

*George Deukmejian, Governor
Gordon Van Vleck, Secretary for Resources
Henry R. Agonia, Director*

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



NATURAL BRIDGES State Beach GENERAL PLAN

DEPARTMENT OF PARKS AND RECREATION

STATE PARK AND RECREATION COMMISSION

P.O. Box 942896, SACRAMENTO, CA 94296-0001



Resolution 37-88
adopted by the
CALIFORNIA STATE PARK AND RECREATION COMMISSION
at its regular meeting in Santa Cruz on
October 7, 1988

WHEREAS, the Director of the Department of Parks and Recreation has presented to this Commission for approval the proposed General Plan for Natural Bridges State Beach; and

WHEREAS, this reflects long-range development plans to provide for optimum use and enjoyment of the unit as well as the protection of its quality. In addition, the Department should encourage sensitivity to disabled access;

NOW, THEREFORE, BE IT RESOLVED that the State Park and Recreation Commission approves the Department of Parks and Recreation's Natural Bridges State Beach Preliminary General Plan, dated June 1988, subject to such environmental changes as the Director of Parks and Recreation shall determine advisable and necessary to implement the provisions of said plan.

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P.O. Box 942896, SACRAMENTO, CA 94296-0001



Resolution 38-88
adopted by the
CALIFORNIA STATE PARK AND RECREATION COMMISSION
at its regular meeting in Santa Cruz on
October 7, 1988

WHEREAS, the Department has proposed a 14-acre Natural Preserve be established in the coastal wetland in Natural Bridges State Beach to provide for recognition and protection of the area's important natural resources; and

WHEREAS, the proposed Natural Preserve contains coastal wetland including salt marsh, freshwater marsh, and riparian woodland plant communities, thereby providing habitat for diverse species of wildlife, including the tidewater goby, a candidate for listing by the Federal government as a threatened or endangered species.

NOW, THEREFORE, BE IT RESOLVED, pursuant to Section 5019.50 of the Public Resources Code and after proceeding in accordance with the Administrative Procedures Act that the State Park and Recreation Commission hereby classifies 14 acres of coastal wetland in Natural Bridges State Beach as a Natural Preserve and names the said unit Moore Creek Wetland Natural Preserve.

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Resolution 39-88
adopted by the
CALIFORNIA STATE PARK AND RECREATION COMMISSION
at its regular meeting in Santa Cruz on
October 7, 1988

WHEREAS, the Department has proposed that the existing 16-acre Natural Bridges Monarch Butterfly Natural Preserve in Natural Bridges State Beach be renamed for simplicity and agreement with general usage;

NOW, THEREFORE, BE IT RESOLVED, pursuant to Section 5019.50 of the Public Resources Code and after proceeding in accordance with the Administrative Procedures Act that the State Park and Recreation Commission hereby renames the existing 16-acre natural preserve in Natural Bridges State Beach as the Monarch Butterfly Natural Preserve.

NATURAL BRIDGES STATE BEACH

GENERAL PLAN

March 1992

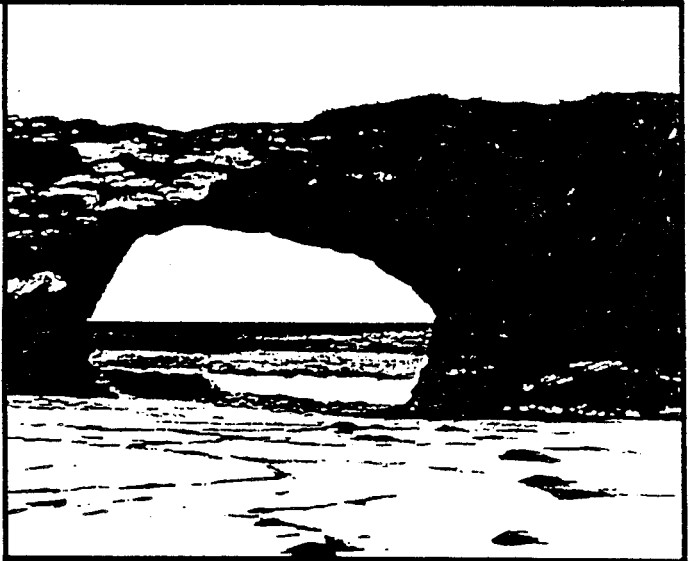
State of California - The Resources Agency
Department of Parks and Recreation
Pete Wilson, Governor
Douglas P. Wheeler, Secretary for Resources
Donald W. Murphy, Director



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Summary



SUMMARY

Named for its unusual geologic formations, Natural Bridges State Beach in Santa Cruz County encompasses 65 acres of diverse recreational and natural resources. It currently contains a Monarch Butterfly Natural Preserve, 36 picnic sites, 170 parking spaces, self-guided nature trails, a small visitor center and office building, a state employee residence, a small kiosk, and a small temporary shop building. The unit is an important recreational center as well as a significant site for marine life, avian diversity, and the annual butterfly migration.

The prime resources of this unit are the scenic resource of the natural rock bridge, the recreation resource of the sandy beach, and the natural resources of the Monarch butterfly habitat and the wetland of Moore Creek. About 400,000 people visit Natural Bridges State Beach each year. The resource diversity promotes year-around recreational use.

Resource Protection

The distinctive physiographic features of Natural Bridges State Beach are the natural bridge and the coastal terrace in the eastern half of the unit. Santa Cruz Mudstone forms a 40-foot high seacliff that underlies the coastal terrace. This geologic formation has been undercut by waves, and natural bridges have formed. The rate of seacliff retreat in this area is significant. The width and elevation of the beach, as well as the seaward portion of the bedrock, are subject to dramatic changes over even short periods. Today, a single rock arch remains, and new ones may be forming. New development will avoid the use of shoreline protective devices and allow the natural erosion process to continue.

The plan also recommends a sand dune restoration program to control unnatural erosion and to reduce the blowing sand that buries adjacent unit roads and parking areas.

Monarch Butterfly Natural Preserve

A portion of Natural Bridges State Beach provides a winter habitat for thousands of Monarch butterflies each year. In recognition of the value of this area, the 16-acre Monarch Butterfly Natural Preserve was established in 1984. A resource management plan will be developed and implemented to promote the perpetuation of the Monarch butterfly resource. The natural preserve should be managed to ensure the protection of unique features and, at the same time, provide visitor use and enjoyment of the area. A fire management program will also be established to reduce the risk of wildfire within the preserve.

Moore Creek Wetland Natural Preserve

The existing Moore Creek wetland at Natural Bridges State Beach encompasses a coastal salt and freshwater marsh. To preserve the integrity of the Moore Creek wetland and to perpetuate its natural values, this plan proposes the establishment of a 14-acre natural preserve, the second one in the unit, and the implementation of a wetlands management plan.

Visitor and Aquatic Safety

Due to the configuration of the coastline, combined with the year-round visitation at this unit, a visitor and aquatic safety program will be implemented. Immediate aquatic response is necessary every day, all year. Lifeguard staffing, equipment, stations, and citizen education programs are necessary to meet current and future public safety needs.

Public Facility Improvements

To satisfy resource protection concerns and operational and visitor needs, this plan makes the following proposals for the unit's public use areas:

1. Existing Entrance - West Cliff Drive

- o Redesign the West Cliff Drive entrance to accommodate relocated short-term parking and new day-use parking.
- o Continue short-term parking by developing a new 25-space parking lot for the scenic overlook, setting it back from the bluff.
- o Develop an interpretive overlook with low-panel interpretive exhibits and sitting areas in a portion of the existing parking lot. Replace safety fencing with esthetically pleasing rails for visitor safety and to guide visitors to appropriate trails and the beach stairway in order to reduce dune and bluff erosion.
- o Develop an 80-car parking lot adjacent to the existing beach access stairway and entry road for surfers and other beach-goers. Include a ramp access to the existing beach-level restroom. The day-use fee may be collected at a new contact station or by metered parking.
- o Close the connecting road from the West Cliff Drive entrance to the unit's core area to all but authorized vehicles. This is necessary to protect the Monarch Butterfly Natural Preserve from impacts caused by automobiles, buses, and conflicting activities.
- o Narrow the road and retain it for bicycle and pedestrian access into the core area.
- o Provide for easy walk-in access from Swanton Boulevard by developing a new trail and gate. Coordinate with the city for entrance redesign and compatible bus stop and bicycle trail connections.

2. Core Area - Picnicking and Nature Interpretation

This area has evolved from day-use beach parking and picnicking to a strong focus on the Monarch Butterfly Natural Preserve and other natural values. This plan proposes continued expansion of the visitor center, interpretive programs, and facilities.

- o Develop a new unit entrance from Delaware Avenue at Natural Bridges Drive, with a new office/contact station and turnaround.

- o Develop a new 100-car day-use parking lot with bus drop-off. The outdoor areas between the visitor center and the Monarch Butterfly Natural Preserve will be improved to allow clear, safe movement of visitors from their autos and buses to the visitor center for assembly of nature tours. Access to the existing beach/picnic parking lot will be from a new road alignment to the west of the visitor center and employee residence.
- o Redesign and expand existing visitor center through a multi-phased construction program.
- o Expand picnic facilities, including a new restroom accessible to elderly and disabled persons.
- o Construct a unit maintenance support building near the new entrance to accommodate equipment storage and other maintenance needs.
- o Retain the existing employee residence. This unit is within an urban setting, where trespass and fire could seriously damage the natural resources. It has, therefore, been determined that the presence of an employee residence on the site has security value. However, future design details should consider incorporating it into the visitor center complex as a unit office, or removing the structure to develop the visitor center and related outdoor use areas. The plan allows for a small apartment to be maintained in the visitor center complex or a new residential trailer site to be placed near the new maintenance building close to the unit entrance.

Other guidelines for development in the core area include:

- Development of pedestrian walkways and unit trail plans.
- Group picnic areas to accommodate school groups and outdoor class activities.
- Tour staging areas at the bus drop-off location.
- Landscape planting and irrigation that includes protective windbreaks and natural buffer areas between the parking and the natural preserves.
- Fencing and barrier planting along Delaware Avenue, and the addition of area lighting with informational and directional signs.

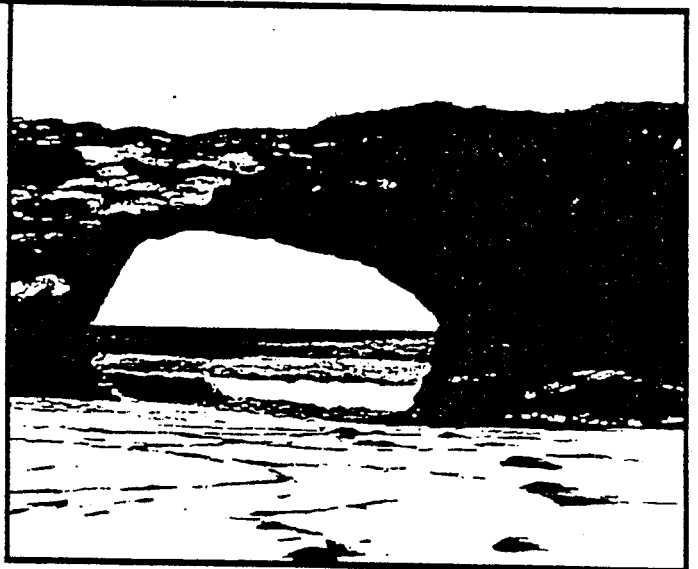
Interpretation

Natural Bridges State Beach has many interpretive opportunities. To make them more available, the docent program at Natural Bridges State Beach will become a year-round program. Monarch butterfly tours will be conducted in the fall and winter months, while spring and summer will feature tidepool and general interest hikes. Some of the interpretive priorities include:

- Construction of a disabled-access trail to the Monarch Butterfly Natural Preserve.

- Installation of interpretive panels at the observation platform and at various vista points.
- The addition of boardwalks and viewing platforms on the marsh nature trail in the Moore Creek wetland.
- Expansion of visitor center programs, exhibits, and collections.

Introduction



INTRODUCTION

Unit Description

Natural Bridges State Beach, totaling 65.17 acres, is located in the City and the County of Santa Cruz near several other State Park System units: Wilder Ranch State Park, Lighthouse Field State Beach, Twin Lakes State Beach, and Henry Cowell Redwoods State Park.

With the Pacific Ocean on the south, the unit is bounded on three sides by urban developments: residential areas are to the east and west, and an industrial park is to the north. The University of California at Santa Cruz Marine Lab is about one-third mile west. The 16-acre Natural Bridges Monarch Butterfly Natural Preserve in the northeast corner of Natural Bridges State Beach was established in May 1984.

Purpose of Plan

Natural Bridges State Beach has been a unit of the State Park System since 1933 and was formally classified as a state beach in 1962. Since the 1950s, development of operations and visitor use facilities has taken place without the benefit of a resource inventory and general plan. The general plan is the first step in a comprehensive resource evaluation and is intended to guide future land use, development, acquisition, and operation of this unit. The precise design and configuration of facilities and use areas, and the nature of interpretive and concession programs, will be further refined when specific aspects of the general plan are funded by the State Legislature for implementation.

This plan includes the following elements:

The Resource Element is a summary of the natural, cultural, esthetic, and recreational resources of the area. It sets management policies for protection and use of these resources.

The Land Use and Facilities Element describes current and proposed land uses and proposed facilities.

The Interpretive Element includes proposals for public information and interpretation.

The Concessions Element makes a recommendation regarding the use of concessions in the unit.

The Operations Element provides guidelines for the operation of the unit.

The general plan as a whole serves as the draft environmental impact report required by the California Environmental Quality Act. Environmental impact information is presented in the Environmental Impact Element. Further environmental assessment will be performed when specific construction or management programs are proposed, and if significant environmental impacts differing from those specified in this general plan are found, further environmental documents will be filed.

In preparing this plan, several initial goals and objectives have served as a general guide:

1. Identify the unit's cultural and natural resources.
2. Identify existing and potential problems and provide solutions.
3. Determine land use, development, and visitor activities that are compatible with the purpose of the unit and the surrounding area.
4. Determine the potential environmental impacts of the land uses and visitor activities.
5. Establish policies for resource protection, preservation, and interpretation; maintenance and operation, and development.
6. Establish a sequence of unit development.
7. Provide an information document for the public, the Legislature, department personnel, and other government agencies.

Planning Process

The process used in developing this general plan included a comprehensive resource inventory and evaluation of the opportunities and physical constraints of this unit. This resource information was summarized and is contained in the Resource Element of this general plan. Full documentation of the resource data is on file in the Resource Protection Division of the department.

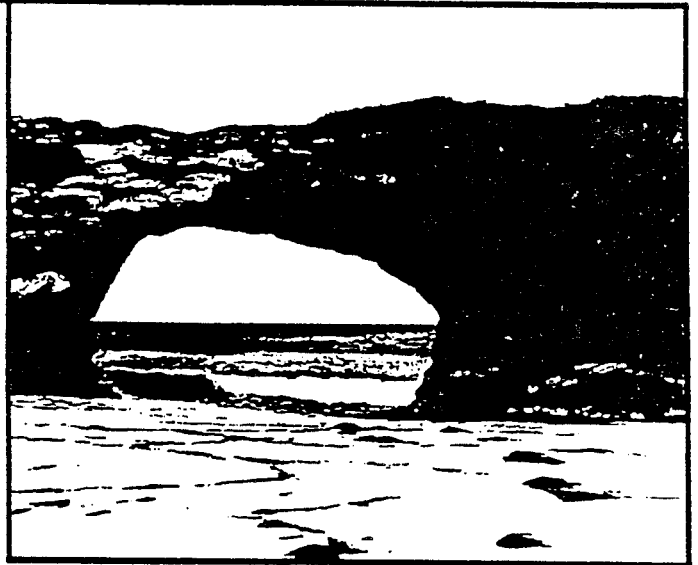
The resources were evaluated to determine management policies needed to protect, enhance, and preserve sensitive and important natural and cultural resources. Existing land uses and facilities also were evaluated to determine their effectiveness in serving the recreational and operational needs of this unit. The recreation demand projections for Santa Cruz County and the Pajaro Coast District were derived from the department's Park and Recreation Information System (PARIS). The City of Santa Cruz Local Coastal Plan and General Plan were also reviewed to determine applicable policies and surrounding future development that may affect long-range development considerations for this unit.

After hearing comments from the public and other government agencies, and following a comprehensive site analysis, the department prepared a single plan with alternative parking capacities and entrance locations. A graphic land use and facilities plan was finalized and included with the various development and management proposals presented in this general plan.

Public Involvement

The public expressed their interests and concerns at various stages in the planning process. The draft Resource Element was prepared in 1986 as part of an earlier planning schedule for 10 units along Monterey Bay. The resource findings and draft management policies were circulated for government and public review at that time. The first general plan public meeting was held in Santa Cruz on October 14, 1987 to introduce the project, explain the resource findings and draft policies, and identify major issues and public concerns. This meeting, attended by approximately 40 individuals and government representatives, also included discussion of Twin Lakes State Beach. A second meeting was held at the same location on May 12, 1988 to present a draft land use and facilities plan for public review and comment. In addition, a newsletter was mailed to 425 interested persons on our mailing list, summarizing issues and concerns and the draft plan proposals being made for Natural Bridges and Twin Lakes state beaches.

Resource Element



RESOURCE ELEMENT

In compliance with the Public Resources Code, this element sets forth long-range management objectives for the natural and cultural resources of Natural Bridges State Beach. Specific actions or limitations required to achieve these objectives are also set forth in this element. Details of resource management are left for inclusion in specific resource management programs that will be prepared at a later date.

Discussions about land not now owned by the Department of Parks and Recreation are intended for planning purposes only and do not represent an intention or commitment for acquisition.

This element was prepared to meet requirements set forth in Section 5002.2, Subsection (b) of Division 5, Chapter 1 of the Public Resources Code and Chapter 1, Section 4332 of Title 14 of the California Administrative Code.

Resource Summary

Natural Resources

Topography

In aspect, Natural Bridges State Beach is generally south-facing with slopes varying from slight (0-8%) to vertical; elevational range is from sea level to 40 feet. The distinctive physiographic features of Natural Bridges State Beach are the natural bridge and the coastal terrace in the eastern half of the unit. Santa Cruz Mudstone forms the 40-foot high seacliffs and underlies the coastal terrace. Where this geologic formation has been undercut by waves, natural bridges have evolved. Of the three arches originally within this state beach, only one remains. However, new arches are now forming as geological processes continue. Storm waves destroyed the most prominent natural arch on January 13, 1980. In the western half of the unit, Moore Creek, which has eroded the mudstone bluffs, flows through a freshwater/saltwater marsh to the ocean. The southern one-third of Natural Bridges State Beach is formed from wind and wave-deposited sand. Removal of native vegetation as a result of human activity has accelerated the erosion of beach sand and caused wind deposition east of the beach near the entrance station. Ocean frontage is approximately 700 linear feet; of that amount, 500 feet is beach.

Meteorology

Northern California experiences a Mediterranean climate with cool, wet winters and warm, dry summers. The waters of the Pacific Ocean have a profound moderating effect on temperatures along the coast, producing a maritime temperature regime with mild temperatures year-round. Mean daily maximum temperatures for the months of May through November at Natural Bridges State Beach are in the low to mid 60s F and mean daily minimums are in the high 40s. For December through April, mean daily maximums are in the high 50s and mean daily minimums are in the middle 40s. Mean annual precipitation is estimated at 25 inches. Most of this precipitation (83%) occurs during the months of November through March.

Windy conditions are the norm around Monterey Bay; the weather station in the City of Monterey reports wind speeds of 4 to 15 miles per hour about 75% of the time, and strong winds, 16 to 31 miles per hour, 5% of the time. Calm winds, less than 4 miles per hour, are recorded about 20% of the time.

Fog, or fog-generated low clouds, occurs during all seasons, but is most common on summer mornings and evenings. The Monterey Bay area has fog 12% of the time during July through September. As a consequence of the foggy summers and frequent winter storms, this area only receives about 3,000 hours of sunshine annually, or about 70% of what is possible.

Microclimatic zones (areas that depart from regional climatic characteristics) are generated at Natural Bridges by the ocean, the prevailing breeze, the coastal fog, the sandy beach, the coastal bluffs, and the forest canopy.

Water reflects only half as much solar insolation as land; hence, the ocean stores more energy during the day and releases more energy at night. However, because of its lower specific heat, the land warms up and cools down two to three times as fast as the ocean. These energy storage and temperature differences, together with the prevailing onshore breeze, moderate high and low temperatures near the coast. When the coastal fog moves inland, it enhances this moderating effect. At first, it produces a sudden chill that chases visitors from the beach; thereafter, it acts as a thermal blanket, keeping air and soil temperatures almost constant.

White beach sand and the surf reflect about half the solar radiation. This extra half-dose of sunshine accounts for the unexpected sunburns of many inexperienced beach users.

The rocky bluffs to the west of Natural Bridges shelter its beach from the prevailing northwest winds.

The forest canopy in the picnic area, the canyon, and portions of the upland area produces cooler, moister conditions.

Hydrology

Natural Bridges State Beach is situated within the Davenport Hydrologic Sub-Area of the Central Coastal Hydrologic Basin. Moore Creek and the Moore Creek marsh are the principal hydrologic features of this unit. Eighty percent of the unit is within the Moore Creek watershed. Land uses within the watershed upstream from the unit include residential, light industry, and agriculture. Surface water quality data for Moore Creek (coliform levels) indicate that the stream is polluted by human waste.

Another hydrologic feature of this unit is the 1/2-acre pond within the Monarch Butterfly Natural Preserve. Since no significant drainage flows into this pond, the source of water is thought to be groundwater upwelling. No groundwater quality data are available. Saltwater intrusion into the groundwater, common in other areas along Monterey Bay, has not been reported in this area.

Storm-generated ocean waves, seismically induced waves (tsunamis), and high flows from Moore Creek may cause temporary flooding and damage to facilities located in low-lying areas.

Geology

Natural Bridges State Beach is within the Salinian block of the southern Coast Ranges geomorphic province. The unit includes Pleistocene terrace deposits, alluvial deposits of lower Moore Creek, beach sand, and Santa Cruz Mudstone wave-cut platforms and headlands. A thin mantle of marine terrace deposits covers an older wave-cut platform in the Santa Cruz Mudstone (Mio-Pliocene). The bedrock is exposed at sea level, and the newest wave-cut platform's development can be directly observed at low tides.

The Santa Cruz Mudstone is mostly a diatomaceous siliceous mudstone, with thin to thick beds. It is highly jointed and fractured, which gives rise to block falls and the development of sea caves and arches.

There were originally three "bridges" when the unit was acquired; now only one of the "bridges" remains, and a new one is forming. These rocky outcrops are composed of the Santa Cruz Mudstone. The rate of seacliff retreat in this area is significant, and generally episodic. Researchers have identified the Natural Bridges area as having a tremendous rate of erosion over the generally mild 20-year period from 1943-1963 -- 8.5 inches per year!

Evidence is abundant that the configuration of the seacliff is constantly changing as the erodible mudstone yields to the tremendous forces of the sea. Width and elevation of the beach, as well as the seaward projection of the bedrock, are subject to dramatic changes over even short periods of time.

The lowlands adjacent to Moore Creek have been recognized as having a high potential for liquefaction during a seismic event.

Soils

There are five major soil series, phases, or land types within Natural Bridges State Beach: coastal beaches, Bonnydoon loam, Elkhorn sandy loam, Fluvaquent Haploxerolls-Aquic Xerofluvents complex, and Watsonville loam. Soils are predominantly loamy.

Coastal beaches occur on narrow sandy beaches and adjacent sand dunes and consist of sand, gravel, cobbles, or boulders, or a mixture of these. Portions of the coastal beaches are exposed during low tides and inundated at high tide. Drainage is very poor to excessive and erodibility is high, especially when native vegetation has been altered.

Bonnydoon loam occurs within Natural Bridges State Beach on 5 to 20% slopes. This soil phase is derived from sandstone, mudstone, or shale. The surface layer is grayish brown, slightly acid to medium acid, and about 11 inches thick. The substratum is weathered sandstone. Bonnydoon soil has moderate permeability and moderate shrink-swell potential. The hazard of erosion is moderate to high. This soil is found within the Monarch Butterfly Natural Preserve.

Elkhorn sandy loam is very deep, well-drained soil that derives from marine terraces and old alluvial fans. It occurs on 0 to 9% slopes within the unit, primarily on the bluffs to the east and west. Elkhorn sandy loam has a very dark grayish brown to brown, slightly acid to medium acid surface layer to about 21 inches. The subsoil is pale brown and variegated, neutral, and about 60 inches deep. Erosion hazard is slight to moderate on 0 to 9% slopes. Permeability is moderately slow and shrink-swell potential is low.

Fluvaquentic Haploxerolls-Aquic Xerofluvents soils on 0 to 15% slopes underlie the marsh ecosystem within Natural Bridges State Beach. Fluvaquentic Haploxerolls have a dark-colored surface layer with a high organic content. Aquic Xerofluvents have a light-colored surface layer with a low organic content. Reaction ranges from medium acid to mildly alkaline. Runoff is slow to rapid. The hazard of erosion is usually slight, although it can be moderate in areas that are flooded intermittently.

Watsonville loam is formed in alluvium on coastal terraces. It occurs within Natural Bridges on slopes of 0 to 2%. The surface layer is very dark grayish brown and slightly acid in reaction. It is about 12 inches thick. The subsurface layer is light gray, slightly acid, and about 6 inches thick. Thick-surface Watsonville loam occurs in this unit on 2 to 15% slopes. It has a surface layer of about 20 inches. These loams are deep and poorly drained. Erosion can be hazardous on steep slopes. Permeability and runoff are very slow to slow. Shrink-swell potential is low. These soils occur on the coastal terrace where the parking and picnic areas are located.

Plant Life

Two nonnative species, eucalyptus (Eucalyptus sp.) and sea fig (Carpobrotus aequilaterus), are the most common plants within Natural Bridges State Beach. There is, however, a wide diversity of native vegetation within this small unit. There are seven plant communities: northern coastal dune, northern coastal bluff scrub, northern coastal scrub, northern coastal salt marsh, coastal and valley freshwater marsh, central coast riparian forest, and eucalyptus forest. Of these seven communities, the eucalyptus forest is the only nonnative community. The greatest species diversity is found within the freshwater/saltwater marsh ecosystem.

An extensive northern coastal dune community does not exist within Natural Bridges State Beach. But vegetation characteristic of this community occurs along the east side of the beach. Exotics occur in the vicinity of the entrance station and at the seaward edge of the marsh. Yellow sand verbena (Abronia latifolia), beach bur (Ambrosia chamissonis), ryegrass (Lolium sp.), and salt grass (Distichlis spicata var. stolonifera) typify this community.

Northern coastal bluff scrub vegetation has developed on exposed Santa Cruz Mudstone at the summit of the natural bridge, on the west-facing bluff faces on the east side of the beach, and on bluffs along the east side of the marsh. This type of vegetation is not common in the area and is limited in extent. Plants are tufted, succulent, and prostrate, and are able to withstand strong winds and salt spray. Vegetation on the natural bridge is primarily native and includes large-flowered sand spurry (Spergularia macrotheca), seaside daisy (Erigeron glaucus), sea lettuce (Dudleya caespitosa), and sea fig.

Bluff vegetation apparently existed on low mudstone cliffs below the parking lot, but this vegetation is now being covered by mats of sea fig and displaced by eucalyptus roots.

Northern coastal scrub, dominated by coyote brush (Baccharis pilularis var. consanguinea), poison oak (Toxicodendron diversilobum), and poison hemlock (Conium maculatum), occurs along the west boundary of the unit and to the north of the marsh. Coyote brush forms an ecotone (community interface) with marsh vegetation along the northern boundary of the marsh.

A small salt marsh occupies the southern half of the wetland along the western boundary of the unit. Salt grass, pickleweed (Salicornia virginica), and jaumea (Jaumea carnosa) are the dominant species. At the approximate center of the marsh, an ecotone between salt marsh and freshwater marsh vegetation occurs. Freshwater marsh vegetation changes abruptly in the northern center of the marsh and indicates the presence of a seasonal pond.

Riparian vegetation occurs within Natural Bridges State Beach along freshwater drainages to the west and northwest of the marsh and along the main road to the picnic area. Arroyo willow (Salix lasiolepis) is the dominant tree. The willows are wind-pruned and draped with lichens; wild roses (Rosa sp.) occasionally occur in this community.

A eucalyptus forest exists within the Monarch Butterfly Natural Preserve. Red gum (Eucalyptus camaldulensis) and blue gum (Eucalyptus globulus) are the overstory species, with red gum as the principal tree used by overwintering Monarch butterflies. Eucalyptus is also planted as a windbreak around the picnic area and parking lot and occurs in the Moore Creek wetland.

No rare or endangered plants occur within the unit. However, potential habitat for state-listed Santa Cruz tarweed (Holocarpha macradenia) is found in the grassy field north of the ranger station. Known primarily from grasslands on coastal terraces, Santa Cruz tarweed has been largely eliminated from its historical range.

Animal Life

Wildlife habitat in Natural Bridges State Beach is varied; terrestrial habitats correspond to the wide diversity of native and nonnative vegetation within the unit. Principal habitats include coastal strand, coastal scrub, coastal salt marsh, coastal freshwater marsh, riparian woodland, and eucalyptus forest.

The coastal strand includes beach and littoral zones. Gulls and shorebirds commonly rest upon the beach between periods of foraging in the intertidal zone. Shorebirds forage upon invertebrates at the base of the natural bridge and in the tidal zone on the beach. The California brown pelican, an endangered species, can be found at this unit. Other birds of the coastal strand are sanderlings, willets, and marbled godwits.

Coastal scrub occurs on the western boundary of the unit and to the north of the marsh. The overstory and understory vegetation is dense and provides excellent cover and perch sites. Seasonally abundant seeds and berries are important food sources for birds and mammals. Characteristic mammals include

the brush rabbit, California pocket mouse, and striped skunk. Reptiles of the coastal scrub are the northwestern fence lizard, Pacific ring-necked snake, and Pacific gopher snake. Birds include the rufous-sided towhee, white-crowned sparrow, and ash-throated flycatcher.

A coastal wetland area, situated in the western half of the unit, occupies approximately 25 acres. It includes coastal salt marsh, coastal freshwater marsh, and riparian woodland. Coastal salt marsh is found in the southern half of the wetland and intergrades with freshwater marsh at the approximate center of the wetland. Freshwater marsh vegetation intergrades subsequently with riparian woodland along the northern perimeter of the marsh. A small freshwater pond forms in this area during fall and winter. Moore Creek, a small tidal stream, drains through the eastern edge of the marsh. Because of the diverse plant communities associated with the wetland, the wetland is of high value to wildlife. Amphibians are associated with water, occurring in dense vegetation; in moist soil; under boards, logs, and bark; and in moist leaf litter. Common amphibians include the California newt, Pacific tree frog, and red-legged frog. Reptiles associated with wetlands include the northwestern pond turtle and aquatic garter snake. Many birds occur in wetland areas where they seek food and shelter. These include the American bittern, Virginia rail, and sora.

A eucalyptus forest has been designated as the Monarch Butterfly Natural Preserve due to its value as an overwintering site for approximately 95,000 Monarch butterflies. A pond at the center of the natural preserve is surrounded by riparian vegetation. The willows and cattails provide habitat for amphibians and bird species. The taller eucalyptus trees are used as perches for the belted kingfisher, which feeds in the pond. Other species of birds include the mallard and the red-winged blackbird.

Four species of fish, all native euryhaline species, were collected from the Moore Creek estuary in Natural Bridges State Beach: topsmelt, staghorn sculpin, threespine stickleback, and tidewater goby. All fish except the tidewater goby are common estuarine species. Populations of tidewater goby have disappeared in many coastal waters where they tend to be associated with low salinity lagoons. The tidewater goby is a species of special concern (Federal Category II) due to its declining population and limited habitat.

Marine Life

Located within Monterey Bay, the marine environment off Natural Bridges State Beach is within the Central California Seascape Province, a region of characteristic geological and biological features extending south from San Francisco Bay to Point Conception.

The marine ecosystem consists of two principal environments, benthic and pelagic. The pelagic habitat is the open water from the surface to the sea floor. Benthic habitats are on the ocean floor and are defined on the basis of depth, substrate, and tidal influences. There are two significant benthic habitats at Natural Bridges, intertidal and subtidal.

Intertidal benthic habitats are the sandy beach and rocky areas between high and low tides. The sandy zone is limited in biological productivity due to the daily exposure to the atmosphere and the constantly shifting sand.

Nevertheless, some species, primarily burrowing animals, occur here. The most common burrowing animals are blood worms and the mole crab. Scavengers are also present, primarily beach hoppers. When the tide is in, several fish including surf perch, diamond turbot, and round stingray utilize this habitat. When the tide is out, the major vertebrates are foraging shorebirds such as willets and sanderlings.

The rocky intertidal zone provides habitat for a diverse assemblage of plants and animals. The intertidal flora includes 16 species of green algae, 17 species of brown algae, 66 species of red algae, and one flowering plant species. The invertebrate fauna is diverse and abundant with 52 different species of gastropods, 35 species of crustaceans, 33 species of polychaete worms, and 26 species of acidians. Crabs and barnacles are both abundant at Natural Bridges. Common crabs include the lineshore crab and hermit crab. The bright orange or purple sea star is very common, as are anemones and urchins.

The rocky intertidal zone is a significant area for scientific study and environmental education. The University of California at Santa Cruz is within walking distance of the unit. Many students and researchers take advantage of the accessibility of this area for ecological study. The University Ocean Education Program works in cooperation with the department to provide tidepool tours for elementary schoolchildren.

Subtidal benthic habitat extends from the lowest tide line to a depth of 30 feet and is primarily composed of unconsolidated sand. The dominant species that dwell within the substrate are polychaete tube worms. Species that dwell on the substrate include dungeness crab and short-spined sea star. Fish that commonly occur in this zone are sanddabs, California halibut, and starry flounder.

The pelagic community is composed of floating and swimming organisms. Floating organisms include the phytoplankton, zooplankton, crustaceans, jellyfish, and copepods. Fish in this zone include surf perch, rockfish, and night smelt. Marine mammals occurring occasionally in this zone include harbor seals and California sea lions. A number of inshore seabirds such as western grebe, surf scoter, Caspian tern, and gulls also utilize this habitat.

The state-listed (rare) Guadalupe fur seal may occasionally forage near Natural Bridges State Beach (a small male was found beached in Monterey Bay in 1977). The federally listed (threatened) southern sea otter occurs in Monterey Bay and may occasionally be seen while migrating between kelp beds, its preferred habitat.

Ecology

Many small ecosystems occur within the coastal and marine environments of Monterey Bay. These small systems are interrelated by physical and biological components such as air, soil, water, nutrients, plants, and animals.

Streams, bluffs, and cliffs contribute sediments to marine ecosystems, which are then redistributed by littoral and oceanic currents. As a result of the current pattern in Monterey Bay, the marine environment at Natural Bridges State Beach includes both sandy and rocky substrates. Nutrients associated

with these sediments are important to marine life in the nearshore zone. Upwelling of cold bottom waters, however, provides the greatest source of nutrients. These nutrients greatly enhance the biological productivity in nearshore marine ecosystems. Because of the upwelling, Monterey Bay is one of the richest marine basins in California.

Estuarine ecosystems develop in partially enclosed bodies of marine water such as lagoons, sloughs, river mouths, and protected bays. Estuaries are water bodies where fresh and salt water mix. Many factors influence the distribution of organisms in the estuary, including type of substrate, morphology, elevation, water circulation, salinity, topography, and temperature. At the unit, there is a small wetland where such interactions occur on a small scale.

With extensive urban encroachment around Natural Bridges State Beach, the ecosystems in the unit are important as vestiges of the natural condition and as significant habitat for specific plants and animals. Natural Bridges State Beach has been identified as an important natural area by the California Natural Areas Coordination Council. The unit is important due to its geologic formations, marine life, avian diversity, and Monarch butterfly population.

Cultural Resources

Archeology

There is one known Native American archeological site within Natural Bridges State Beach, a highly disturbed shell midden, recorded as site SCR-266. It is visible on the slopes below the picnic area above the beach. This site's integrity is unknown since it may have been pushed to this location when the area was terraced by Fred Swanton, the former owner, in about 1912. The mussel and abalone shell fragments that are visible may be the last vestige of a regularly used Native American campsite or village.

Ethnography

The Indians who lived along the coast from San Francisco Bay to Monterey Bay are generally referred to as Costanoan, though the name Ohlone has become more popular in recent years among native descendents. The terms are an abstraction for a linguistic family of eight distinct languages. Three different languages were spoken on Monterey Bay: Awaswas from Aptos upcoast to Davenport, Mutsun in the Pajaro and lower Salinas River valleys, and Rumsen from about Marina downcoast to the Sur River.

Political organization was limited to a tribelet level consisting of one or more villages, served by a chief and council of elders. Each of the approximately 50 tribelets was like an autonomous nation. Tribelet territories were apparently well defined and defended, with warfare commonly mentioned in historical accounts. Marine resources provided items for trade to inland neighbors, primarily mussels, abalone shells, salt, and dried abalone. Pinon pine nuts and obsidian were obtained as imports.

Prayers, offerings, dreams, dances, and shamanism were important in Ohlone religious life. Musical instruments included whistles, flutes, rattles, and a musical bow. Several types of games and gambling were popular. Most houses

were dome-shaped, using thatch to cover a pole framework, and large enough for 10 to 15 persons. Animal skins were used for robes (on cold days), blankets, and bedding, along with tule mats. Baskets were used for storing household items, and especially for collecting, processing, and storing food.

Acorns provided the bulk of the diet, supplemented by a variety of other nuts, seeds, berries, roots, and shoots. Animals were hunted, trapped, and fished, including most of the mammals and reptiles in the area, waterfowl and other birds, and insects. Extensive burning of brush and grasslands helped to improve the hunting and gathering potential of the lands while reducing the danger of wildfires. Beached whales, sea otters, and sea lions were roasted and eaten. Mussels and abalone were gathered, though this resource was probably never abundant along the sandy bay from Aptos to Monterey.

History

The seven Spanish missions in Ohlone territory had cataclysmic effects on the native population and traditional culture. The Indians living around Monterey Bay were drawn into missions at Santa Cruz, San Juan Bautista, and San Carlos. Gaspar de Portola's 1769 expedition, and the Rivera-Palou and Hezeta and Palou expeditions of 1774 and 1775, initiated Spanish occupation and missionization of the Monterey Bay area.

Mexican secularization of the mission system in 1834 dispersed the remaining Costanoan peoples. Simultaneously with orders for mission secularization came requests for Mexican land grants. Within a few years, the present-day state beach units in Santa Cruz County were almost entirely taken up in a series of these grants.

The land encompassing present-day Natural Bridges State Beach was originally granted to Jose Bolcoff on April 7, 1841 as Rancho Refugio, three leagues by two. The California Land Commission confirmed this 12,147-acre grant in 1852 to Francisco and Juan Bolcoff. Shortly after statehood, however, the land immediately encompassing Natural Bridges State Beach was purchased by two Santa Cruz County settlers -- William H. Moore and Richard H. Hall. Moore farmed and ran a dairy on 409 acres subdivided from Rancho Refugio. Examination of the 1859 U.S. Surveyor General's plat of Rancho Refugio documents Moore's occupation of the land prior to this date. His house, no longer extant, appears to have been located just east of present-day state beach boundaries on the Santa Cruz County road to Shoquel (Soquel) Village and San Juan Bautista.

Richard Harrison Hall, who arrived in California from Vermont in 1850, acquired a 300-acre holding where he operated a successful dairy. His property encompassed the southwestern portion of present-day Natural Bridges State Beach. Hatch's 1889 Official Map of Santa Cruz County delineates both Moore's property -- bounded on the north by D. D. Wilder's dairy -- and R. H. Hall's dairy. By 1906, Moore's estate had been partitioned between his heirs, W. H. Moore, S. Moore, Charles Moore, C. B. and Helen Moore, and Mrs. A. Hoffman, although Hall's dairy remained intact.

Shortly thereafter Fred W. Swanton, wealthy Santa Cruz entrepreneur, acquired the beachfront property that today belongs to Natural Bridges State Beach. Swanton had previously successfully developed property in Santa Cruz, among

these ventures a huge turn-of-the-century Moorish-style casino, "pleasure pier," and large tent city. He was also responsible for providing Santa Cruz, Watsonville, and Ben Lomond their first electric lighting system.

Swanton's attempt to develop his beach property failed, however. Naming his subdivision "Swanton Beach Park," he laid out streets and pavements and terraced the beach. Although he managed to sell some lots, no one built on the property. It was neglected and, in 1933, Swanton sold two parcels totaling 27 acres to the State of California to establish a state beach. In 1955, the state acquired an additional 7.75 acres from Antonelli Brothers, a local farming and nursery interest.

Prior to 1952, Natural Bridges was known as Swanton Beach Arch Rock, or Swanton Beach. Before the beach was named for Fred Swanton, it was referred to variously as "Double Arch Beach," "Moore's Beach," or "Hall's Beach" in recognition of its 19th-century owners.

Historic Structures and Sites

Natural Bridges State Beach contains no historic structures and no significant historic sites.

Esthetic Resources

The primary esthetic resource at Natural Bridges is the panorama of Monterey Bay and the Pacific Ocean, with the associated watercraft, varied birdlife, occasional marine mammals, varied topographic features, and the colorful cities of Santa Cruz and Monterey.

Positive scenic resources include the panorama from the overlook, the "natural bridges" rock formation, the trees in the picnic area, the "butterfly trees" eucalyptus grove, and the Monterey pines scattered through the northern portion of the unit. Negative scenic features include the large, obtrusive trailer park to the west of the unit, the industrial park to the north, and the somewhat less obtrusive residential area to the east.

Positive auditory features at Natural Bridges include the sounds of the surf, the murmur of wind in the trees, and occasional bird calls. Negative auditory features are the sounds of automotive traffic and other urban noise.

Recreation Resources

The coastal area of Santa Cruz and Monterey counties is one of the major recreation destinations in California. This area was the destination for roughly one out of 20 recreation trips (4.6%) within the state by Californians in 1980. These trips brought 5,760,000 recreation visitors to the two counties, not including local residents and visitors from out of state. In addition to these "destination" visitors, this area is very popular with persons touring through or enroute to another destination.

About 400,000 people visit Natural Bridges State Beach each year. Thirty-one percent of this use occurs during the summer. Use during fall accounts for 24%, winter, 20%, and spring, 25%. This even seasonal use pattern is indicative of an area of very high recreation demand.

Twenty-two major recreation activities currently occur at Natural Bridges; of these, 13 are strongly dependent on the ocean or ocean beach and six are dependent on other natural resources of the unit. Recreation activities that are primarily dependent on the ocean or sandy beach -- scuba and skin diving, board surfing, body surfing, wind surfing, swimming, sunbathing, beachcombing, surf fishing, tidepool study, beachball, volleyball, and sand sculpture -- are of high statewide significance. Painting, photography, bird watching, other nature study, esthetic appreciation, and kite flying also occur at this unit and are of statewide significance. Nature study and contemplation are important uses within the Monarch Butterfly Natural Preserve.

Resource Policy Formulation

Classification

Natural Bridges State Beach has been a unit of the State Park System since 1933. The unit was classified as a state beach by the State Park and Recreation Commission in November 1962. The Public Resources Code defines a state beach as a type of state recreation unit as follows:

5019.56. State Recreation Units. State recreation units consist of areas selected, developed, and operated to provide outdoor recreational opportunities. Such units shall be designated by the Commission by naming, in accordance with the provisions of Article 1 (commencing with Section 5001) and this article relating to classification.

In the planning of improvements to be undertaken within state recreation units, consideration shall be given to compatibility of design with the surrounding scenic and environmental characteristics.

State recreation units may be established in the terrestrial or underwater environments of the state and shall be further classified as one of the following types: . . .

(d) State beaches, consisting of areas with frontage on the ocean, or bays designed to provide swimming, boating, fishing, and other beach-oriented recreational activities. Coastal areas containing ecological, geological, scenic, or cultural resources of significant value shall be preserved within state wildernesses, state reserves, state parks, or natural or cultural preserves.

The Natural Bridges Monarch Butterfly Natural Preserve was named and classified by the State Park and Recreation Commission in May 1984. It was established to recognize and protect the outstanding Monarch butterfly overwintering area at the state beach. The 16-acre natural preserve consists mostly of eucalyptus forest within the state beach. The Public Resources Code defines a natural preserve as follows:

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 cultural or economic interest, or topographic features illustrative of representative or unique biogeographical 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

The purpose of Natural Bridges State Beach is to make available to the people, for their benefit and enjoyment forever, the scenic, natural, cultural, and recreational resources of the ocean beach and related uplands. The prime resources of this unit are the scenic resource of the natural rock bridge, the recreation resource of the sandy beach, and the natural resources of Monarch butterfly habitat and the coastal salt marsh formed at the mouth of Moore Creek. In recognition of the Monarch butterfly habitat, the Monarch Butterfly Natural Preserve has been established within this state beach.

The function of the California Department of Parks and Recreation at Natural Bridges State Beach shall be to preserve and protect the prime resource values and provide public opportunities for high quality experiences related to enjoyment of those values.

Zone of Primary Interest

The zone of primary interest is that area outside the unit in which land use changes could adversely impact the resources of Natural Bridges State Beach. This zone includes the Moore Creek watershed where land use changes could affect the water quality of the creek, which enters the unit. The department is also concerned about activities on lands adjacent to the unit on Swanton Boulevard, Delaware Avenue, West Cliff Drive, and within the adjacent mobile home park that could affect the unit's scenic and natural resources.

In addition, the department is interested in all lands, no matter how far away, that through their use and development could adversely affect the unit's resources and features. Air pollution and acid rain are regional problems that affect the unit and may be generated by changing land uses on distant lands. The disruption of littoral sand movement by the damming of rivers and the building of breakwaters and other structures along the coast is another regional problem affecting the unit.

Resource Management Policies

Resource management in the State Park System is governed by laws contained in the Public Resources Code and the California Administrative Code, by directives approved by the department's director, and by policies approved by the State Park and Recreation Commission. General policies related to the unit's classification and its Declaration of Purpose have been addressed in previous sections.

Specific departmental Resource Management Directives amplify the legal codes and provide clearer management guidelines. Directives that are especially pertinent to existing or potential problems related to the management of resources at Natural Bridges State Beach are:

- #15 State Recreation Units; protection of resources
- #18 State Beaches; avoid using sandy beaches for secondary uses
- #19 State Beaches; protection of resources
- #33 Exotic Plant Species
- #35 Wildlife Protection
- #46 Environmental Quality
- #58 Cultural Resource Protection
- #70 Archeological Sites

Directives #18 and #19 are particularly relevant to planning issues for the state beaches along Monterey Bay:

(18) Insofar as is possible in state beaches, the entire area of the sandy littorals will be available for recreation use and visual enjoyment. It is an objective of the department to avoid use of natural sandy beaches for parking or for other supportive or secondary uses.

(19) The scenic, natural, and cultural values of state beaches, including the ecological relationships of the littoral, tidal, and nearshore areas will be identified, evaluated, and protected so the total quality of the recreation experience may be perpetuated and enhanced.

Following several years of significant storm damage in many coastal State Park System units, the department adopted a policy for coastal erosion on October 24, 1984. The intent of the policy is to avoid construction of new permanent facilities in areas subject to coastal erosion, and to promote the use of expendable or moveable facilities where the expected useful life is limited due to their location in erosion-prone areas. The policy is as follows:

The Department of Parks and Recreation shall avoid construction of new structures and coastal facilities in areas subject to ocean wave erosion, seacliff retreat, and unstable cliffs, unless specific determinations have been made that the risk of loss of the facility is clearly offset by the investment and need for the facility. Measures shall be taken to minimize human-induced erosion by reducing concentrated surface runoff from use areas, elevated

groundwater levels from irrigation and urbanization, and surface disturbance of blufftop soils. In recognition of California's actively eroding coastline, new structures and facilities located in areas known to be subject to ocean wave erosion, seacliff retreat, or unstable bluffs shall be expendable or movable. Structural protection and re-protection of developments shall be allowed only when the cost of protection is commensurate with the value (physical and intrinsic) of the development to be protected, and when it can be shown that the protection will not negatively affect the beach or the near-shore environment.

In addition to policies, directives, and laws that apply statewide, the following specific resource policies have been developed for Natural Bridges State Beach:

Paleontological Resources

The fossil record contained in the ocean-facing cliffs near Santa Cruz is a valuable, irreplaceable natural resource. Past climatic conditions and plant and animal assemblages can provide us with clues about how present-day ecosystems evolved.

Policy: Permits for collection of paleontological resources within Natural Bridges State Beach shall be carefully controlled to ensure proper management and protection of these nonrenewable resources. Collection of fossil resources shall be approved only when the collection will result in direct benefit to the State Park System.

Shoreline Protective Devices

The easterly portion of Natural Bridges State Beach has a significant rate of seacliff erosion. The width and elevation of the beach and the seaward projection of the bedrock are subject to dramatic changes over short periods. Structural protection measures are not consistent with the general objectives for resource management within the State Park System. In certain circumstances, however, when the facility is of greater necessity and importance than the natural resources that may be affected, structural protective devices may be appropriate.

Policy: Structural protection measures shall be undertaken only if nonstructural measures (i.e., relocation of facility, setback, redesign, or beach replenishment) are not feasible. If a protective structure is constructed (i.e., rip-rap at the base of the seacliff in an attempt to protect West Cliff Drive), the structure shall not:

- 1) Significantly reduce or restrict beach access;
- 2) Adversely affect shoreline processes and sand supply;
- 3) Significantly increase erosion on adjacent properties;
- 4) Cause harmful impacts on vegetation, wildlife, or fish habitats;
- 5) Be placed further than necessary from the development requiring protection; or
- 6) Create a significant visual intrusion.

The existing wetland at Natural Bridges State Beach encompasses coastal salt marsh and coastal freshwater marsh. Willow riparian vegetation occurs along the west and northwest borders of the wetland. The Moore Creek channel within the wetland is well defined, has stable banks and a sandy substrate, and retains essentially fresh water year round. The creek channel provides excellent habitat for the tidewater goby, a federal candidate species. Tidewater gobies are endemic to the California coast where they are found in coastal estuaries having water of low salinity and a sandy substrate. Tidewater gobies have disappeared from 30% of their known range since 1940, a result of wetland destruction from filling, draining, and pollution, or from the disruption of hydrologic conditions on which this species depends.

Policy: To preserve the integrity of the Moore Creek wetland and to perpetuate its natural values, the wetland ecosystem at Natural Bridges State Beach shall be considered for classification as a natural preserve. In order to preserve the integrity of the area, a wetland management plan shall be developed and implemented. The plan shall address sensitive species management, flood control, and pollution abatement.

Wetland Management

Historically, the Moore Creek wetland has been dredged, diked, and farmed. A low concrete wall on the east bank of Moore Creek remains from agricultural use. Although some exotic plant species persist in the wetland, the wetland has essentially recovered and supports coastal salt marsh and coastal freshwater marsh plant communities. Moore Creek, which drains the wetland, supports the tidewater goby.

Establishing a natural preserve is an essential step in protecting coastal wetlands. However, watershed alterations and land use adjacent to coastal wetlands often dictate the future of coastal wetlands when they are left unmanaged.

Policy: A management plan shall be developed and implemented for the Moore Creek wetland. The management plan shall address changes in historic hydrology and sedimentation, removal of artificial structures not required for visitor safety, alteration of the beach for recreation, exotic species removal, sensitive species management, and pollution abatement.

Riparian Ecosystem

Riparian vegetation at Natural Bridges State Beach is an important ecological and esthetic resource. Management of this resource will help maintain the diversity of vegetation found within this unit.

Policy: The integrity of the riparian ecosystem within Natural Bridges State Beach shall be maintained through development and implementation of a vegetation management plan. Control of nonnative species shall be an important element of this plan.

Exotic Plant Species

Nonnative plant species displace native plant habitat and threaten the integrity of natural communities. Exotic species of concern within Natural Bridges State Beach are eucalyptus, Monterey pine, Monterey cypress, pampas grass, annual European grasses, and Hottentot fig.

Large nonnative trees, including eucalyptus and Monterey pine, have been planted within the unit. Pampas grass has become established in the center of the marsh, and Hottentot fig has been widely used for landscaping. Hottentot fig is also established on the summit of the natural bridge.

Policy: Exotic species capable of naturalizing shall not be used for landscaping within Natural Bridges State Beach. Management plans to control and eradicate Hottentot fig and pampas grass shall be developed and implemented. An exotic tree removal and replacement program shall be developed and implemented for areas within the state beach boundary, except that eucalyptus trees used as overwintering sites for the Monarch butterfly shall be preserved. Native species from local population sources shall be used to replace exotic species.

Monarch Butterfly Habitat

A portion of Natural Bridges State Beach provides winter habitat for thousands of Monarch butterflies each year. The butterflies are of great public and scientific interest. In recognition of the value of this area, the 16-acre Monarch Butterfly Natural Preserve has been established. The butterflies are attracted to the area because the red gum eucalyptus trees at the state beach provide roost sites and the nectar from the eucalyptus flowers is a source of food. Some of the eucalyptus trees are overmature, structurally weak, and dying. A study needs to be undertaken to assess the status of the butterfly habitat and develop a plan for its perpetuation.

Policy: A resource management plan shall be developed and implemented to promote the perpetuation of the Monarch butterfly resource within Natural Bridges State Beach.

Cultural Resources

Management of the Natural Bridges State Beach cultural resources is governed by state statutes and departmental policies and directives. The following portions of the Public Resources Code directly apply: Chapter 1.7, Sections 5097.5 and 5097.9.

The portion of archeological site SCR-266 that lies beneath the existing parking lot could be of considerable scientific value. Its extent has not been fully evaluated.

Policy: Any excavation, trenching, or grading in the vicinity of archeological site SCR-266, including the parking lot area, shall be monitored or evaluated by an archeologist.

Allowable Use Intensity

The California Public Resources Code, Section 5019.5, requires that a land carrying capacity survey be made prior to the 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 the limits of 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.

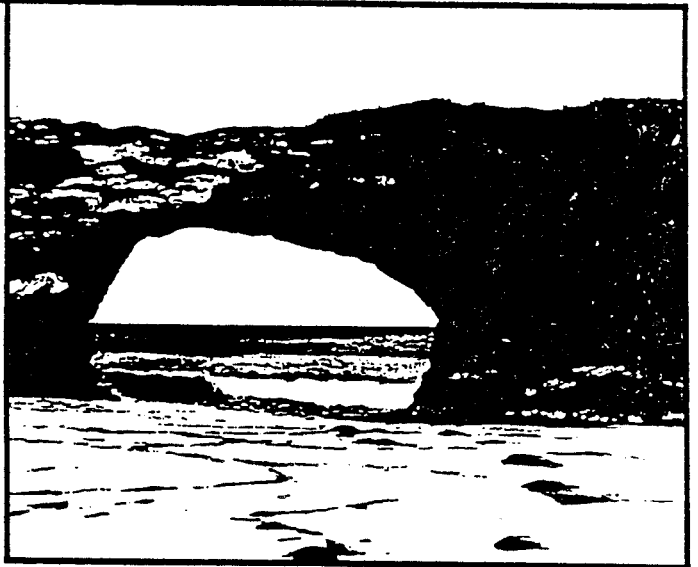
Resource management objectives are defined by the Public Resources Code and other law, unit classifications and declarations of purpose, and by specific declarations of resource management policy presented in this Resource Element.

Resource constraints are factors that 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 population levels, stability, and tolerance to human activity. 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 intensities for lands within Natural Bridges State Beach were determined and are shown on the Allowable Use Intensity Map. Three use intensity categories have been developed: low, moderate, and high. The low intensity zone includes coastal salt and freshwater marshlands, Monarch butterfly habitat, and scenic cliff areas. The moderate intensity zone is the sandy beach where the environment can withstand heavy visitor use but is subject to occasional ocean wave attack. The high intensity zone is characterized by level land dominated by exotic plant species.

Land Use and Facilities Element



LAND USE AND FACILITIES ELEMENT

This element of the general plan addresses the existing and proposed land uses and development at Natural Bridges State Beach. The recommendations and guidelines for future development are based on an evaluation of the resource sensitivities and constraints, unit operational and visitor needs, and consideration for the expressed interest and concerns of the public and various governmental agencies.

Visitation and Use Patterns

Annual visitation at Natural Bridges State Beach has increased over the years, recently averaging about 400,000. Use is year round, with spring and fall months the most popular. Various seasonal as well as annual use patterns can be described as follows:

Day Use - Beach and Picnic Areas: Easter vacation through Thanksgiving. The summer months are often cool and windy. Family groups bear the coolness using the bluff and wooded areas as a wind breaker, which enables them to extend their stay. The picnic area is usually in full use during this period.

Monarch Butterfly Visitation: October through March. For many years school groups have come to visit the unit's eucalyptus grove, now a natural preserve, which is the overwintering home of the Monarch butterflies. For many years the rangers gave guided walks daily. That service has recently been provided by docents of the Monterey Bay Natural Historical Association.

Tidepool Visitation: All year. While the tidepool area adjacent to the unit is administered by the University of California, the interpretation has always been coordinated through the unit. Currently, the Monterey Bay Natural Historical Association docents and unit staff provide this service.

Surfing: All year. This group has grown from a few hardy individuals to many hundreds of board and wind surfers.

Special Events: Various, all year. This scenic area draws many weddings, family reunions, business-sponsored gatherings, and community events. Film crew requests are also increasing at the unit.

Existing Conditions

The unit is bordered by the University of California at Santa Cruz's Long Marine Lab and a mobile home park development to the west, an industrial park to the north, a residential area to the east, and the Pacific Ocean to the south. The unit contains a 16-acre Monarch Butterfly Natural Preserve, a sandy beach, scenic cliffs, tidepools, and coastal salt marsh and wetlands at the mouth of Moore Creek. The central area of the unit is partially developed for visitor day-use parking, picnicking, and interpretive and operations facilities.

Existing facilities include 110 paved parking spaces, plus 25 spaces limited to 20-minute parking at a scenic overlook, and additional unpaved parking for 35 cars near the unit entrance. The total parking capacity is 170 spaces. Other facilities include an entrance kiosk, combination beach restroom and

shower building, comfort station, 36 picnic sites, employee residence, maintenance shed, unit office, and visitor center. Many of these facilities were constructed in the 1950s without the benefit of a general plan or comprehensive resource inventory. Most facilities have been modified and adapted for current uses, but serve only the minimal operational and visitor needs for this unit.

Existing Entrance - West Cliff Drive

The unit entrance is located at the intersection of West Cliff Drive and Swanton Boulevard. It is gated at night and controlled by a small kiosk. The entrance provides access to a free parking lot and a coastal scenic overlook of the natural bridges and to the unit's core area. The entrance road and contact station are located above the city street, providing beach and coastline observation for visitors and surveillance by unit staff of parking and entrance facilities. However, the scenic views and natural beauty are impaired by coastline development and are partially obstructed by boundary and bluff fencing. These facilities need rehabilitation.

The ingress and egress at the unit entrance is becoming increasingly difficult. Increased traffic and changing use patterns in recent years have rendered the present configuration of facilities inadequate or insufficient to meet present and potential needs. The design capacity and layout of facilities do not allow for easy traffic movement during peak use periods, creating conflicts between pedestrians, bicycles, and vehicle traffic. The first-time visitor can become confused because of lack of information and clear direction to points of interest, compounding the traffic problem.

In addition to vehicles, a large number of walk-in visitors use on-street parking, a community bus that makes a nearby stop, and a regional bicycle and pedestrian trail along West Cliff Drive that terminates at the unit entrance. The designated bicycle route continues along Swanton Boulevard to the north, although most pedestrians and bicyclists enter at the vehicle gate and continue through the unit, or stop to enjoy the scenic view. Currently, no provisions are provided inside the unit entrance to accommodate these visitors.

A significant increase at the unit is occurring in local use -- by surfers, divers, and people visiting the overlook at sunset and during noon lunch hours. Most use the entrance. However, parking and access for beach users is limited at the entrance, which was designed mainly for visitors to get to the central day-use area. Immediately beyond the kiosk is a wooden bridge and stairs, which provides beach access from an unpaved parking area along the entrance road. However, many people who walk in at the entrance continue along a more direct route via the bluff to the beach. Bluff fencing and dune stabilization efforts to date have not been successful in preventing ongoing bluff and sand erosion from this foot traffic.

The design and capacity of parking and access at this location appear insufficient to meet the needs of the local community and statewide visitors. These existing conditions have resulted in recurring management and operational problems associated with visitor control.

A coastal unit evaluation for this unit, prepared by the department in 1980, provided long-range recommendations for unit management and development, and subsequently was adopted within the land use portion of the Santa Cruz County Local Coastal Plan (LCP). The LCP recommends developing the main unit entrance at its original location off Delaware Avenue and maintaining the overlook parking and beach access facility.

Core Area - Picnicking and Nature Interpretation

The current entrance road passes through a ravine at the edge of the butterfly preserve and leads to the main beach parking lot and picnic area in the core area of the unit. Increased traffic has caused concern for potential impacts on plant and wildlife habitats and for the safety of pedestrians and bicyclists who frequently use this route.

Parking

The existing day-use parking lot is designed to accommodate 104 cars, with two spaces reserved for disabled persons. This facility serves the people visiting the butterfly preserve, visitor center, nature trails, grassy picnic areas, beach, and tidepools. It reaches capacity during summer months and on winter weekends. School buses park adjacent to the restroom for drop-off and tour assembly. This mixed use generates pedestrian movements in all directions, with potential conflicts between people and automobiles.

Picnic Area

Surrounding this parking lot are 31 picnic sites located between the Monterey pines and eucalyptus trees. The group or family-use sites include tables, barbecues, and trash containers. The close proximity of these sites to the beach and parking lot makes this an extremely high-intensity use area. Several tables are concentrated along the face of the slope, which affords ocean views and protection from the wind by the eucalyptus trees. However, these areas are substantially eroded from extensive use and random beach access. A beach ramp is located in the picnic area and also provides emergency vehicle access from the parking lot to the beach.

Visitor Center, Office, and Residence

The unit's visitor services, maintenance, and interpretive facilities are located in the core area in the old headquarters office, which was recently remodeled to accommodate a small visitor center. Exhibits occupy former garage and storage space. Unit staff and docents share small offices. Administrative services are provided by the district office in Aptos, 9-1/2 miles away.

A two-bedroom single-family residence located behind the garage and office is used for employee housing. Between the buildings is a paved driveway and employee parking area frequently used for outdoor work space. Located behind the residence is a fenced equipment and materials storage area.

A small comfort station, constructed in 1954, serves this entire day-use area and the visitor center. This structure was sited and built on the downslope to minimize its impact on scenic ocean views. However, it does not serve

beach users, cannot clearly be seen by visitors, and is not accessible to disabled persons. When it is eventually replaced, improved access, capacity, and alternative locations should be considered.

Beach

The sandy beach and ocean waves remain the primary attractions for visitors through the spring and summer months. Increasing interest in wind surfing, surfing, scuba diving, and tidepool activities has caused overcrowding of existing parking and restroom facilities. The recreational resources appear to have reached their capacity, without causing environmental impacts or threatening visitor safety.

A combination restroom and shower building is located on the beach along the entrance road. There is a four-car parking lot there (with disabled parking) and authorized vehicle access to the beach. The building was recently rebuilt and appears adequate to serve current and future beach use. The facility is considered within a general area of resource sensitivity. However, the existing use does not present any adverse impacts on resource values or the Monarch Butterfly Natural Preserve.

This location provides protection to the structure from ocean wave attack. The facility is visible from the beach but screened from other areas. All utilities (sewer, water, electric) are underground. The facility is connected to the city sewer system. A city sewer pump station within 200 feet of this location on state property sometimes presents a maintenance problem to unit and county staff.

Beach patrol and emergency vehicles can enter the beach at this location and continue across the sand, parallel Moore Creek, and exit at the core area parking lot and maintenance area. This vehicle path and trail passes a narrow, grassy five-table picnic area adjacent to Moore Creek, a popular site because of the surrounding natural beauty and beach access. A pedestrian walkway and ramp is provided from this picnic area to the core area restroom.

Monarch Butterfly Natural Preserve

This 16-acre portion of the unit provides a winter habitat for thousands of Monarch butterflies each year. This site consists of a dense eucalyptus forest, pond, and open space area bordered by Swanton Boulevard and Delaware Avenue. Existing facilities include a boardwalk, which extends from the visitor center to a viewing platform in the eucalyptus forest and was improved recently to accommodate elderly and disabled persons. Interpretive signing and nature trails are also provided for guided and self-guided tours.

Visitors can enter the natural preserve at several locations along paths and roadways and through a fence that partially surrounds the preserve. The fencing does not prevent trespass or illegal use of this area.

Undeveloped Portions - Moore Creek Wetland

The undeveloped portions of the unit consist of the Moore Creek wetland and open space near the former unit entrance at Delaware Avenue. The wetland provides habitat for plant and wildlife species and nature trails for observation and interpretation of these resources to visitors.

The open space that lies between Delaware Avenue and the visitor center was acquired following initial unit development. It serves as a natural buffer from adjacent neighborhood development. There are no known sensitive natural or cultural resources in this area. Remains of the original entrance road separate this area from the butterfly preserve and are used by maintenance vehicles, bicyclists, and pedestrians.

Proposed Land Use and Facilities

Proposals for Entrance - West Cliff Drive

The existing entrance and kiosk will remain until a new entrance can be developed from Delaware Avenue at Natural Bridges Drive. The overlook and entry area will continue to serve as a location for observation of the scenic coastline and ocean waves, with improved parking, fencing, and walkways. Coastal access and beach parking will be developed, with connecting bicycle and pedestrian paths. Ocean views from Swanton Boulevard will be enhanced by selective tree removal and realignment of the existing fence. The following guidelines have been prepared for this area:

- Continue to provide short-term parking for the scenic overlook by developing 25 spaces set back from the edge of the bluff.
- Also develop 80-space paved parking lot for beach access.
- Design the parking lot entry for a visitor contact station or optional metered parking.
- Improve vehicle access from Swanton Boulevard with adequate turn lanes.
- Develop extension or terminus for regional bicycle and pedestrian path.
- Design for walk-in access from sidewalks and bus stops.
- Relocate and design property fence near entry so as not to obstruct ocean views.
- Redirect beach access and stabilize dune and bluff vegetation.
- Reshape and stabilize dune at existing beach stairway.
- Construct access ramp from the new West Cliff Drive parking lot to beach-level restroom.
- Design for coastline observation and access with appropriate interpretive signs.
- Eventually close access to core area and direct visitors to new unit entrance at Delaware Avenue.

Proposed Main Entrance - Delaware Avenue

The main unit entrance will be developed from Delaware Avenue at Natural Bridges Drive. This location is the site of the original entrance in 1952, before surrounding streets and lands were developed. Convenient access is provided from Highway 1 for destination travelers to the state beach, while city streets appear adequate to serve visitor and local traffic demands. Visitors who continue to use West Cliff Drive as a scenic route will be directed along Swanton to the Delaware Avenue entrance. The existing interior road will be closed to visitor traffic and narrowed for bicyclists, pedestrians, and service or emergency vehicles only.

This new entrance with adequate turn lanes will provide a safer vehicle access into the main parking lot and day-use picnic area. The entrance road will provide access to a new parking lot and bus drop-off located near the visitor center, as well as provide a connection to the existing beach parking lot along the east side of the employee residence. Fencing and barrier planting will be provided along Delaware Avenue.

Proposed Entrance Station

A new entrance station will be constructed when the main unit entrance is developed off Delaware Avenue. This entrance station will include an employee restroom and ranger office space for unit operation.

Core Area

Besides direct access for beach users from West Cliff Drive, the plan also proposes developing the unit's core area. Separate parking is needed for school buses, tour groups, and individuals interested in picnicking, the visitor center, butterfly preserve interpretive opportunities, and beach use. Parking lot capacities are established for the desired level of visitor use of these facilities and resources, while also recognizing the number of walk-in and bike-in visitors. Design considerations for development in the core area are described below.

Parking and Picnic Areas

The existing core area parking lot will continue to serve beach-goers and picnickers. The present vehicle access to this parking lot from West Cliff Drive will be closed and access will be developed from the new entrance road at Delaware Avenue. Head-in parking will be available between the roadway and natural area. Buses will no longer park or circulate through this parking lot. School bus parking and drop-off locations will be designated closer to the new entrance and the expanded visitor center.

The current capacity of the parking lot will remain about the same (100 spaces), with some spaces relocated behind the existing residence. Picnic tables and barbecues should be moved away from the erodible slopes, and new facilities should be located in turf areas where asphalt parking and roadway will be removed. The total number of picnic sites will be increased from 31 to 45 tables.

A new 200 series comfort station accessible to elderly and disabled persons would replace the existing restroom at the picnic area. It should be located close to the parking lot entrance and Moore Creek trailhead. The existing restroom will be removed and the site developed as a scenic overlook and for interpretive purposes. The existing ramp from the restroom area to the Moore Creek picnic area will be improved for disabled access to the creek and beach.

Selective pruning and tree removal is recommended in areas along the bluff to open views to the ocean, shoreline, and coastal marsh. However, caution should be taken because this vegetation provides protection from offshore winds, making this a desirable picnic area.

Visitor Center and Day-Use Parking

A new 100-car paved parking lot will be developed near the new entrance, primarily to serve the visitor center and group picnic area. This parking lot should provide easy vehicle circulation, with pull-through parking spaces for larger recreation vehicles, as well as bus parking and a drop-off location. Employee and disabled parking spaces should be provided near the visitor center. Head-in parking will be designed along portions of the entrance road to serve adjacent picnic areas and provide access to trails.

An area development plan shall be prepared for the new parking lot and adjacent areas. The following guidelines for development are:

- Develop a pedestrian walkway and unit trails plan.
- Design a group picnic area near the new parking lot to accommodate school groups and outdoor classroom activities.
- Develop a tour group staging area at the bus drop-off location at the parking lot.
- Prepare a landscape planting, irrigation, and drainage plan that includes protective windbreaks and natural buffer areas between the parking and natural preserves. (Irrigation from landscaped areas should not enter either natural preserve area.)
- Provide area lighting, and informational and directional signing.

Visitor Center Expansion

The existing visitor center, exhibit room, and sales counter will be redesigned and expanded through a multi-phased construction program. The Monterey Bay Natural Historical Association is undertaking the task of building design, exhibit planning, and fund raising for expansion of the existing facility and interpretive programs. More specific discussion is provided in the Operations and Interpretive Elements of this general plan regarding interpretive themes, program objectives, and volunteer efforts.

The following summarizes the phased visitor center development and program objectives:

Phase I Existing Visitor Center

Rehabilitation of existing maintenance/storage area for exhibit room and interpretive sales counter. This phase was completed as a district/volunteer project in 1987.

Phase II Remodeling and Expansion (proposed)

Existing building will be remodeled to provide an enlarged exhibit area, public restrooms, and audio-visual/meeting room. Updating tour brochures and upgrading trails and signs will be accomplished in this phase.

Phase III Building Additions (proposed)

This phase will provide needed building space and complete the immediate program objectives. Specific proposals include:

- Doubling the size of exhibit room.
- Constructing room additions for decent office and sales.
- Constructing new entry and tour gathering area.
- Developing parking, walks, and outdoor staging area.

Monarch Butterfly Natural Preserve

The natural preserve will continue to be managed to protect the Monarch butterfly resource. Visitor use will be limited to nature trails, boardwalks, and overlooks constructed for observation and interpretation of the butterfly phenomenon occurring at this site.

Perimeter fencing along Swanton Boulevard and Delaware Avenue shall be maintained to restrict access into the preserve at these locations by visitors and feral animals. Additional fencing is needed near the Delaware Avenue entrance and along the preserve's eastern boundary, which parallels the existing park road. New fencing and replacements should simulate the existing fencing detail and weathered coastal look.

Nature trails through the preserve will be constructed and maintained for guided and self-guided nature walks. Trail routes shall avoid sensitive habitat areas, and the use of boardwalks and bridges is encouraged for protection of existing drainages and vegetation.

The existing boardwalk and viewing platform provides easy access to the central area within the eucalyptus forest for butterfly observation. No other trails shall be allowed within the overwintering site. The resource management program shall include efforts to close other access trails and revegetate these areas for protective barriers. Extended boardwalks and overlook platforms may be appropriate to enhance the interpretive values and serve the increasing number of visitors to this area.

The natural preserve includes a meadow area, which serves as a natural buffer between the butterfly site and adjacent residential development. No facilities shall be developed in this area, other than for nature trails and

interpretive purposes. Resource management programs should consider revegetation with desirable native plants and selected flowering plant species that provide a nectar source, or otherwise enhance the butterfly habitat.

The small pond and stream through this area supports the riparian vegetation and wildlife habitat. The presence of water, the plant species that attract the Monarch butterfly, and other important factors collectively create ideal microclimate conditions suitable for the butterflies. Proper vegetation management and water quality control become critical programs for the future existence of this overwintering site. New plantings or tree removal should consider their contribution as windbreaks and food sources and their impacts on temperature changes from sun and shade. Leaf size and texture, and the diversity or ratio of plant types, should also be considered. Specific criteria should be established for landscape maintenance and revegetation projects within the eucalyptus forest and riparian zone.

Proposed Moore Creek Wetland Natural Preserve

This area includes outstanding natural values associated with Moore Creek, the riparian corridor, coastal salt marsh and wetlands at the mouth, and wildlife habitat areas. In recognition of these outstanding natural values, this 14-acre area is proposed for classification as a natural preserve. The primary emphasis shall be directed towards preservation of the coastal salt marsh formed at the mouth of Moore Creek.

Visitor use will be limited primarily to nature walks and interpretation of the area's significant natural resources. Appropriate facilities to be constructed include trails, signs, boardwalks, and overlook platforms for interpretive purposes. The existing Moore Creek picnic area includes five picnic sites, which can remain so long as this activity does not have a negative impact on Moore Creek or other significant resources.

Perimeter fencing shall be constructed and/or maintained along the unit boundary at Delaware Avenue and adjacent to the De Anza mobile home development.

Trails will be established along existing routes through the preserve, providing access from day-use parking areas to Moore Creek, tidepools, and locations with outstanding views of the natural rock arch.

Beach

The existing combination shower-restroom building will be retained to serve general beach use. Stairways and disabled access shall be provided from trails and the new West Cliff Drive parking lot. Beach patrol and emergency vehicle access will be maintained.

Fire rings and signs are the only other permanent beach facilities that will be provided. Portable lifeguard towers will be provided and staffed seasonally, and hazard warning signs will be erected to improve visitor safety.

Employee Residence and Material Storage Area

The existing building may continue to serve as employee housing. A small attached garage should be constructed to replace the vehicle storage area lost to exhibit space in the visitor center. A new patio area should be constructed and the existing fencing around the material storage area should be removed. The site should be cleared of debris and the area reestablished as public open space.

Long-range proposals include removing the existing residence or rehabilitating it for adaptive re-use. The options for land use and facilities range from restoration of open space to building expansion for unit operations, visitor services, or interpretive program needs.

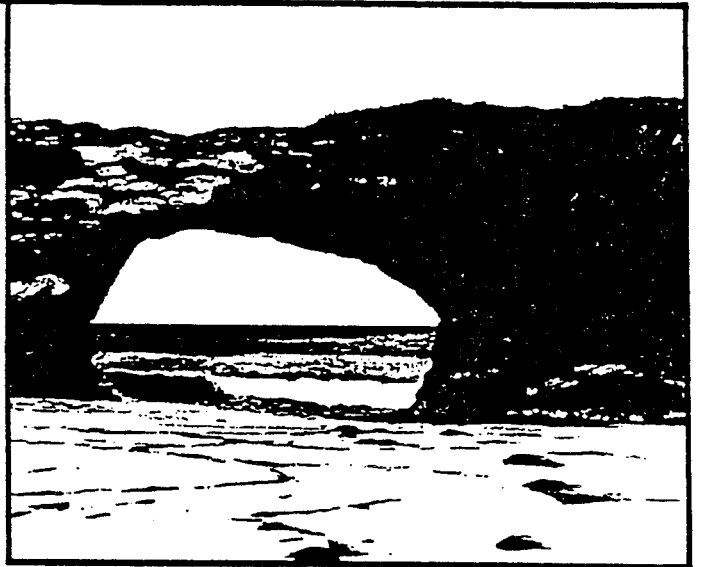
The various combinations of use for the residential area could include removal of existing structures and restoration of open space, with the development of an outdoor activity space related to the visitor center. It could also be rehabilitated for additional office and storage space, docent and employee work areas, kitchen and service areas, and classroom or meeting room. The structure itself could also be remodeled for a "caretaker apartment" as a part of one of the above options.

Proposed Maintenance Shop and Vehicle Storage Building

A new maintenance shop and vehicle storage building will be constructed in the vicinity of the new entrance. This structure and fenced service area will accommodate the groundskeeping, lifeguard, and other equipment and materials required for this unit. The building location should have vehicle access from the new entrance road as well as a separate driveway from Delaware Avenue. Parking space should be provided for maintenance and ranger vehicles between this building and the proposed entrance station.

The area development plan should allow for possible future expansion of these facilities, construction of a unit office, and/or employee trailer site.

Interpretive Element



INTERPRETIVE ELEMENT

Interpretive Considerations

Natural Bridges State Beach has many interpretive opportunities -- the coastal interaction represented by the natural bridge, the Monarch butterflies, the wetland habitat, and the tidepools. The current natural bridge, while appreciated for its scenic beauty, is not fully interpreted in terms of how it developed, what happened to the past bridges, and whether or not new bridges will be formed. The annual return of the Monarch butterflies to the unit's eucalyptus grove, among other places, draws thousands of people to the unit. An annual Monarch Days celebration commemorates the return of the Monarchs to the area. During the fall 1987 migration, 20,000 school children visited the butterfly trees for guided walks by the Monterey Bay Natural History Association docents. The butterflies are interpreted on these walks and in the unit's small visitor center, which is operated by the association. A milkweed patch is cultivated next to the visitor center to attract the butterflies closer to the building and to illustrate the life cycle of the Monarchs.

The visitor center at Natural Bridges State Beach has recently been expanded. It holds an interpretive panel entitled "Monarchs and Milkweed," an exhibit prepared by a local artist and the Santa Cruz City Museum about animal migration, a few mounted specimens of butterflies, and a sales counter. The exhibit room is crowded and can hold no more than six to eight visitors comfortably at one time.

The Monarch preserve is entered by a trail from the front of the visitor center that leads to a boardwalk and wooden platform among the eucalyptus trees. A handcrafted wooden sign near the boardwalk gives a brief interpretation of the Monarchs. A brochure about the Monarchs is also available. A recently constructed trail to the wooden platform provides access for disabled persons.

A self-guided loop nature walk has been developed by the docents. It follows the trail to the Monarch preserve, branches off before it reaches the wooden viewing platform, and runs up the ridge on the western side of the preserve. The trail follows the ridge to the grove of Monterey pines at the northern unit boundary. From there, the visitor can return to the unit office and visitor center. Another well-traveled trail continues from the Monterey pine grove toward the ocean, passing through the fresh and saltwater marsh before it reaches the beach. The California Conservation Corps was scheduled to connect the Monarch preserve trail, the nature loop trail, and the marsh trail to each other this year. Unit staff is preparing a self-guided trail brochure to be keyed to numbered posts along the marsh trail.

There are several interpretive panels around the unit in addition to those in the visitor center. In the parking area overlooking the natural bridge, a panel entitled "Fishing Birds" describes the cormorants that are often seen diving for fish from the rocks along the bluffs and beach. In the parking lot adjacent to the visitor center, a panel on gray whale migration overlooks the beach.

The tidepools along the beach are interpreted to the visitors by the docents on scheduled guided walks. A brochure is also available that details the habitats of the tidepools and describes some of the plants and animals that may be seen in the water.

A Ranger Explorer program, operated during the summer by the staff and docents, is an expanded Junior Ranger program, offering talks and walks in the unit, trips to nearby sites of interest, and overnight camping trips at other state parks.

Interpretive Period

The department will interpret the flow of history at Natural Bridges State Beach from geologic times to the present.

Interpretive Themes

Several themes are appropriate for interpretation at Natural Bridges State Beach. These themes cover the natural history of the beach and its present-day condition. The themes are as follows:

Primary Themes:

- A bill for every purpose
- The elegant insects with velvet wings
- Bridges built by time and nature
- Coastal wetlands are a vanishing resource

Secondary Themes:

- A delicate balance of life
- Staying safe at the beach

Expanded Themes

Primary Themes

A bill for every purpose: The shorebirds that visit Natural Bridges State Beach come to feed, to rest, and to breed. A greater understanding of the kinds of food these birds eat can be gained by observing their bills and where they are feeding. Those with long bills probe deep into the sand for the small creatures who live there. Those with short bills peck through the windrows of kelp and along the edges of the waves washing on the shore for crustaceans and marine worms. The birds also follow their food as it moves up and down the shore with the tides.

The elegant insects with velvet wings: The elegant Monarch is probably the world's best known butterfly. The annual migration of these insects takes two or three generations of the small travelers, each with an in-born knowledge of its direction and purpose. The Monarch Butterfly Natural Preserve within Natural Bridges State Beach includes a grove of eucalyptus trees that the butterflies have adopted as overwintering areas. So popular is the Monarch that annual celebrations are held when the flock returns to the Monterey Bay area. The story of where the Monarchs come from and why they migrate each year is of intense fascination to unit visitors.

Bridges built by time and nature: The natural bridge of today's Natural Bridges State Beach, and the natural bridges located there in the past, are all composed of Santa Cruz mudstone. This is a siliceous and slightly diatomaceous mudstone with interweavings of sandstone and siltstone. The resulting mass is highly subject to blockfalls, landslides, and erosion. The placement of the natural bridges at the ends of headlands is no coincidence. The headlands take the brunt of the waves before they reach the beaches, and the wave power erodes the soft sides of the headland mudstone. The erosion causes caves that gradually deepen into holes that grow until the rock left above is called a "bridge." The destruction of the outermost bridge in 1980 is evidence of the power of the waves crashing against the sea headlands.

Coastal wetlands are a vanishing resource: Few people venture into the marshy areas of Natural Bridges State Beach, but those who do become aware of a wide variety of animals and plants. Moore Creek is a miniature estuary. The wetland contains both salt and freshwater marshlands, each supporting different species. The tidewater goby (fish) is of special interest due to its declining population and limited habitat. Among the birds, snowy egret, willet, and black-necked stilt frequent the salt marsh; mallards, cinnamon teals, and long-billed marsh wren are found in the freshwater marsh. These birds come to the marsh areas largely because of the plethora of food available to them. The mud, water, and littoral zone of the marsh is nutrient rich and supports an abundant invertebrate population. Small to medium-sized herbivorous mammals -- such as the meadow mouse and the black-tailed hare -- forage on the seeds, roots, and fleshy stems of the grasses, ferns, and saltbush growing in the marsh. An understanding of the intricate ecological balance of the salt and freshwater marsh will help the visitor better appreciate the many different ecological zones of Natural Bridges State Beach.

Secondary Themes

A delicate balance of life: The tidepool areas of Natural Bridges State Beach support many diverse life forms. One thing the starfish, snails, sea urchins, fish, and seaweed have in common is a need for saltwater to survive. The ocean water holds their food, oxygen, and nutrients. The many adaptations of nature to an otherwise hostile environment often are of great interest to children and adults alike. Tidepool creatures are adapted to the daily fluctuation of the tides and can endure some period of time out of the water or in shallower water without harm. They cannot, however, live away from their tidepool homes or be entirely exposed to the air. A carelessly placed foot or hand can also cause irreparable damage. Visitors need to be informed of the delicate balance of life in the tidepools and their part in maintaining it.

Staying safe at the beach: Natural Bridges State Beach is a popular recreation beach. Wind surfing, board surfing, swimming, and other ocean-oriented sports occur here. But the seemingly quiet waters of the ocean off Natural Bridges State Beach hide rip currents and undertows that can turn a day at the beach into a tragedy.

Proposed Interpretation

Facilities and Media

The constant attendance at the visitor center warrants its expansion. An exhibit room twice to four times the size of the one currently available could be comfortably used. Accompanying storage space, audio-visual facilities, office space, and a sales area would be necessary. The area outside the visitor center should be landscaped with winter-flowering native plants that will attract the Monarch butterflies to the vicinity.

The trail to the Monarch preserve has been made disabled-accessible. Interpretation of the Monarch butterflies at the wooden viewing platform should be expanded by the installation of low-profile interpretive panels about the Monarch's life cycle and migration habits.

The existing trail in the Moore Creek wetland through the fresh and saltwater marsh should be made more usable by the installation of boardwalks over the wetter places. These boardwalks would also protect the fragile plants and animals that live in the marshes. Viewing platforms or vista areas should be built into these boardwalks by widening the boardwalk at appropriate places. Simple benches could be built into the vista points to allow the visitors to sit and comfortably observe the marsh around them.

Interpretive panels on the theme of the natural bridge and future natural bridges should be located at the vista point overlooking the formations and at other locations along trails and overlooks with outstanding views toward the rock arch. Interpretive panels on the shorebirds and the tidepools could also be located there.

When the overlook at the end of West Cliff Drive is renovated and more space become available for interpretation, low-profile panels describing the geology, biology, and other natural history aspects of the area should be concentrated in the area. Seating space, perhaps benches, would be useful for visitors who want to stop to reflect on the scene before them.

Visitor Activities

All present visitor activities provided by unit staff and docents should be continued.

Interpretive Concessions

At present, there are no interpretive concessions at Natural Bridges State Beach (see Concessions Element).

Interpretive Associations

The Monterey Bay Natural Historical Association is very active, providing excellent service to the public and the department, and is expected to continue to expand to meet the needs of the unit and its visitors.

Interpretive Collections

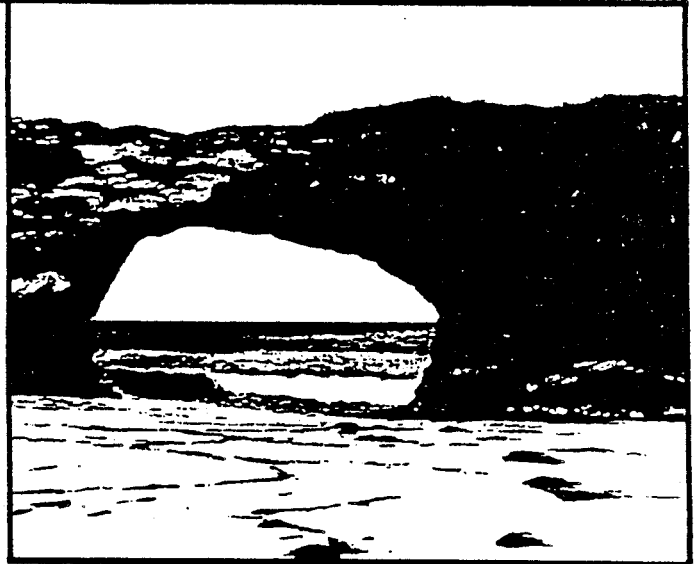
Natural Bridges State Beach has a small collection of mounted Monarch butterfly specimens. This collection should be supplemented with specimens of species of animals, insects, and plants found at the unit. Specimens could be used as part of the displays in the visitor center or as hand-held objects in interpretive programs.

Recommendations

Interpretive Priorities

1. Install interpretive panels on the disabled access trail and at the observation platform in the Monarch Butterfly Natural Preserve.
2. Install interpretive panels at vista points.
3. Add boardwalks and viewing platforms on the marsh nature trail in the Moore Creek wetland.
4. Expand the visitor center.
5. Expand mounted specimen collection.

Operations Element



OPERATIONS ELEMENT

Existing Operations Summary

Natural Bridges State Beach is operated as part of the Pajaro Coast District and is managed by the district superintendent, chief ranger, and maintenance chief. Administrative services are provided from the district office located in Aptos. Visitor services and maintenance are provided daily by assigned district staff. Volunteers are active in the interpretation of the unit's features.

Maintenance

Natural Bridges State Beach is currently administered for maintenance purposes as part of the west sector within the Pajaro Coast District. (In addition to this unit, the sector consists of New Brighton State Beach, Twin Lakes State Beach, Santa Cruz Mission State Historic Park, and Wilder Ranch State Park.) The current unit staffing is one park maintenance assistant (PMA) and one person-year of seasonal park aide. The PMA has the responsibility of the two restrooms, kiosk, parking areas, picnic area, visitor center, trails, and boardwalk within the Monarch Butterfly Natural Preserve. The PMA currently is lead person for court referral and work release programs, which greatly assist in the clean-up of the unit along with tree and landscape maintenance.

Law Enforcement

This unit has moderate, and occasionally serious, law enforcement problems. The most common violations include drug and alcohol-related crimes, auto burglaries, theft, vandalism, littering, and poaching. However, sexual assaults, aggravated assaults, and even murder have occurred within the unit.

Several law enforcement problems are visible to many visitors. Undeveloped areas of the unit have become havens for many homeless people and people released from community shelters. Many Class 1 crimes have been reported, such as rape and assault. Drug transactions and even cultivation occur. Vandalism to state property is extensive.

The popularity of the beach and wave zones for surfing draws large numbers of youths. A substantial percentage of these individuals break the law. Nonpayment of fees, failure to observe closing times, destruction of planted areas, and vandalism to fences and signs are frequent violations.

In addition, many visitors leave valuable items visible inside their vehicles, which encourages many auto burglaries.

A particular law enforcement and resource management problem has developed over the last four to five years. Many individuals from outside the area are unaware or unsure of the laws that govern the protection of the natural features within the unit. Illegal fishing (clamming, abalone and mussel taking) presents a major problem. This improper use adversely affects the unit's environment and creates increased work for the staff.

Visitor and Aquatic Safety

The one-quarter-mile sandy beach is one of the main attractions at this unit. Offshore are submarine reefs and rocky outcroppings. The surf that breaks over these reefs makes it a popular board surfing location in the winter months. These areas are extremely dangerous to those who are unprepared or inexperienced. Other aquatic activities include swimming, wind surfing, body surfing, kayaking, skin/scuba diving, fishing, and tidepooling. The large number of surfers in the area results in occasional injuries, mostly to those who are new to the sport. Usual injuries are either cuts and bruises from collisions with the rocky shoreline or hypothermia from the frigid water.

The beach can also be dangerous to many users due to recurring rip currents and a strong shorebreak. The downcoast current can build during large swells and assist in producing sudden and powerful rip currents. The tidepool areas at the northern end of the sandy beach present a potential hazard due to the slippery rocks and unexpected wave action, resulting in minor and moderate injuries. Docent-led walks tend to cut down on injuries since these volunteers are trained in accident prevention.

From late June to August, the predominant northwest winds at the unit produce ideal conditions for wind surfing. Many of these enthusiasts can be found launching their craft from the beach. Strong winds combined with sudden changes in direction can take wind surfers out to sea.

There is no lifeguard service currently assigned to Natural Bridges State Beach. District lifeguard personnel are available to respond to emergencies only. During an aquatic-related emergency, the normal patrol areas are left uncovered by lifeguard personnel. Delayed response makes successful rescues difficult.

The natural arch has been impacted by concentrated visitor use, and is sometimes the site of accidents. Visitors can be stranded on the portion of beach behind the arch by incoming tides. Visitors also often ignore the warning signs and protective fencing around the overlook parking lot and venture out onto crumbling bedrock ledges and ice plant-covered slopes. Injuries result when they lose their footing and fall to the rocks below or into the water.

Illegal campers, both in the unit's interior and on the beach, have been assaulted. After-hour use has also resulted in fatal accidents.

Volunteerism

As previously stated in the Interpretive Element, the Monterey Bay Natural Historical Association operates a small visitor center at the unit. Docents lead tidepool and butterfly walks daily. An extensive school group program is also operated by the association. A unique new program, Ranger Explorers, offers two sessions to local youths during the summer months. The association employs two naturalists who are also employed seasonally as state park interpreters by the district. An established Monarch butterfly access trail is used and maintained, in part, by association members.

The visitor center is operated entirely with docent staff. Revenue is generated by publication sales and by fees paid to the Ranger Explorer program. The association also obtains funds through a service aid program in which paid association members assist the district in fee collections in return for a percentage of the funds. Funds are also raised by the association through special events. The two major events are Monarch Days and the Migration Festival. The money that is raised is used to employ personnel for the association, construct museums, interpretive displays, and trails at State Park System units in the area, and produce publications.

Special Management Considerations

Jurisdictions

The unit lies entirely within the City of Santa Cruz. Planning of activities, projects, and development should be carefully coordinated with the appropriate city department to assure that its concerns are addressed to avoid potential misunderstandings and conflicts.

The coastal area west of the unit is owned by the University of California at Santa Cruz. Interpretation and visitor safety in the tidepool area are a joint operation and concern of UC Santa Cruz and the department. Close ties should continue with the university.

Traffic

The unit lies within a heavily visited coastal resort community. The traffic patterns around the unit are notoriously gridlocked on all summer days and winter weekends. This mechanical isolation of the unit has caused delayed responses by emergency personnel.

The Monarch Butterfly Natural Preserve

This heavily visited attraction has caused an increased need for visitor services and impact control. Current measures include a new, large staff of docent volunteers, a viewing platform with railings in the preserve, a boardwalk, and a self-guided nature trail. Pruning of eucalyptus is done throughout the year to reduce the hazard of falling branches on trails and overlooks.

Tidepools

This area has been controlled and monitored by unit staff for many years. The result has been a continuing abundant resource.

The Sandy Beach

The yearly ebb and flow of beach sand at this unit is much greater than that inside Monterey Bay (Natural Bridges is considered to be situated directly on the Pacific Ocean). The wind and waves work on the sand, causing it to block Moore Creek at its mouth, flood the beach, block drainage from the butterfly pond, and cover the unit's roads and overlook parking areas. In the past, exotic ice plant and some native willows have been planted to stabilize

blowing sand. These efforts were minimal and reduced the sand movement only slightly. Special consideration should be given to sand control on the beach and its impact on the proposed Moore Creek Wetlands Natural Preserve. This issue will be addressed in a forthcoming resource management plan.

The Eucalyptus Grove

The large stand of blue and red gum eucalyptus trees, which provides the necessary shelter for the migrating Monarch butterflies, also creates a maintenance problem from falling leaves, seed pods, limbs, and entire trees. The trees are adversely affected by the marine environment. Blowing salt air and sand cause an accelerated dieback rate within the grove.

Open, Undeveloped Areas

Over half the unit is in this category. Open fields with brush and trees scattered throughout create a potential fire hazard. These areas are used by illegal campers, and small brush fires from untended campfires are common.

Operational Goals and Implementation

Natural Bridges State Beach is noted for its ocean-carved arch, tidepools, sandy beaches, and Monarch butterfly eucalyptus groves. It is the declared purpose of the department to provide appropriate and necessary protection to maintain and perpetuate the resource values. As long as special programs and events can continue to be conducted without compromise to the perpetuation of these and other features, they should be encouraged by the district.

Public recreational use at the unit has included water-oriented sports, hiking, nature study, picnicking, and other such compatible day-use activities. Unit staff shall seek to identify improvements or ways to reasonably facilitate compatible general public recreational use without compromising the natural resources and visitor safety. Permission for recreational activities sponsored by individuals or organizations may be granted by special event permit, provided that the activities do not conflict with the purpose of the unit and State Park System rules, regulations, policies, and orders. The unit's sensitive natural resource areas shall receive special care when any activity is conducted within them. Proposed activities and development within these areas shall be described in writing, reviewed by the district superintendent and regional resource ecologist, and forwarded for reviews if required by the California Environmental Quality Act.

Maintenance

Facility maintenance and housekeeping shall be conducted in a manner appropriate to meet standards for public health and safety, to maintain public and departmental expectations for cleanliness and appearance, to meet security requirements, and to extend the life span of facilities, tools, and equipment.

The unit does not now have buildings suitable for equipment storage or to serve as an adequate shop area. To accommodate these needs, the plan proposes to construct a maintenance support building. Additional staffing will be required to maintain additional facilities and meet expanded program needs.

Journey-level maintenance workers will be needed to maintain, repair, and fabricate items necessary to operate the unit. Housekeeping and groundskeeping personnel will also be required.

Law Enforcement

State park peace officers receive law enforcement assistance from the Santa Cruz Police Department, and they also provide assistance to the police department in apprehending suspects and in cliff and surf rescues.

A high-profile law enforcement presence is currently an appropriate level of response to the unit's enforcement problems. Should visitor use patterns change decidedly, however, the level of response may need to be reviewed by the district superintendent and modified. Regular patrols will be performed to establish a law enforcement presence.

A crime prevention program will be established to reduce vandalism, theft, burglary, drug use, assaults, poaching, and other adverse activities affecting visitor security or the integrity of resources and facilities. This program may be fashioned on the current department program or modified to meet specific unit needs. The program will include the anticipation, recognition, and appraisal of the crime risks and the initiation of action to prevent or reduce them. This crime prevention program shall take a pro-active approach to the management of public safety concerns. Citizen education and participation will be essential to this program. The objective will be to educate and guide the citizen toward preventive action.

Visitor and Aquatic Safety

Due to the configuration of the coastline at this unit, combined with the year-round visitation, immediate aquatic response is necessary daily all year. At least two lifeguard stations are necessary to meet current public safety needs. Additional stations may be needed to meet future needs. The two stations are also needed for employee safety to provide immediate back-up for aquatic rescues and major medical incidents.

Staffing will be provided to appropriately operate the necessary lifeguard stations on weekends and holidays, March through May and September through October. Summer months (June through Labor Day weekend) staffing will be required seven days per week. Additional staffing may be necessary as visitation increases and/or as types of activities change.

Additional equipment should be acquired to provide for safe and efficient rescue operations. Necessary equipment should include a rescue boat to meet the demands of increasing visitation and wind surfing.

Resource Management

Natural Preserve: To ensure the protection of the unique features found within unit boundaries, and at the same time provide visitor use and enjoyment of the unit, both the number of visitors and their use patterns will be monitored and controlled by the staff. A fire management program will be established to reduce the risk of wildfire within the preserve. The removal

of accumulated tree litter shall be part of the program. Tree hazard control shall continue to provide for visitor and employee safety and to protect facilities.

Sandy Beach, Dunes, and Bluffs: This unit will need to institute a sand dune restoration program in consultation and coordination with the regional resource ecologist. Blowing sand has buried emerging vegetation and adjacent unit roads and parking lots. Initial sand dune restoration and stabilization takes approximately three to five years to bring an area back to a desired point of equilibrium. An ongoing program to contain blowouts, remove sand from paved areas, and replace boardwalks and fences will be needed to maintain facilities for visitor access and control. Continued monitoring, quick repair of unnatural erosion, and the placement or removal of stabilization devices will be part of the program.

Tidepools: The main attraction at the tidepools are the invertebrates. These life forms are very fragile and need protection. To sustain this ecosystem, at least two items must be addressed. First, visitor use patterns, and second, poaching of tidal invertebrates. Unit staff shall monitor and control both the numbers of visitors that enter the tidepool areas and the way visitors use the area. Laws against poaching shall be enforced by state park peace officers and Department of Fish and Game wardens.

Animal Control: Unit staff will remove and control feral cats and dogs that endanger native wildlife and unit visitors.

Salt and Freshwater Marsh: The salt and freshwater marsh created by Moore Creek will be managed in accordance with established resource management practices. This area has been recommended for inclusion as a natural preserve within the unit.

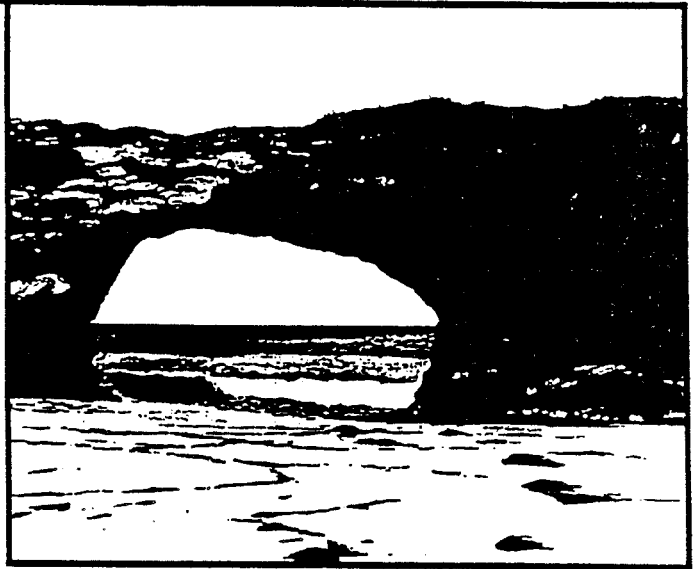
Volunteerism

The docent program at Natural Bridges State Beach will become a year-round program. Monarch butterfly tours will be conducted in the fall and winter months. Spring and summer will include tidepool and general interest hikes. As the visitor center expands, additional docent staffing will be required to operate this facility.

In addition, many extensive volunteer projects are slated for the future. These projects include: a boardwalk trail for disabled persons into the Monarch Butterfly Natural Preserve, and partial fencing of the Monarch preserve on the west side. Restoration and management of the saltwater marsh will also be partially accomplished with volunteers in consultation and coordination with the regional resource ecologist.

Approximately 200-250 docents will be needed for the expanded volunteer program at the unit.

Concessions Element



CONCESSIONS ELEMENT

The purpose of a Concessions Element is to evaluate existing and potential concessions in accordance with the Public Resources Code, Section 5080.03 et seq., and unit classification.

The Public Resources Code, Section 5080.03(c), states:

"With respect to any unit of the State Park System for which a general development plan has been approved by the commission, any proposed concession at that unit shall be compatible with that plan."

Objectives

The objectives of a Concessions Element are:

- To examine previous or existing concessions within a unit.
- To examine current and future visitor needs for concession services.
- To examine unit needs for any development, services, and the like that may be included in a concession contract.
- To recommend appropriate concessions for a unit in accordance with the Public Resources Code, Park and Recreation Commission policy, and findings presented in other elements of the general plan.
- To examine a concession's relationship with cooperating associations, docent groups, and any other nonprofit organizations affiliated with the unit.

The Concessions Element is a guide to assist in the development of concessions within State Park System units. The Concessions Element should provide direction on the appropriateness of a concession within a specified unit and assure consistent management practices.

The intent of a concession is to provide the public with goods, services, or facilities, for a specified period of time, that the department cannot provide as conveniently or efficiently. Concessions should not create an added financial burden and, whenever possible, should reduce costs and/or generate revenues to aid in the maintenance of the State Park System. Concessions shall not be entered into solely for their revenue-producing potential.

Analysis

A Concessions Element is divided into the following parts: Concession History, describing previous concessions at the unit; Current Concession Services and Facilities, describing terms and services provided under existing contracts; and Concession Recommendations, both short- and long-term.

Concession History

Concession services have not been offered at Natural Bridges State Beach in the past.

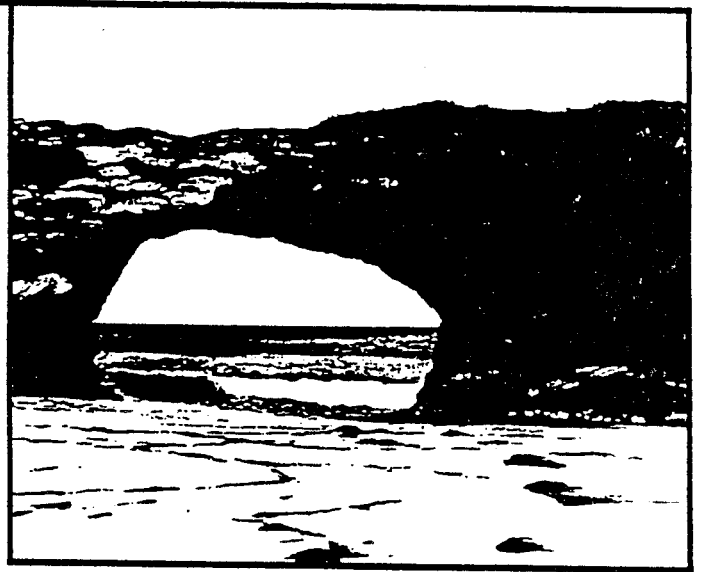
Current Concession Services and Facilities

Currently, no concession services or facilities are provided at Natural Bridges State Beach. However, the Monterey Bay Natural History Association provides interpretation of the unit and offers literature, post cards, and other interpretive material for sale to visitors (see Interpretive Element).

Concession Recommendations

No concession services or facilities are recommended at this time for Natural Bridges State Beach because there is no recognized need. It is not possible at this time to predict all potential concession activities. Specific concession proposals will be studied on a case-by-case basis for feasibility and appropriateness.

Environmental Impact Element



ENVIRONMENTAL IMPACT ELEMENT

The general plan, with all its elements, constitutes an environmental impact report (EIR) as required by state law (Public Resources Code Sections 5002.2 and 21000 et seq.). The Environmental Impact Element will discuss the topics usually discussed in an EIR.

When a point has been adequately discussed in another element of this general plan, it is mentioned in this element by reference to that discussion to avoid redundancy.

Summary

Following are the major environmental effects that will result from implementation of this project, and the major mitigation measures that will reduce or eliminate those environmental effects.

In general, the proposals at Natural Bridges State Beach will benefit the unit's environment and improve facilities for the public.

Project Description

The Resource Element, the Land Use and Facilities Element, the Operations Element, and the Concessions Element in this plan propose how the unit will be used, how resources will be protected, and what facilities will be constructed.

Description of the Environmental Setting

Please refer to the Resource Element for a description of the natural and cultural environment of this unit. The Land Use and Facilities Element and, to a lesser degree, other elements also describe the existing natural environment and human influences on the environment.

In addition to those descriptions of the local environmental setting, please note the following:

Air Quality

Air quality along the Monterey Bay coast is generally good because of the influx of clean air off the Pacific Ocean. The Salinas II Monitoring Station records in 1985 indicated that gaseous and particulate pollutants were below state and national standards during the period when records were kept. Records at other Central Coast monitoring stations substantiated these findings, but their records were less complete. However, the Monterey Bay Unified Air Pollution District is currently not attaining the standards for ozone.

Circulation

Road access to Natural Bridges State Beach is via West Cliff Drive in the City of Santa Cruz. (See the Land Use and Facilities Element for details on circulation at the entrance and within the unit.) West Cliff Drive is located along the ocean bluff between the ocean and residential areas. Access to West Cliff Drive and the unit's entrance is also provided from Swanton Boulevard.

Public Services

Water, sewer, telephone, and electric services are provided to this unit. There are two restrooms that are connected to the City of Santa Cruz's sewer system.

(Also see the Operations Element for existing public safety, law enforcement, and aquatic safety procedures, and personnel responsibilities and capabilities.)

Significant Environmental Effects of the Proposed Project

Most of the proposals as described in the Land Use and Facilities Element and the Resource Element will ameliorate existing adverse conditions at Natural Bridges State Beach. Several possible significant effects to the environment, which already exist or may be caused by the project, are:

Soils and Geology: The natural bridges were formed and destroyed by wave action. Human use along the cliffs and beach have disturbed soils and geological and paleontological resources.

Proposed improvements for parking and buildings, and construction of other facilities and trails, could disturb or denude soil in the unit.

Energy: The use of energy by construction equipment will be a short-term effect. Long-term energy uses will include maintenance, emergency and patrol vehicles, and vehicles driven by the public to reach the unit.

Vegetation and Wildlife: Some native vegetation and wildlife may be minimally affected by proposed project construction and, intentionally or unintentionally, by the public. No rare or endangered plants are present at this unit. The state-listed (threatened) Guadalupe fur seal may venture near the beach, and the federally listed (threatened) southern sea otter has been seen offshore. The Monarch Butterfly Natural Preserve, the Moore Creek drainage, the tidepools, and other areas in the unit are rich in plant and animal life. Offsite influences and development and uses within the unit are a potential threat to these resources.

Esthetics: A few worn-out facilities and areas are currently unesthetic. The proposed project will improve esthetics, as well as other conditions. This will be discussed further under Mitigation Measures, below.

Traffic Circulation: The proposed entrance on the north side of the unit from Natural Bridges Drive and Delaware Avenue will alter the traffic patterns to the unit. Traffic will increase on these two streets but decrease on West Cliff Drive and Swanton Boulevard.

Increased parking will help alleviate some of the need for additional parking for beach access.

Public Services: This plan proposes continued services. One restroom will be constructed as a replacement for the one removed.

Recreation Safety: Certain hazards exist for the unwary recreationist. These include ocean or surf hazards such as riptides, tides, and unexpected high waves. Winter storms and rare tsunami conditions are especially dangerous. There are also hazards on the cliffs and rocks (see the Operations Element).

Mitigation Measures

The resource management policies in the Resource Element should be referred to for guidance on the protection of the unit's natural and cultural resources. Several mitigation measures are specified here.

Soils and Geology: Proposed roads, parking area, and trails in the state beach and trails in the state preserve will be designed so that water runoff will not erode soils. Design features such as water bars and boardwalks and landscaping with native vegetation will help prevent soil erosion.

Signs and fencing will be installed to keep people off the cliffs and fragile sites.

Beach erosion is a regional and statewide problem. The department will work with the Corps of Engineers and other agencies in finding long-range solutions (see Resource Element policies).

Energy: Use of construction machinery will be minimized to conserve energy.

Vegetation and Wildlife: Resource policies in the Resource Element for plants and animals will be followed. Site-specific plant surveys will be made prior to development of trails and facilities. Based on these surveys, facilities and trails will be sited so that all sensitive resources are avoided.

The boardwalks and marked trails through the Monarch butterfly preserve will help protect vegetation and other wildlife. Existing and new interpretive displays will also educate the public and make them more aware of the biota of this unit. Proposed fencing will help to protect these resources.

Esthetics: The proposed project will improve esthetics throughout the developed area.

The project will: 1) rehabilitate areas that have received heavy use that has left visual scars on soils; 2) construct new facilities that are visually attractive; 3) design access and trails that will protect cliffs, dunes, and other soils and vegetation and will look attractive; 4) landscape and screen with an emphasis on native vegetation; 5) develop a new scenic overlook above the beach in place of a poorly sited restroom; and 6) redevelop the existing scenic overlook above the natural rock bridge to provide space for walking and sitting where parking currently takes place.

Traffic: The new access, improved circulation, and increased parking will help mitigate current parking and circulation problems. Access points will be coordinated with the City of Santa Cruz.

Delaware Avenue would provide access and parking for the Monarch Butterfly Natural Preserve and the proposed Moore Creek Wetland Natural Preserve. The beach can also be reached from these parking lots. West Cliff Drive and

Swanton Boulevard would continue to provide access to a parking lot for overlook parking near the natural bridge and to a larger parking area for beach users. There will be no vehicle access to the parking areas for the preserves from West Cliff Drive, as at present. The existing road will remain open for bicycle and pedestrian use.

Beach Safety: Unit personnel, with backup help from the city, will help visitors needing emergency attention. Signs warning visitors about surf conditions or that a lifeguard may not be on duty will be prominently displayed.

Interpretive displays and unit personnel will assist informing the public.

Any Significant Environmental Effects That Cannot Be Avoided if the Proposal is Implemented

Most environmental problems can be effectively mitigated, as described in this plan. Traffic problems on peak days will be one problem that cannot be mitigated. These occasions would be infrequent, and this is not considered a significant effect.

Alternatives to Proposed Project

The preferred alternative is described in this plan. None of the alternatives considered differ significantly from the proposed plan.

Other alternatives would be variations of the proposed plan. For example, there could be variations in the size of the parking lots, or the current entrance could be retained off of West Cliff Drive.

The No Project alternative was also assessed. All existing problems described in this element would probably be exacerbated by this alternative.

Relationship Between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

The proposed short-term uses of the unit will be similar to present uses. The proposed project should be a long-term solution to the needs of the public for parking, equestrian trails, beach access, improved maintenance, and visitor protection. In addition, the natural resources will be better protected.

Any Significant Irreversible Environmental Changes if the Proposed Project is Implemented

Nonrenewable resources, such as oil and gasoline, would be used to construct roads, parking areas, and other facilities.

Growth-Inducing Impacts of Proposed Project

This project will not increase human population in the area. The number of parking spaces being proposed is about the same as the number of cars that now park in the parking lot and along the entrance road on a weekend day. Occasions when parking reaches capacity are infrequent, and this is not a significant effect.

COMMENTS AND RESPONSES

General Plans and Draft Environmental Elements

Twin Lakes State Beach

Natural Bridges State Beach

SCH #86011401

Review copies were provided to the following on June 29, 1988. The review period ended on August 12, 1988.

State Clearinghouse (10 copies)

The Honorable Sam Farr

The Honorable Henry J. Mello

U.S. Army Corps of Engineers

U.S. Fish and Wildlife Service

California Coastal Commission

California State Lands Commission

Association of Monterey Bay Area Governments

Santa Cruz County Planning Department

Santa Cruz County Parks Department

Santa Cruz Port District

City of Santa Cruz

Santa Cruz City Museum

Santa Cruz Transportation

Santa Cruz Historical Society

Santa Cruz County Hostel Society

Seabright Homeowners' Association

Sierra Club

Point Reyes Bird Observatory

California Native Plant Society

Mr. Robert Lincoln

Mr. Alan B. Simpkins

Mr. Jim Thoits

Mr. David Brockman

Mr. R. Pat Smith

A notice announcing location of copies of documents for public review was published in the following newspaper:

Santa Cruz Sentinel

Documents were available at the following locations for public review:

Santa Cruz Public Library System
Central Library
224 Church Street
Santa Cruz, CA 95060

Santa Cruz Public Library System
Garfield Park Branch
705 Woodrow Avenue
Santa Cruz, CA 95060

Santa Cruz Public Library System
Branciforte Library
230 Gault Street
Santa Cruz, CA 95060

Department of Parks and Recreation
Central Coast Region Headquarters
2211 Garden Road
Monterey, CA 93940

Department of Parks and Recreation
Pajaro Coast District Office
7500 Soquel Drive
Aptos, CA 95003

Comments were received from the following agencies, organizations, and individuals:

California Coastal Commission, Central Coast District
County of Santa Cruz, Planning Department
Sierra Club, Ventana Chapter, Santa Cruz Regional Group
Mr. Alan B. Simpkins
Mr. Harry J. Resoner

RESPONSES TO COMMENTS

The responses below correspond to the numbers in the right margins of the five (5) letters of comments that were received for the two General Plans. In order to avoid confusion, the responses to comments are done separately for Twin Lakes and Natural Bridges State Beaches. The abbreviations T.L. or N.B. are used for Twin Lakes State Beach or Natural Bridges State Beach, respectively.

NATURAL BRIDGES STATE BEACH

California Coastal Commission

1. N.B. - "The eucalyptus trees that are used for overwintering sites for the Monarch butterfly shall be preserved."

This policy statement is for all eucalyptus that are shown to serve the butterflies in the State Beach and not just those found within the Monarch Butterfly Natural Preserve. The Department will initiate a study to evaluate these trees that are used by the butterflies.

2. N.B. - Milkweed, the host plant for Monarch butterfly larvae does not exist here. Monarch butterflies use this area mainly for wintering. Revegetation with desirable native plants and selected flowering plant species that provide a nectar source or otherwise enhance the butterfly habitat will not be limited to the preserve.

3. N.B. - The Department is developing procedures to improve and coordinate the multitudes of permits, etc., required for various projects.

The Department will do a detailed environmental assessment prior to constructing new facilities in the unit. Resource ecologists in the Department will help assess the environmental impacts and will use guidelines such as "Guidelines for the Protection of Monarch Butterfly Overwintering Sites in California" by the Monarch Project, June 1988.

4. N.B. - The plan does not propose to continue the circulation of the bicycle route on the current road near the existing visitor center. The intent is to restrict the area in front of the visitor center to pedestrians only. This will be designed in conjunction with the visitor center to act as a tour assembly area once the total plan is implemented. The details of the exact bike route will be refined as a part of future area development plans.

The present city bicycle route along Swanton Avenue should continue as an alternate to the internal route when the unit is closed or for those not wishing to leisurely use the park.

5. N.B. - Unit interpretation will always have the opportunity to include or expand interpretation beyond that in the unit if adequate staffing or docent levels make this a possibility.

Parking proposed in this plan may at some point complement the trails outside the unit. However, that will require coordination with this park unit, specific visitor use, and seasonal needs. It would not be desirable to increase parking beyond the present proposal.

Sierra Club

6. N.B. - The proposed plan as discussed in the resource element and land use and facilities element are in basic agreement with the principles suggested in this comment. The Department will restore damaged areas.

Attention to these details will be a part of any future site specific plans.

7. N.B. - Erosion control is part of the plan. The multi-visitor use and resulting conflict of parking and circulation has been collectively discussed in various sections of the land use element.

The 400,000 a year visitor use pattern varies depending on the overlap of weather, tides, special events, and seasonal nature interests. However, continual observation of public use and related parking and circulation has demonstrated that "status quo" is detrimental to the public's safe and quality enjoyment of and protection of key resources.

It would be very desirable for everyone to individually experience nature free of man-made structures and controls. However, planning has to consider the established use patterns in an older existing unit in close proximity to a dense population. The design layout has attempted to organize the circulation of individuals, school groups, elderly, handicapped, tour groups, and those interested in general beach access. Where possible, it has taken advantage of existing facilities which are appropriate for continued use, allowing for earlier phasing of the various goals of the plan.

8. N.B. - The plan attempts to provide for some of the anticipated parking requirements on site. It recognizes that the street parking will be heavily used by beach users and that future community developments served by Delaware Street may reduce the present capacity.

This is a long-range plan that reflects the potential maximum on-site parking. Actual parking development will be phased with corresponding existing conditions.

Native plantings will be included in any future detailed plans to screen outside development or for internal rehabilitation requirements. Please see response 7 N.B.

9. N.B. - Internal vehicular access from Delaware Street was moved away from the upper edge of the Monarch Butterfly Preserve to insure air quality and sound control in the preserve.

It is felt that the plan should include convenient circulation and parking for buses within the park property. The street parking is not guaranteed in future years.

10. N.B. - These thoughts will be considered in future detailed restoration of the area. The Department plans to restore the area in the picnic area that shows signs of soil erosion.
11. N.B. - Future management plans for this area will include the evaluation of this pond and careful protection of its relationship to the Monarch butterfly.
12. N.B. - Future designs that are beyond the detail of this General Plan will evaluate appropriate drainage control to protect the unit's resources.
13. N.B. - Future development plans will provide screen planting to enhance views and soften impact and development. Random picnic tables can be included.
14. N.B. - All unused or inappropriate roadways will be obliterated and the disturbed areas restored to a more natural condition.

Harry J. Resoner

15. N.B. - Please see response 7 N.B.
16. N.B. - The redesign, within the existing visitor center site, will include a better organization for arrival, sightseeing, and exiting. Please see response 7 N.B.
17. N.B. - The parking lot will be reduced to improve picnic sites away from the bluffs and the archeological site. The restroom will be relocated. It will be relocated away from the fragile bluffs. New plantings in the area will be made with native plants.
18. N.B. - The known archeological site will be protected. See pages 16 and 26 in Preliminary General Plan. No reestablishment of an Indian village is proposed.
19. N.B. - The plan identifies specific areas of the park for full preservation status adjacent to the meadow. Well-designed use of this open space will make it possible to redirect the visitors and provide improved protection of those specific unit resources. Please see response 7 N.B.
20. N.B. - This area is definitely in need of esthetic improvement. However, with or without provision of parking on state property, this area adjacent to a city population will receive heavy beach access use. We feel it is better to recognize the demand and design for it. Please see response 8 N.B.

21. N.B. - This plan discusses sand dune restoration and protection, visitor needs including beach access, and the need for more parking. It also discusses exotic and native species. Removal of any exotic plant would be replaced with a native plant.
22. N.B. - The project does not propose any type of camping in this unit due to its day-use demands and limited land base for appropriate separation (size of area).

TWIN LAKES STATE BEACH

California Coastal Commission

1. T.L. - The remains of the railroad trestle do have historical value and should be a part of the interpretive program. The remains could also be a hazard to swimmers and signs should be posted.
2. T.L. - The seawall discussed in the plan assumes that such construction could happen within the county road right-of-way along with improved road alignments where necessary.
3. T.L. - This pertinent material will be appropriately referenced in the final text.
4. T.L. - The "Guidelines for the Protection of Monarch Butterflies Overwintering Sites in California" will be referenced in the final General Plan. The Department's field staff and resource ecologists have not rated a significant number of Monarch butterflies overwintering in the eucalyptus trees in Twin Lakes State Beach. Trees that are being used by the butterfly would not be removed.
5. T.L. - The algal blooms present in drought years is unfortunate. Unfortunately, vandals released freshwater earlier this year (1988) which has compounded the problem. Most years would not have this severe and abnormal a problem. The Department will continue to seek a solution to this problem.

The history of how Schwan's Lagoon has evolved from a natural tidal estuary to a freshwater lake is discussed on pages 23 and 24. It would be difficult to revert Schwan's Lagoon back to a natural estuary. There is also a value and a need for freshwater lagoon as well as brackish estuaries.

The Department is studying the non-native waterfowl problem. The city is also facing this problem on its ponds. Hopefully, a solution such as relocating the waterfowl can be reached. This is primarily an operational problem.

6. T.L. - This material will be recommended for inclusion in the final plan and for future reference with direction for continued coordination with the port district.
7. T.L. - The Department agrees that as part of the interpretive space on the interpretive panel on San Lorenzo Point, the City of Santa Cruz and the city's Natural History Museum should be consulted. Their input would make an important contribution.
8. T.L. - The Operations Division has and will continue to coordinate common interests.
9. T.L. - The Department's General Plan proposals are only for land it owns, unless the Department is in the active process of acquiring additional land.

Santa Cruz County

10. T.L. - Our Department has commented on the county's park designations (13, 14, 15) through the Local Coastal Plan Amendment process.

Site 14 located on state property, is considered as open space to complement the community park development proposed on county-owned property (Site 15).

Our Department will continue to coordinate with future county plans.

11. T.L. - The Department recognizes the need to coordinate with city and county planners regarding parking spaces for beach users. The General Plan does not make recommendations on land it does not own.

12. T.L. - Please see response 5 T.L.

Sierra Club

13. T.L. - please see response 5 T.L.

14. T.L. - The intent of the plan is not only to maintain a quiet peninsula, but to recognize that indiscriminate use will increase without development of some improvements and education of the visitors. We agree that interpretation should be unobtrusive and placed only as needed for visitor awareness. Interpretation need not be done on a multitude of interpretive panels.

15. T.L. - Please refer to the policy in the Preliminary General Plan on page 23.

A management plan for the lagoon will take into consideration wildlife needs and capabilities to adapt to the more desired native growth.

Harry J. Resoner

16. T.L. - There is only one state-owned residence on the Fourteenth Avenue beach access property. The adjacent houses are private, and the plan does not discuss property that is outside of state ownership unless offered by a willing seller.

The presence of the existing park residence offers a late-hours surveillance for this open beach access point. Your comments may refer to the two houses in the Fourteenth Avenue maintenance area. In that case, the plan calls for them to remain unless their land base can provide parking to serve potential future county beach shuttle programs.

The stairs are felt necessary to organize and direct the flow of people from the upper land base to the beach, and the emergency ramp can be installed when it becomes necessary to reduce erosion on the bluffs and still allow quick, easy access for emergency vehicles.

17. T.L. - The private residences fronting on Bonita Lagoon are not on state property and cannot be proposed for removal.

18. T.L. - The management plan discussed on page 32 of the General Plan will take these options into consideration.
19. T.L. - The access you discuss is not on state property. However, various access points to the beach will have interpretive panels to discuss appropriate safe use of the beach.
20. T.L. - Such a bridge would be under the jurisdiction of Santa Cruz County.
21. T.L. - The plan allows for connection of trails to future community trails; however, it is not felt that the topography or need justifies proposing trails around the total lake.
22. T.L. - Through the Department's General Plan process, we have identified the natural, cultural, and recreation resources, including the existing use patterns of the units. The plans have recognized those values by identifying specific areas of the units for preservation status and specific protection. It recognizes that there is a need to interpret those values to the public, and it also recognizes that the continuing demand for public access to the beaches must be planned for.

Alan Simpkins

23. T.L. - Control of water level - Schwan's Lagoon
Our Department shares your concern regarding vandalism and possible negative impacts that could result from a dramatic change in the lake water level. Improved methods are being considered, to secure the weir gate control. Please see response to 5 T.L.
24. T.L. - Reduction in the Number of Geese
Our Department is currently investigating appropriate methods to reduce the geese population in this area. Please see response to 5 T.L.
25. T.L. - Law Enforcement - Secured Trails
Our Department is not considering initiating development of new trails at this time. Future proposals must consider potential resource impacts and visitor needs. Adjacent property owners will also be contacted and given an opportunity to comment on any future development proposals. The Department patrols the inland portion of Twin Lakes State Beach. The county patrols the streets and inland portion of the unit also.

A-2585R

CALIFORNIA COASTAL COMMISSION

CENTRAL COAST DISTRICT

701 OCEAN STREET, ROOM 310

SANTA CRUZ, CA 95060

(408) 426-7390



August 10, 1988

James Doyle, Supervisor
 Environmental Review Section
 Department of Parks and Recreation
 P.O. Box 942896
 Sacramento, CA 94296-0001

Dear Mr. Doyle:

Coastal Commission staff has reviewed the Preliminary General Plan for Natural Bridges State Beach. We are supportive of the proposed policies and improvements. We would be happy to work with you and the City of Santa Cruz in having these proposals integrated into the City's Local Coastal Program.

We do have some concerns regarding measures to preserve Monarch butterfly and other habitats and maintain adequate buffers. For example, the draft plan recognizes that eucalyptus serve as habitat for the Monarchs on page 26. It provides protection for those trees that are used as overwintering sites. This policy should also be referenced in the policies on page 25 calling for exotic species removal and be broadened to cover overwintering habitat.

1 NB

The plan also briefly discusses the role of milkweed as a food source for the butterflies. There is no discussion of whether it exists or could exist in the meadow area proposed for parking. The plan's brief discussion about planting a nectar source within the preserve boundaries (p. 37) should be expanded to examine other existing or potential areas for protecting or planting nectar sources.

2 NB

Finally, the plan proposes strict limitations on development in the butterfly and wetland/riparian habitat areas, and requires consultation with the Department's resource ecologist. However, the environmental impact section notes that some damage could occur as a result of the proposed projects. There have been concerns raised about recent projects proposed for or constructed in these areas, both procedurally (e.g. lack of public notification and proper permits) and substantively (e.g., destroying the resources).

3 NB

Thus, the plan should more strongly emphasize resource protection through such means as detailed environmental review of all projects within or adjacent to the habitats by qualified biologists, securing all necessary permits before commencing work, and modifying or eliminating projects with potential adverse impacts. Incorporation of more detailed construction and management

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AUG 15 1988

James Doyle, Supervisor
Department of Parks and Recreation
August 10, 1988
Page 2

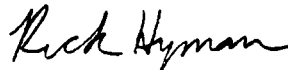
guidelines should also be considered (e.g., "Guidelines for the Protection of Monarch Butterfly Overwintering Site in California" by the Monarch Project, June 1988).

We also have interest in some of the broader access issues only briefly alluded to in the Plan. In the vicinity of the Park are Antonelli's Pond, the UCSC Marine Lab/Younger Lagoon, Wilder Ranch State Park and Lighthouse Field State Beach. The proposal to continue the bikepath (which runs from Lighthouse Field) through the park and to improve the entrance area by West Cliff Drive is welcome. The Plan should more explicitly indicate that the bikepath should be continued into the park as a separate facility rather than end into the narrow entry road (fifth and sixth dashes on p. 33 and map). The map should reflect the Plan text on page 34 allowing bicycles to continue through on the current road by the butterfly preserve instead of on the proposed route through the new parking lot. Beyond the park we would envision a bike/pedestrian route linking up to Wilder Ranch, as is called for in the Santa Cruz City and Santa Cruz County Local Coastal Programs. It would be helpful for the Plan to include a commitment by the Department to assist in this linkage, even though outside the current park boundaries. Additionally, some consideration should be given to shared parking and interpretive facilities with Antonelli's Pond and Younger Lagoon/Marine Lab museum, both of which have limited parking and sensitive resources requiring low intensity, managed use. The park would also be a logical and necessary trail head as indicated in the City's "Moore Creek Corridor Access and Management Plan." Hopefully, the Department will participate in such coordinating efforts.

Thank you for the opportunity to comment on the Plan and attend your workshops. We are available to answer questions and further assist you.

Sincerely,

DAVID LOOMIS
Assistant District Director



RICK HYMAN
Coastal Planner

DL/RH/cm

cc: City of Santa Cruz Planning Department
OPR Clearinghouse
AMBAG Clearinghouse
John Lane, City Museum
Monarch Project

2723A

3 N
cont

4 N

5 N

CALIFORNIA COASTAL COMMISSION

CENTRAL COAST DISTRICT

701 OCEAN STREET, ROOM 310

SANTA CRUZ, CA 95060

(408) 426-7390



August 10, 1988

James Doyle, Supervisor
Environmental Review Section
Department of Parks and Recreation
P.O. Box 942896
Sacramento, CA 94296-0001

Dear Mr. Doyle:

Coastal Commission staff has reviewed the Preliminary General Plan for Twin Lakes State Beach. We are supportive of the proposed policies and improvements. We would be happy to work with you and the affected local governments in having these proposals integrated into the relevant Local Coastal Programs. Attached are some detailed comments on specific portions of the document.

Sincerely,

DAVE LOOMIS
Assistant District Director

A handwritten signature in cursive script that reads "Rick Hyman".

RICK HYMAN
Coastal Planner

DL/RH/cm

cc: City of Santa Cruz
County of Santa Cruz
OPR Clearinghouse
AMBAG Clearinghouse
Brian Foss, Port District

2720A

SPECIFIC COMMENTS ON TWIN LAKES
STATE BEACH PRELIMINARY GENERAL PLAN
BY CALIFORNIA COASTAL COMMISSION STAFF

pp. 16,34, 44 The remains of the railroad trestle periodically exposed opposite Schwan's Lagoon would appear to be historical structures, or a subject for interpretation (they do arouse curiosity), and possibly a subject for a hazard warning to swimmers.] 1 T

pp. 20,30 Given the Department's shoreline protective devices policy, the Plan should be more explicit as to whether it would support a new retaining wall, especially were it to be placed on the beach. Shoulder parking obviously contributes to bluff erosion. Thus, consideration should be given to extending the proposed shoreline parking removal to the Harbor. Purchasing additional right of way inland and/or continuing East Cliff Drive one-way between the Harbor and Seventh Avenue could provide some compensating spaces. In any event careful consideration should be afforded to alternatives and to potential adverse environmental impacts before the Department commits its support to a seawall.] 2 T

pp. 22,30 The Plan may wish to acknowledge the following condition imposed on the Port District's coastal permit for beach disposal of dredge spoils:

5. The Port District shall submit for Executive Director [of the Coastal Commission] review and approval at least once every three years a report outlining compliance with the operational manual provisions, success of beach nourishment, and any necessary corrective measures. (Underlining added for emphasis.)

According to Brian Foss, Harbor Manager, UCSC researchers have been periodically measuring the extent of beach. Under the permit, all disposal is to be on the Port's portion of the beach (i.e., west of Sixth Avenue) because the Department was not interested in receiving the sand. Thus, the second proposed policy on page 22 might be broadened to state:

"... If replenishment is found feasible, the Department, after this consultation, will develop criteria for acceptance of dredge materials and from participation in the Harbor District's program. After obtaining necessary regulatory approvals, the Department will then initiate participation in the program."

SPECIFIC COMMENTS ON TWIN LAKES STATE BEACH PRELIMINARY
GENERAL PLAN BY CALIFORNIA COASTAL COMMISSION STAFF

Page 2

- p. 23 As acknowledged in the Natural Bridges General Plan, eucalyptus can serve as habitat for the Monarch butterfly, and those that do should thus be exempt from this removal policy. The Plan should commit the Department to following the "Guidelines for the Protection of Monarch Butterfly Overwintering Sites in California," by incorporating or referencing them. 4
- pp. 23,31 44 The description on the bottom of page 23 needs to be modified to account for low water levels and associated algal blooms present in drought years such as this one. 5
This proposed management plan would need to include measures to address the current unaesthetic situation. It should be noted, however, that the current situation and proposal are not "natural." The Department should consider removing the weir and non-native waterfowl as a more natural solution.
- pp. 27,42 The Plan may wish to acknowledge the following policy in the Santa Cruz City's Local Coastal Program (p. 3.60): 6
(A-1) Surplus parking spaces in the upper harbor, 31 spaces in the west lowe harbor, and 21-26 spaces in the east lower harbor should be clearly signed and located appropriately for beach and harbor-visitor use.
(A-2) Since few off-street parking opportunities for the Seabright-West Jetty portion of Twin Lakes State Beach appear to be available, the Port District should explore potential lease of the west parking lot by the State Parks Department and closing or reconfiguration of lower Atlantic Avenue to provide more beach parking.
- pp. 33-35 Since San Lorenzo Point overlooks the City of Santa Cruz beach area and beyond, the Department may wish to offer some interpretive panel space on the Point to agencies or organizations interested in portraying the history of the beach area. Also, since the City's natural history museum is opposite the Seabright Beach entrance, some coordinated interpretation might be considered. 7

SPECIFIC COMMENTS ON TWIN LAKES STATE BEACH PRELIMINARY
GENERAL PLAN BY CALIFORNIA COASTAL COMMISSION STAFF
Page 3

pp. 41&43

Coordination with the Harbor District and U.S. Army Corps of Engineers who own the intervening beach on either side of the harbor entrance would be useful, especially for developing and enforcing common use regulations.

8 II

The Plan does not provide any indication as to whether the Department is interested in acquiring any additional property bordering its holdings and other sites for remote parking.

9 II

2720A

Slime lagoon



Dan Coyro/Sentinel

SANTA CRUZ - A preening swan Lagoon over the past several weeks. drought to adequately flush out the to Twin Lakes beach between rids itself of feathers that collect on State Park Rangers say there isn't lagoon. The algae has been able to Schwann Lake Drive and East Cliff the slimy algae choking Schwann enough water because of the take over the lagoon situated next Drive.



August 11, 1988

Mr. Bob Acrea
Senior Landscape Architect
Department of Parks and Recreation
P.O. Box 942896
Sacramento, California 94296

Dear Bob:

The Community Development section of the County Planning Department has reviewed the preliminary draft of the Twin Lakes General Plan and offers the following comments.

We do not find anything in the State's plan which is inconsistent with the County's Local Coastal Plan, General Plan, or Parks Master Plan. However, the Twin Lakes Plan should provide more discussion of coordinative planning efforts between the State and County regarding Park Sites 14 and 15 as listed on the County's Parks Master Plan and also discussed in the LCP Land Use Plan (see attached map). } 10 T

The Plan also recommends the elimination of on-street parking along a segment of East Cliff Drive in order to improve pedestrian and vehicular safety. This is consistent with recommendations that will be forthcoming from a Plan Line study the County has commissioned. Our apprehension is, however, that continued reduction of parking will only transfer the problem to the adjacent neighborhood. Therefore, more discussion is needed in the Plan about future off-street parking options, possibly in concert with County plans. } 11 T

As a final comment, you may have noticed on recent field trips to Schwan's Lagoon that a major algal bloom has created an unsightly lake appearance. When die-off occurs, this problem will be compounded with resultant odors. Therefore, we recommend that the resource management component of the Plan address methods to inhibit this recurrent process. } 12 T

Thank you for the opportunity to comment on this Plan. We look forward to working with you during the revision process and also on other plans scheduled for preparation within the County's jurisdiction.

Sincerely,

John H. Warren
Program Manager, Community Development

Attachment:

cc: Board of Supervisors

RECEIVED
89
AUG 16 1988

LIVE OAK AREA

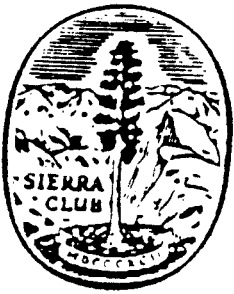
CITY OF SANTA CRUZ

CITY OF CAPITOLA



URBAN SERVICE EVALUATION CRITERIA PARKS

| Park Name | Area (Acres) | Population Served | Distance to City Center (Miles) |
|-----------|--------------|-------------------|---------------------------------|
| 1. ... | ... | ... | ... |
| 2. ... | ... | ... | ... |
| 3. ... | ... | ... | ... |
| 4. ... | ... | ... | ... |
| 5. ... | ... | ... | ... |
| 6. ... | ... | ... | ... |
| 7. ... | ... | ... | ... |
| 8. ... | ... | ... | ... |
| 9. ... | ... | ... | ... |
| 10. ... | ... | ... | ... |
| 11. ... | ... | ... | ... |
| 12. ... | ... | ... | ... |
| 13. ... | ... | ... | ... |
| 14. ... | ... | ... | ... |
| 15. ... | ... | ... | ... |
| 16. ... | ... | ... | ... |
| 17. ... | ... | ... | ... |
| 18. ... | ... | ... | ... |
| 19. ... | ... | ... | ... |
| 20. ... | ... | ... | ... |
| 21. ... | ... | ... | ... |
| 22. ... | ... | ... | ... |



SIERRA CLUB *as* Ventana Chapter

Santa Cruz Regional Group • P.O. Box 604, Santa Cruz, CA 95061

AUGUST 10, 1988

JAMES M DOYLE, SUPERVISOR
ENVIRONMENTAL REVIEW SECTION
Department of Parks and Recreation
P.O. 942896
Sacramento, Ca 94296 0001

Dear Mr. Doyle,

The Santa Cruz Regional Group of the Sierra Club has participated in the public involvement of the planning process for Natural Bridges State Beach General Plan. The public meetings on October 14, 1987 and on May 12, 1988 were well organized and provided an opportunity for public information and comment.

The Executive Committee of the Regional Group has reviewed the draft plan and has the following comments. Although draft plan proposal has many excellent features, the guiding principles for the plan need to be clearly stated. A more detailed list of existing problems and use patterns are needed.

Specific concern is centered in the need for and use of parking space. While it is desirable to limit vehicle entrance from the West Cliff area to the center of the park, it seems that the additional entrance and extensive parking from Delaware are not needed.

Detailed comments prepared by Peter and Celia Scott are attached.

Sincerely,

Joan Stoker Rost
State Park Chair,
SC Regional Group, Sierra Club

RECEIVED

AUG 17 1988

COMMENTS ON THE NATURAL BRIDGES STATE BEACH GENERAL PLAN
(version of June 1988)

A. The Plan lacks a list of guiding principles.

The plan should be amended to include a list of guiding principles. Among such principles should be the following:

- ◆ High priority should be given to the restoration of plant and animal habitat.
- ◆ Damaged areas, such as eroding ad hoc paths and eroding dunes, should be restored and allowed to recover.
- ◆ Unnecessary or unused paved areas should be removed, and those areas should be restored and allowed to recover.
- ◆ Highest value should be placed on space for peace and quiet, enchantment, magic.
- ◆ Paved areas and parking areas should be avoided wherever possible, choosing pedestrian traffic over automobile and bus traffic.
- ◆ Special attention should be given to the design details of new roads, parking lots and structures so as to make them aesthetically pleasing and socially integrating.

6 NB

B. The Plan lacks a detailed list of existing problems.

Although the plan contains useful descriptive information in its Resource Element, it lacks a detailed catalog of existing problems and use patterns. Among those problems for which detailed descriptions should exist are the following:

- ◆ Eroding areas, such as around the picnic tables north of the beach, ad hoc paths, and dune areas.
- ◆ How well does the Visitor Center work (or not work)?
- ◆ What problems exist with the current circulation pattern? How could it be improved so as to function better socially? To what extent and in what ways is the use of the road connecting the existing entrance to the main parking and picnic area detrimental?
- ◆ What is the current usage of the existing parking facilities? There is a conspicuous lack of real data on this point.

7 NB

C. Specific comments.

The following comments relate to specific proposals contained in the plan:

1. The plan specifies that the area for auto parking within the park boundaries be more than doubled. This is a mistake.

8 NB

In particular, the proposal to add a new 100-car parking lot in the northern meadow area should be eliminated from the plan. This meadow should be retained and enhanced, particularly since it is the only large meadow area lying within the park boundaries. Currently, as one enters from Delaware Avenue, one is struck by the sense of peace and quiet upon entering this meadow. This contrast will become increasingly valuable as the overall population grows. While most parks (Golden Gate Park and Yosemite Park are prime examples) are working to eliminate automobile traffic, this plan would increase it, with consequent erosion of park values.

8 NB
contd

Consider adding trees and native shrubs to shield this quiet meadow from Delaware Avenue, and consider restoration of damaged paths crossing the meadow.

Ample space for on-street parking along Delaware and Natural Bridges Streets currently exists, and is particularly suitable for busses. Furthermore, in the absence of quantitative data on the current use of the existing 104-space parking lot, additional parking lot construction is not justified.

We also question the current placement of the "service area" in this northern meadow, particularly since it would require the addition of an otherwise unused paved road.

If there is to be vehicular access from Delaware Avenue, it should follow the existing road alignment, with an inviting, aesthetically appealing entrance to the park.

9 NB

- 2. The plan specifies the construction of a "bus loading and tour staging area" just to the north of the visitor center. This is also a mistake. Busses should be encouraged to stop and unload outside the park, perhaps with a special bus parking area along Delaware Avenue. This wide street is currently used by adjacent industries for long-term parking of very large trucks and semis. These uses should not drive the public school busses and bus tour busses to the park's interior. It is a short walk from the street to the Visitor Center, by no means difficult, even for handicapped and for senior citizens. Pedestrian access is more appropriate for this small park.

- 3. The new raised walkway leading to the Monarch Preserve appears well thought out, a good way to provide handicapped access, and also serving to prevent further erosion of the soil, perhaps even allowing current eroded areas to recover. Similarly, the thoughtfully designed steps over the dune area near the West Cliff Drive entrance serve to prevent the erosion of the dunes. This technique could be used in other areas of the park to good advantage.

10 NB

For example, The slopes dropping from the current most-used picnic tables toward the beach are badly eroded and not maintained. This area could be redesigned so as to make it more attractive, perhaps channeling pedestrian access to the beach in a more controlled manner.

- 4. Attention should be given to the existing pond/marsh area just south of

11 NB

- the Monarch Preserve. This pond is currently covered with algae. Is this a natural situation, or is it a result of development? The causes of such eutrophication should be researched, and corrected, if necessary.] 11 NE cont
5. Additional parking areas will cause increased (contaminated) run-off, potentially damaging to wetland areas and lagoons. Such potential for increased contaminated run-off should be avoided.] 12 NE
6. Any additional parking in the area parallel to Swanton Blvd by the West Cliff Drive Entrance should be very carefully planned, with appropriate screening from the street and planting within the parking area. It could be appropriate to add a few picnic tables on the flat land just to the west of this parking area.] 13 NE
7. An old concrete road adjacent to the east side of the park currently leads to a bluff-top and encourages pedestrian traffic down a badly eroded ad hoc path. This concrete should be removed, and the area should be allowed to recover.] 14 NE

Prepared by Peter and Celia Scott,
August 5, 1988



SIERRA CLUB *as* Ventana Chapter

Santa Cruz Regional Group • P.O. Box 604, Santa Cruz, CA 95061

AUGUST 10, 1988

JAMES M DOYLE, SUPERVISOR
ENVIRONMENTAL REVIEW SECTION
Department of Parks and Recreation
P.O. 942896
Sacramento, Ca 94296 0001

Dear Mr. Doyle,

The Santa Cruz Regional Group of the Sierra Club has participated in the public involvement of the planning process for Twin Lakes State Beach General Plan. The public meetings on October 14, 1987 and on May 12, 1988 were well organized and provided an opportunity for public information and comment.

The Executive Committee of the Regional Group has reviewed the draft plan and has the following comments. Twin Lakes State Beach does consist of different geographic areas. Beach areas, the Lagoon areas, and the Maintenance areas are properly considered separately.

Plans for Schwan Lagoon are of major concern. Concerns are that the general principals for the lagoon are stated and include the following:

1. Consideration of the feasibility of returning Schwan Lagoon to a tidal estuary should be included. Water quality of the fresh water lake at this time is poor. Algae is a problem.

13 T

2. Schwan lagoon is an area of quiet and peaceful walking and contemplation. Preservation of the of upland peninsula as a quiet undeveloped area is important. Proposed interpretive elements seem intrusive. The natural appearance of the lagoon is not enhanced by interpretive panels on San Lorenzo Point. Trail development, platforms, and benches should be minimal so as not to interfere with the esthetic enjoyment of the area.

14 T

It is not essential that each park have an interpretative component that is of equal magnitude. If interpretative aspects were included in general principles for the development of the park, the park priorities would be clearer.

3. Exotic plant species need to be considered in relation to the animal life. Eucalyptus trees are used by the bird population. The plant species need to be considered in relation to water type and quality for the lagoon.

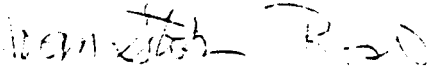
15 T

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AUG 17 1988

8-5463

The importance of the beaches and beach usage is recognized. Public safety at the beach must be an important part of the plan for this park.

Sincerely,



Joan Stoker Rost
State Park Chair,
SC Regional Group, Sierra Club

August 11, 1988

Mr. James M. Doyle, Supervisor
Environmental Review Section
Calif. Department of Parks and Recreation
P. O. Box 942896
Sacramento, CA 942896-0001

Dear Mr. Doyle:

I have loved Twin Lakes and Natural Bridges State beaches since 1938.

I am completely out-raged at the ongoing destruction at Natural Bridges, the sacred water hole and grove you call Monarch Nature Preserve.

There should not be one single visible man made object in that area now desecrated and spring covered over with cement, steel, wood. Natural Bridges access by dark colored asphalt or cement, without fences, boardwalk, o.k.

2. Visitor Center and Residence fenced complex - remove to far edge of park. Screen behind bushes. Make more inviting with tables, chairs, refreshments, a sense of welcome.

3. Parking Lot, bathroom overlooking Moore Creek - remove. Restore to nature.

4. Indian Village - restore to functioning on site. Allow archeologic proof.

2. Preserve open meadowland, Delaware - Visitor Center.

3. Remove car access, West cliff, including Toll plaza and car overlook. Restore to nature. Make inviting for walkers ie - benches, drinking faucet.

Remove stairs to beach. Allow sand flow naturally. Prevent any tree cutting in area, any new parking lot, any man-made visible object.

Emergency vehicle access only.

Natural Bridges

4. Parking: Use the 20-30' off-road land on Swanton, include a sidewalk and native plants to screen cars; use parking meters; relocate fence for more room; cut no or almost no trees.

Do the same on Delaware. Not 1 vehicle within the fences except emergency.

15 NB

16 NB

17 NB

18 NB

19 NB

20 NB

21 NB

(The original letter was eight pages, hand written. It has been typed for easier reading. No editing was attempted).

5. Camping: limited to tent only, no vehicles, one full time chaperone 2 dozen sites screened.] 22 NB

Twin Lakes - 14th Street

- 1. Remove 14th St. residences, all 3.] 16 TL
- 2. Locate bathroom and showers on North Edge by entrance.
- 3. Delete plans for stairs and cement emergency vehicle access. Retain natural access.
- 4. Remove all private residences fronting on Bonita Lagoon and Ocean and restore to native plants, restore lagoon, restore natural water flow.] 17 TL

EXOTIC PLANT WAR - END IT. IT IS GOING TO STIR UP HORNETS NESTS AMONG PUBLIC.] 18 TL

Twin Lakes - Seabright, Harbor Entrance: UNSAFE slippery ting walkway. Please fix water faucet and benches bicycle rack, instructions for heatstroke, sunburn.] 19 TL

Schwann Lake Beach

Install bridge for East Cliff Traffic. Free flow from ocean into Schwan Lake.] 20 TL

Twin Lakes - Schwan Lake

Install foot path around Schwann Lake suitable for disabled but not for bicycles, skateboards. Add benches and drinking water.] 21 TL

Summary

Remove all man made objects from Natural Bridges and Twin Lakes but the bare minimum - drinking water, bathrooms, wheelchair access. Restore to nature. Prohibit motor vehicles, skateboards, bicycles.] 22 TL

What are the consequences from development of Natural Bridges and Twin Lakes? Simple. By denying the public nature while being in charge of protecting our priceless parklands from development, Parks and Rec. Dept. sets up rage in the public.

Where else can we go to restore ourselves when Natural Bridges is destroyed? And is the Monarch Grove and Pond not destroyed?

Sincerely,

Harry J. Resoner
Box 3407
Santa Cruz, 95063-3407

ALAN B. SIMPKINS
350 SCHWAN LAKE DRIVE
SANTA CRUZ, CALIFORNIA 95062

July 13, 1988

Department of Parks and Recreation
State of California
P. O. Box 942896
Sacramento, CA 94296-0001

Attention: James M. Doyle, Supervisor
Environmental Review Section

Ref: General Plan for Twin Lakes
State Beach. SCH#86011401

Dear Mr. Doyle:

I am in receipt of a copy of the Preliminary General Plan for the Twin Lakes State Beach. This letter is written for your consideration regarding certain elements of your proposed plan.

CONTROL OF WATER LEVEL

On Page 2, Schwan's Lagoon, it is stated that Schwan's Lagoon will continue to be managed as a freshwater lake. The local residents are in full support of this position, as we were instrumental in convincing the Department of Parks and Recreation to establish the fresh water lake many years ago.

Normally, there is sufficient water to keep the lake full throughout the entire year; however, there is a problem which we would like to call to your attention.

The design of the weir located at East Cliff Drive incorporates a gate which is coupled to a large hand wheel for control. Although the State keeps the wheel locked by means of a chain and padlock, it appears that the wheel is entirely too attractive to the young vandals in the area. It seems that they receive their "kicks" by breaking or cutting the chain and draining the lake of water. This vandalism has happened twice this year, the last time occurring on this past May 13th. The result is that the lake is now at an extremely low level and purpose of the weir has been defeated.

It would seem that in the management of the lake, and recognizing the temptation to let the lake out, that some sort of solution to secure the gate is in order. It is suggested that the control of the gate be studied and perhaps the wheel can be removed during the summer months.

23 T

JUL 15 1988
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Water Level (con't)

It would appear that the only possible use of the wheel would be during the winter months and only in the event of an extremely large runoff which could not be accomodated by the weir itself.

23 T
contREDUCTION IN THE NUMBER OF GEESE

Page 24, (Under Schwan's Lagoon) lists water quality and refers to "an overpopulation of exotic ducks and geese." These geese can be quite obnoxious at times and in some instances can be threatening to people, especially the young and elderly.

Although this overpopulation of geese has been discussed for years and the problem continues to grow, positive steps have not been taken to relocate some of the geese. One of the principal problems is that people feed them huge quantities of bread and scraps, using 9th Avenue as a feeding ground. This not only blocks the street for vehicle and pedestrian traffic, but causes problems in the off-season when the geese take out, seeking food from the neighborhood. In plain language, they are dirty, undesirable birds, particularly when they wander into the local residents gardens.

24 T

Priority should be given to the reduction of the numbers of these geese in the Schwan Lake area.

LAW ENFORCEMENT-SECLUDED TRAILS

Pages 40 and 43 (Law Enforcement) and Page 42 (Schwan's Lagoon)

The sections listed above clearly delineate the law enforcement problems associated with Twin Lakes Beach and Schwan Lagoon area. Under Law Enforcement, Page 43, the paragraph references possible assistance from the Santa Cruz County Sheriff's Office. It should be pointed out that only one deputy is available to patrol the entire Live Oak area of Santa Cruz County, which covers from the Yacht Harbor to 41st Avenue and includes Twin Lakes Beach and Sandy Beach.

25 T

Clearly, there is a shortage of law enforcement in the area and with the fiscal problems confronting our County, there seems to be little or no improvement in the forseable future.

On Page 40, (Law Enforcement) your document. cites such problems as assault, robbery and indecent exposure. You further report that the "area has also developed a reputation as a transient sleeping area."

On Page 31, under Schwan's Lagoon and Upland (Peninsula), your published guidelines suggest the following:

"New trails may be considered for connecting the upland with future county parks, local trails, and the beach."

In any proposal for trails which would connect the uplands with the beach, the neighbors have great concern that such remote trails would make their homes vulnerable to the criminal element. At the present time, it is difficult to protect our homes from breakin and we have initiated "Neighborhood Watch" programs and other means of protection.

We shutter at the thought of the State creating backwoods trails from the beach, adjacent to our homes and then connecting to the remote railroad track area. Such a trail would be impossible to properly patrol and would be inviting as an escape route for those engaged in breaking and entering.

Further, we question the safety for women and children using these trails. In short, they would be too secluded for their safety, and unless the trails were developed to that of a full-fledged roadway, it would be impossible for either the State or County to provide vehicle patrols.

We sincerely request that prior to considering trails along the bank of Schwan's Lagoon, that the neighbors be consulted and have the opportunity to relate their experiences with some of the non-desirables in the area. We would like to emphasize that we are concerned over the safety of our families and homes.

I would personally appreciate the opportunity to discuss these concerns.

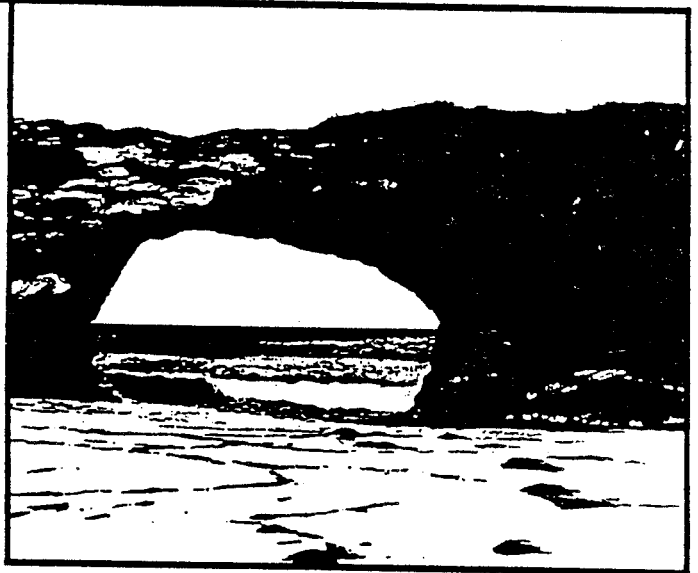
Very truly yours,

Alan B. Simpkins

Alan B. Simpkins

25 TL
contd

Maps

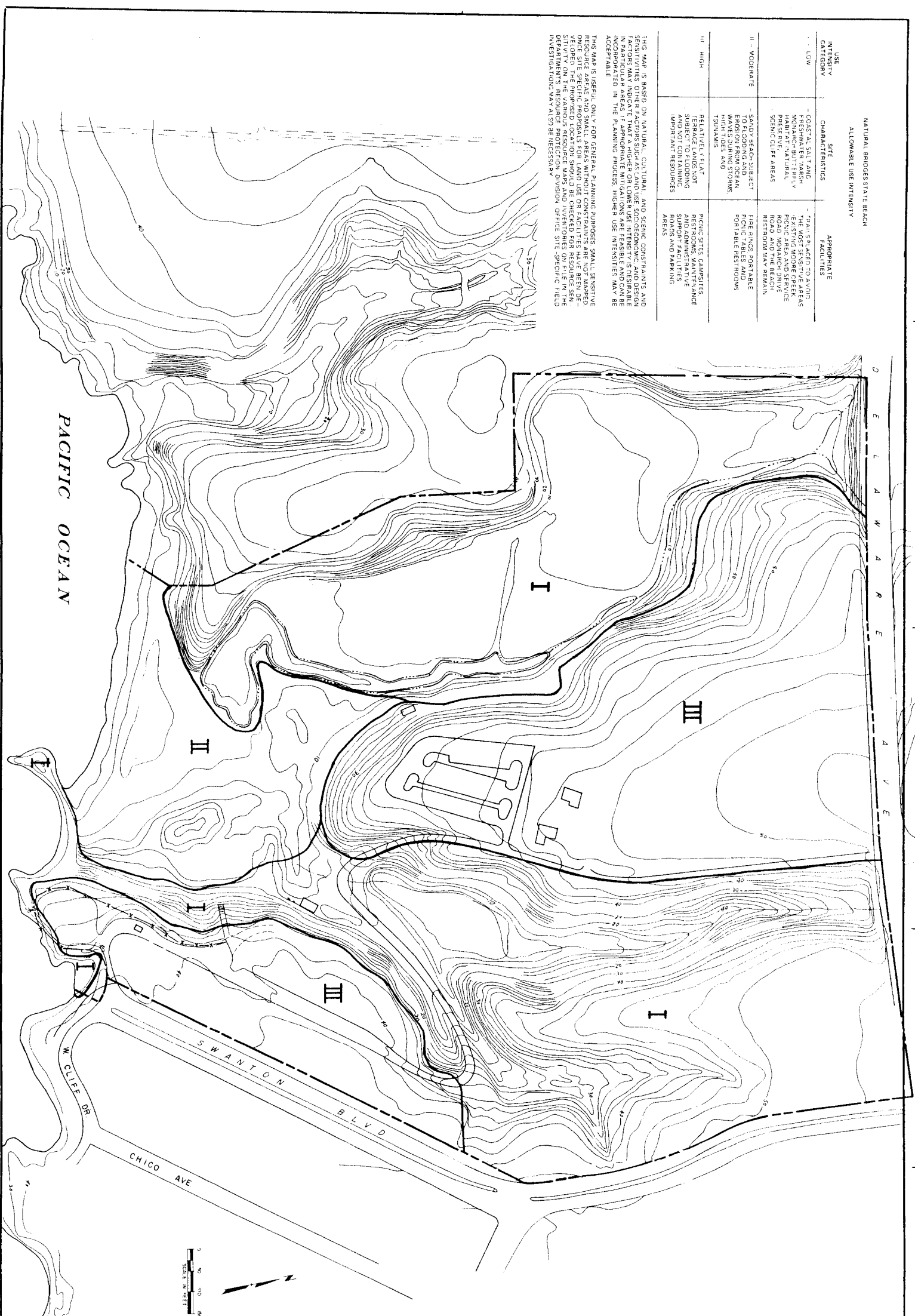


NATURAL BRIDGES STATE BEACH
ALLOWABLE USE INTENSITY

| USE INTENSITY CATEGORY | SITE CHARACTERISTICS | APPROPRIATE FACILITIES |
|------------------------|--|---|
| LOW | - COASTAL SALT PANG - FRESHWATER MARSH - MORAINE BUTTEFLY PRESERVE - SCENIC CLIFF AREAS | - TRAIL SPACED TO AVOID THE MOST SENSITIVE AREAS - EXISTING MOORE CREEK ROAD MONARCH DRIVE RESTROOM WAY REMAIN |
| II - MODERATE | - SANDY BEACH SUBJECT TO FLOODING AND HIGH TIDES AND TSUNAMIS | - FIRE RINGS PORTABLE PICNIC TABLES AND PORTABLE RESTROOMS |
| III - HIGH | - RELATIVELY FLAT TERRACE LANDS NOT SUBJECT TO FLOODING AND NOT CONTAINING IMPORTANT RESOURCES | - PICNIC SITES CAMPFIRE RESTROOMS MAINTENANCE AND ADMINISTRATIVE SUPPORT FACILITIES AND PARKING AREAS |

THIS MAP IS BASED ON NATURAL, CULTURAL, AND SCENIC CHARACTERISTICS AND SENSITIVITIES OTHER FACTORS SUCH AS LAND USE, SOCIOECONOMIC, AND DESIGN FACTORS MAY INDICATE THAT A HIGHER OR LOWER USE INTENSITY IS DESIRABLE IN PARTICULAR AREAS IF APPROPRIATE MITIGATIONS ARE FEASIBLE AND CAN BE ACCEPTED IN THE PLANNING PROCESS. HIGHER USE INTENSITIES MAY BE ACCEPTABLE.















THIS MAP IS USEFUL ONLY FOR GENERAL PLANNING PURPOSES. SMALL SENSITIVE AREAS ARE IDENTIFIED FOR GENERAL PLANNING PURPOSES. THE USE OF THIS MAP FOR DEVELOPING SPECIFIC PROPOSALS FOR LAND USE OR FACILITIES HAS NOT BEEN DEVELOPED. THE PROPOSED LOCATION SHOULD BE CHECKED FOR RESOURCE SENSITIVITY ON THE VARIOUS RESOURCE MAPS AND INVENTORIES ON FILE IN THE INVESTIGATION. MAPS MAY ALSO BE NECESSARY.

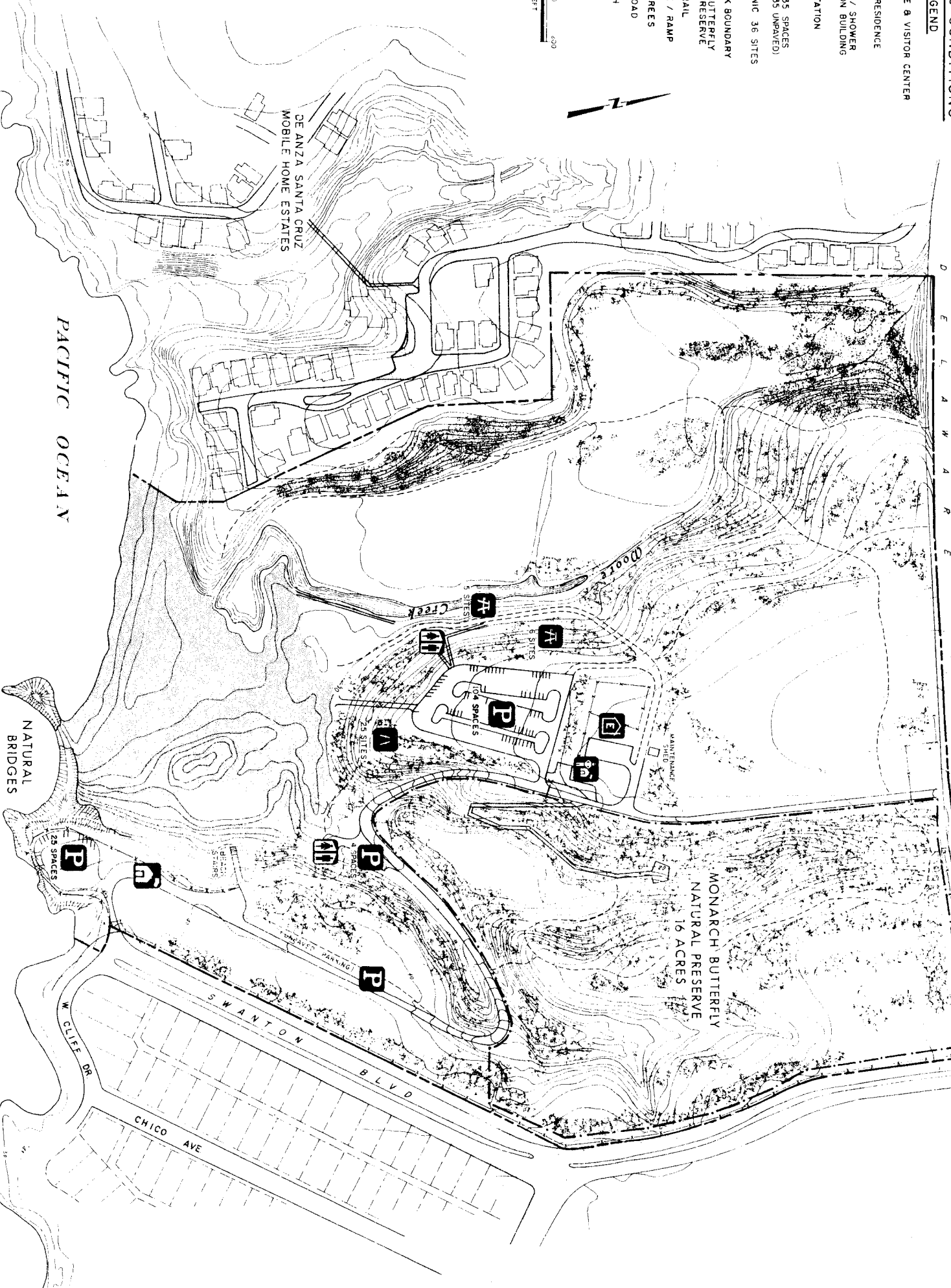
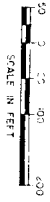


| | | | | |
|--|--|---|-------------------|--|
| DRAWING NO. 24069 SHEET NO. 1 OF 1 | NATURAL BRIDGES STATE BEACH ALLOWABLE USE INTENSITY GENERAL PLAN - RESOURCE ELEMENT | RESOURCES AGENCY OF CALIFORNIA DEPARTMENT OF PARKS AND RECREATION APPROVED _____ DATE _____ | REVISIONS DATE | DESIGNED K. GRAY DRAWN B.B. AMBAGIS CHECKED D. KECK |
| | NATURAL BRIDGES STATE BEACH ALLOWABLE USE INTENSITY GENERAL PLAN - RESOURCE ELEMENT | | | |

EXISTING CONDITIONS

LEGEND

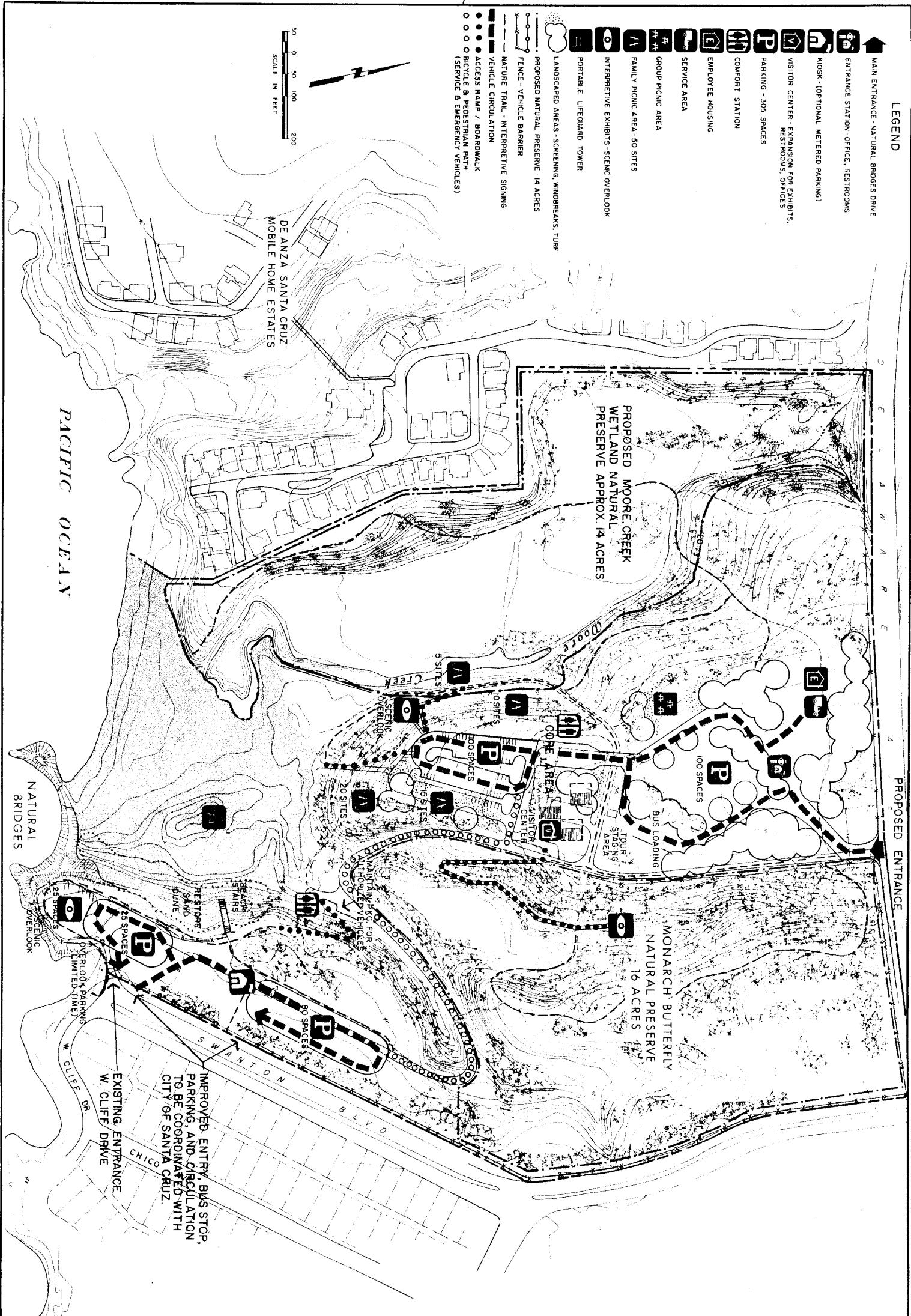
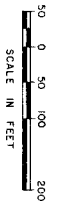
-  PARK OFFICE & VISITOR CENTER
-  EMPLOYEE RESIDENCE
-  RESTROOM / SHOWER
-  COMBINATION BUILDING
-  CONTACT STATION
-  PARKING - 135 SPACES (35 UNPAVED)
-  FAMILY PICNIC 36 SITES
-  STATE PARK BOUNDARY
-  MONARCH BUTTERFLY NATURAL PRESERVE
-  NATURE TRAIL
-  BOARDWALK / RAMP
-  EXISTING TREES
-  UNPAVED ROAD
-  SANDY BEACH



| <p>DRAWING NO 2417</p> <p>SHEET NO 1</p> <p>OF 1</p> | <p>NATURAL BRIDGES STATE BEACH</p> <p>EXISTING CONDITIONS</p> <p>GENERAL PLAN - LAND USE AND FACILITIES ELEMENT</p> | <p>RESOURCES AGENCY OF CALIFORNIA</p> <p>DEPARTMENT OF PARKS AND RECREATION</p> <p>APPROVED _____ DATE _____</p> | <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%;">REVISIONS</th> <th style="width: 50%;">DATE</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> </tr> </tbody> </table> | REVISIONS | DATE | | | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DESIGNED D. NICK</td> <td style="width: 50%;">DATE</td> </tr> <tr> <td style="width: 50%;">DRAWN S/BB</td> <td style="width: 50%;"> </td> </tr> <tr> <td style="width: 50%;">CHECKED D. K/CK</td> <td style="width: 50%;"> </td> </tr> </table> | DESIGNED D. NICK | DATE | DRAWN S/BB | | CHECKED D. K/CK | |
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| REVISIONS | DATE | | | | | | | | | | | | | |
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| DESIGNED D. NICK | DATE | | | | | | | | | | | | | |
| DRAWN S/BB | | | | | | | | | | | | | | |
| CHECKED D. K/CK | | | | | | | | | | | | | | |

LEGEND

- MAIN ENTRANCE - NATURAL BRIDGES DRIVE
- ENTRANCE STATION - OFFICE, RESTROOMS
- KIOSK - (OPTIONAL METERED PARKING)
- VISITOR CENTER - EXPANSION FOR EXHIBITS, RESTROOMS, OFFICES
- PARKING - 305 SPACES
- COMFORT STATION
- EMPLOYEE HOUSING
- SERVICE AREA
- GROUP PICNIC AREA
- FAMILY PICNIC AREA - 50 SITES
- INTERPRETIVE EXHIBITS - SCENIC OVERLOOK
- PORTABLE LIFEGUARD TOWER
- LANDSCAPED AREAS - SCREENING, WINDBREAKS, TURF
- PROPOSED NATURAL PRESERVE - 14 ACRES
- FENCE - VEHICLE BARRIER
- NATURE TRAIL - INTERPRETIVE SIGNING
- VEHICLE CIRCULATION
- ACCESS RAMP / BOARDWALK
- BICYCLE & PEDESTRIAN PATH (SERVICE & EMERGENCY VEHICLES)



**NATURAL BRIDGES STATE BEACH
PROPOSED LAND USE & FACILITIES**
GENERAL PLAN
LAND USE AND FACILITIES ELEMENT

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF PARKS AND RECREATION

APPROVED _____ DATE _____

| REVISIONS | DATE | DESIGNED D. KECK |
|-----------|------|---------------------|
| | | DRAWN |
| | | CHECKED D. KECK |

DRAWING NO.
24161

SHEET NO.
1 of 1

This report was prepared by:

David Keck, Associate Landscape Architect
Jim Woodward, State Archeologist II
Eileen Hook, State Park Interpreter II
Mary Ann Burford, Associate Governmental Program Analyst
Kenneth Gray, Senior Resource Ecologist
Kenneth Pierce, Associate Park and Recreation Specialist
Frank Spear, Ranger II

Under the Supervision of:

Robert Acrea, Senior Landscape Architect
Kerry Gates, Supervising Landscape Architect
Dave Schaub, Supervising Resource Ecologist
Richard G. Rayburn, Chief, Resource Protection Division
Ray Jenkins, Pajaro Coast District Superintendent
Richard Felty, Central Coast Regional Director
Robert D. Cates, Chief, Development Division
Keith L. Demetrak, Chief, Office of Interpretive Services

Edited by:

Jeff Cohen, Research Writer