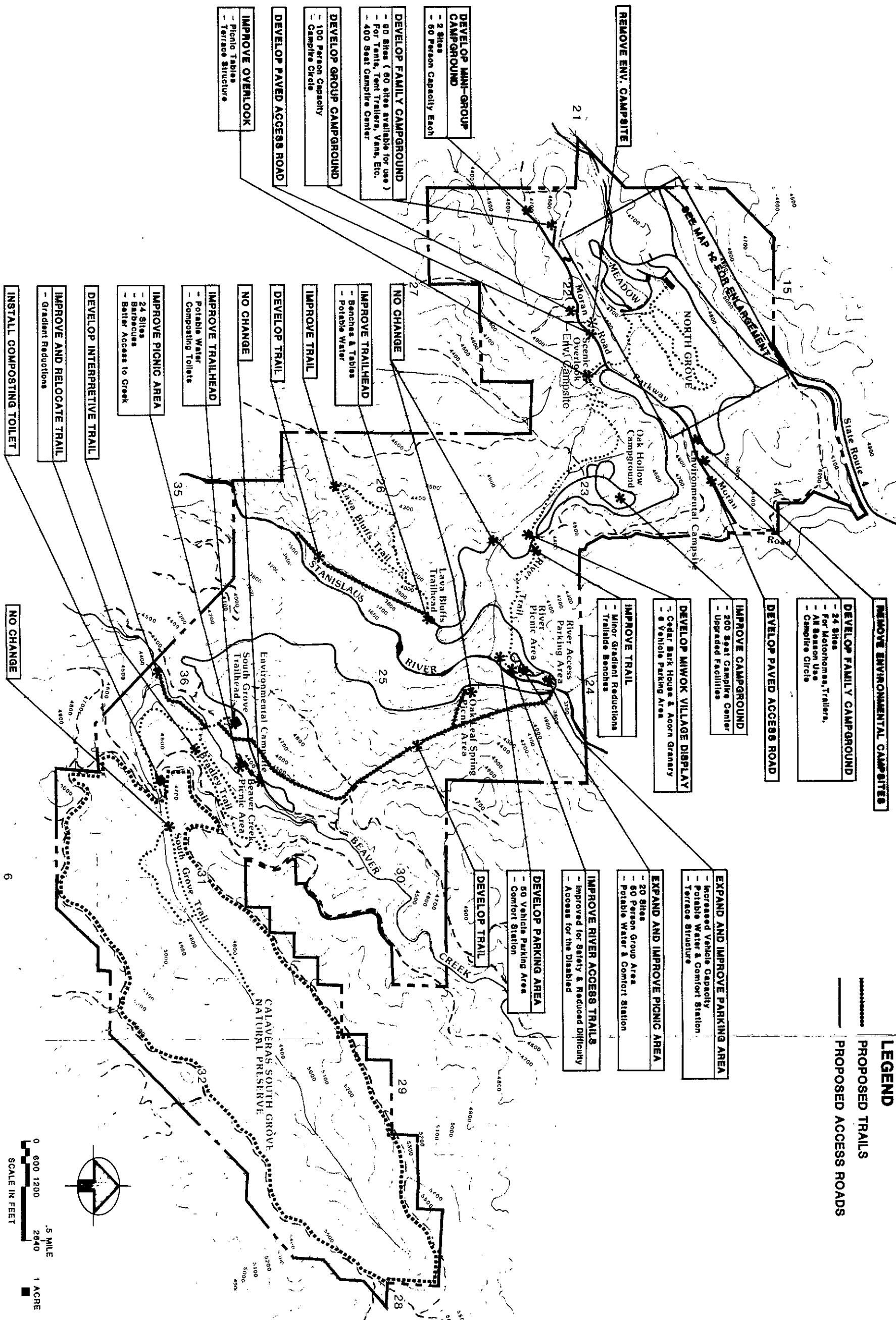


LEGEND

- PARK BOUNDARY
- PRESERVE BOUNDARY
- ==== PAVED ROADS AND PARKING AREAS
- TRAILS
- CONTOUR LINE ELEVATIONS
- - - SERVICE AND FIRE ROADS



MAP 10	DRAWING NO. 24468	CALAVERAS BIG TREES STATE PARK EXISTING FACILITIES GENERAL PLAN - FACILITIES ELEMENT		RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION	REVISIONS 	DATE 	DESIGNED
		APPROVED _____ DATE _____			DRAWN 12-88 CHECKED		



REMOVE ENVIRONMENTAL CAMPSITES

DEVELOP FAMILY CAMPGROUND
 - 24 Sites
 - For Motorhomes, Trailers,
 - All Season Use
 - Campfire Circle

DEVELOP PAVED ACCESS ROAD

IMPROVE CAMPGROUND
 - 200 Seat Campfire Center
 - Upgraded Facilities

DEVELOP MIWOK VILLAGE DISPLAY
 - Cedar Bark House & Acorn Granary
 - 8 Vehicle Parking Area

IMPROVE TRAIL
 - Minor Gradient Reductions
 - Trailside Benches

EXPAND AND IMPROVE PARKING AREA
 - Increased Vehicle Capacity
 - Potable Water & Comfort Station
 - Terrace Structure

EXPAND AND IMPROVE PICNIC AREA
 - 20 Sites
 - 60 Person Group Area
 - Potable Water & Comfort Station

IMPROVE RIVER ACCESS TRAILS
 - Improved for Safety & Reduced Difficulty
 - Access for the Disabled

DEVELOP PARKING AREA
 - 80 Vehicle Parking Area
 - Comfort Station

DEVELOP TRAIL

DEVELOP FAMILY CAMPGROUND
 - 80 Sites (60 sites available for use)
 - For Tents, Tent Trailers, Vans, Etc.
 - 400 Seat Campfire Center

DEVELOP GROUP CAMPGROUND
 - 100 Person Capacity
 - Campfire Circle

DEVELOP PAVED ACCESS ROAD

IMPROVE OVERLOOK
 - Picnic Tables
 - Terrace Structure

DEVELOP MINI-GROUP CAMPGROUND
 - 2 Sites
 - 60 Person Capacity Each

IMPROVE TRAILHEAD
 - Benches & Tables
 - Potable Water

NO CHANGE

IMPROVE TRAIL

DEVELOP TRAIL

NO CHANGE

IMPROVE TRAILHEAD
 - Potable Water
 - Composting Toilets

IMPROVE PICNIC AREA
 - 24 Sites
 - Barbecues
 - Better Access to Creek

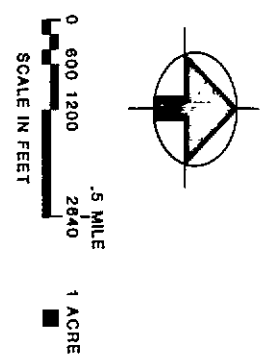
DEVELOP INTERPRETIVE TRAIL

IMPROVE AND RELOCATE TRAIL
 - Gradient Reductions

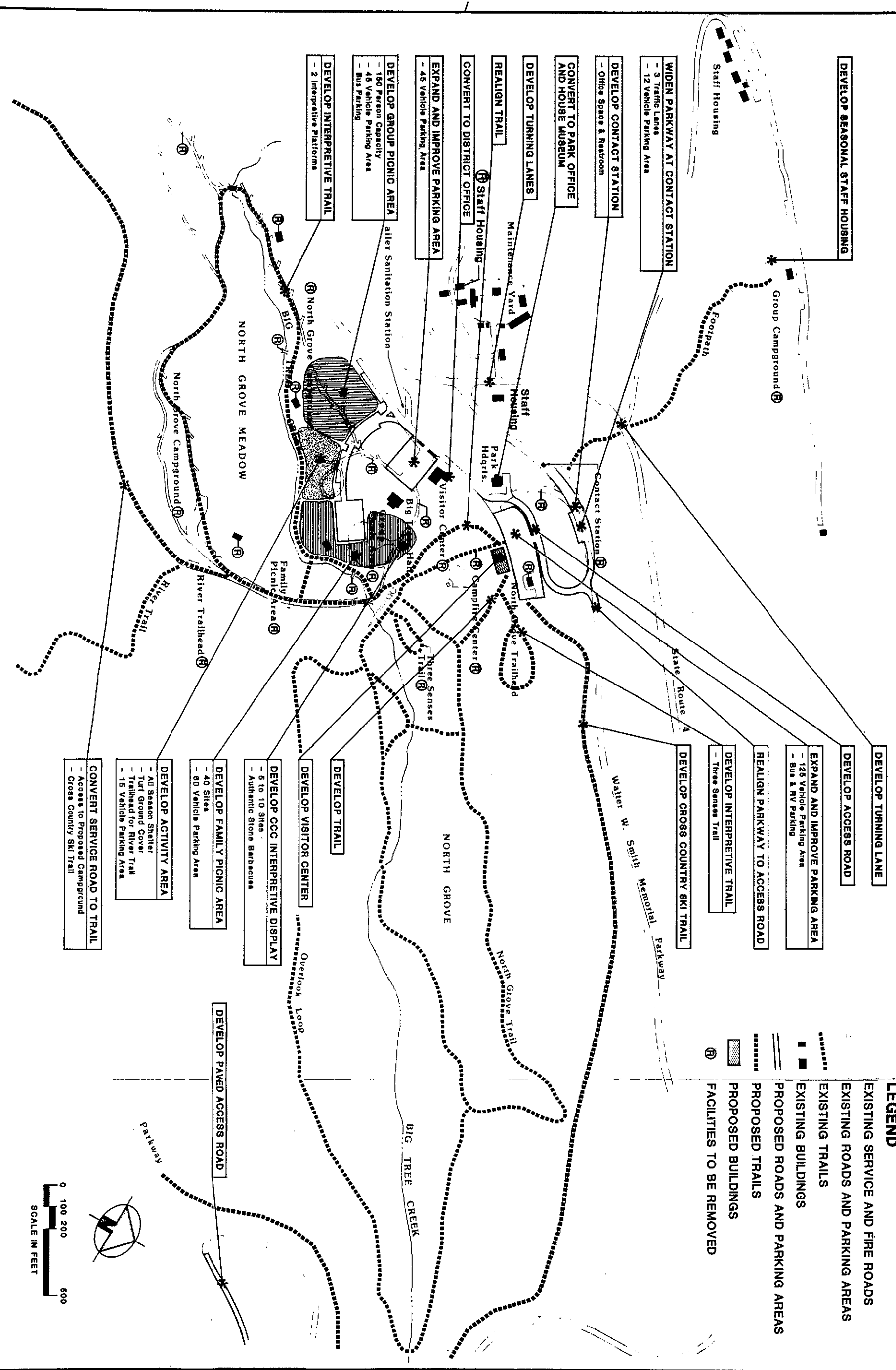
INSTALL COMPOSTING TOILET

NO CHANGE

LEGEND
 - - - - - PROPOSED TRAILS
 - - - - - PROPOSED ACCESS ROADS



DRAWING NO. 24469	DESIGNED	DATE
		CHECKED
MAP 11	RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION	
	APPROVED	DATE
CALAVERAS BIG TREES STATE PARK FACILITIES PLAN GENERAL PLAN - FACILITIES ELEMENT		

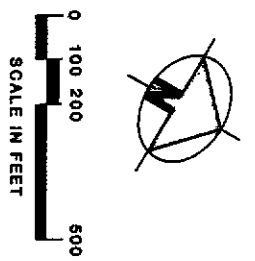


- DEVELOP SEASONAL STAFF HOUSING
- WIDEN PARKWAY AT CONTACT STATION
 - 3 Traffic Lanes
 - 12 Vehicle Parking Area
- DEVELOP CONTACT STATION
 - Office Space & Restroom
- CONVERT TO PARK OFFICE AND HOUSE MUSEUM
- DEVELOP TURNING LANES
- REALIGN TRAIL
- CONVERT TO DISTRICT OFFICE
- EXPAND AND IMPROVE PARKING AREA
 - 45 Vehicle Parking Area
- DEVELOP GROUP PICNIC AREA
 - 180 Person Capacity
 - 45 Vehicle Parking Area
 - Bus Parking
- DEVELOP INTERPRETIVE TRAIL
 - 2 Interpretive Platforms

- DEVELOP TURNING LANE
- DEVELOP ACCESS ROAD
- EXPAND AND IMPROVE PARKING AREA
 - 125 Vehicle Parking Area
 - Bus & RV Parking
- REALIGN PARKWAY TO ACCESS ROAD
- DEVELOP INTERPRETIVE TRAIL
 - Three Senses Trail
- DEVELOP CROSS COUNTRY SKI TRAIL
- DEVELOP TRAIL
- DEVELOP VISITOR CENTER
- DEVELOP CCC INTERPRETIVE DISPLAY
 - 6 to 10 Sites
 - Authentic Stone Barbecue
- DEVELOP FAMILY PICNIC AREA
 - 40 Sites
 - 80 Vehicle Parking Area
- DEVELOP ACTIVITY AREA
 - All Season Shelter
 - Turt Ground Cover
 - Trailhead for River Trail
 - 15 Vehicle Parking Area
- CONVERT SERVICE ROAD TO TRAIL
 - Access to Proposed Campground
 - Cross Country Ski Trail

LEGEND

—	EXISTING SERVICE AND FIRE ROADS
—	EXISTING ROADS AND PARKING AREAS
—	EXISTING TRAILS
■	EXISTING BUILDINGS
—	PROPOSED ROADS AND PARKING AREAS
—	PROPOSED TRAILS
■	PROPOSED BUILDINGS
⊗	FACILITIES TO BE REMOVED



CALAVERAS BIG TREES STATE PARK
FACILITIES PLAN ENLARGEMENT
 GENERAL PLAN - FACILITIES ELEMENT

RESOURCES AGENCY OF CALIFORNIA
 DEPARTMENT OF PARKS AND RECREATION
 APPROVED _____ DATE _____

REVISIONS	DATE	DESIGNED

DRAWING NO. 24470
 MAP 12