Pogonip

PREPARED BY THE
CITY OF SANTA CRUZ
PARKS AND RECREATION DEPARTMENT

JULY 1998

FINAL MASTER PLAN



ACKNOWLEDGEMENTS

Many community members have contributed to the *Pogonip Master Plan*, including Focus Group participants and citizens who participated on the Pogonip Task Force as part of the previous planning effort for the *Pogonip Land Use Options Assessment*. The City of Santa Cruz Parks and Recreation Department wishes to acknowledge the valuable contributions made by these citizens during the many meetings, workshops, and field visits.

The *Pogonip Master Plan* was prepared by the Parks and Recreation Department of the City of Santa Cruz. Primary authors include Susan Harris, Project Manager, and Carol Rice, Wildland Resource Management for the Fire Management Element. Key contributors and reviewers throughout preparation of the Pogonip Master Plan included Jim Lang, Parks and Recreation Director, Rudy Quintanar, Superintendent of Parks, Norm Levy, Supervising Park Ranger, and Heather McMillan, previously with the Planning Department.

Illustrations are by Francisco Montesinos and Sharon Erspamer. Francisco Montesinos is a gifted, 20 year old Santa Cruz artist. His commissions range from colorful wall murals to portraits and wildlife paintings.

Special thanks to Don Nielsen for contributing his stunning photographs. A longtime central coast resident, he conveys environmental awareness through his passion for outdoor photography.

COVER PHOTOGRAPHY: DON NIELSEN

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PACIFIC TREEFROG
PSEUDACRIS REGILLA



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CALIFORNIA BAY
UMBELLULARIA CALIFORNICA





EXECUTIVE SUMMARY

VISION STATEMENT FOR POGONIP

Pogonip is a place to be appreciated for its natural beauty, habitat value and serenity, in contrast with the built environment. Pogonip should provide the community with education and recreation opportunities that are environmentally and economically sustainable (Pogonip Task Force, 1991, developed for the Pogonip Land Use Options Assessment process.)

A scenic 640-acre expanse of coastal prairie, woodlands, creeks, springs, and historic structures, Pogonip is a remarkable gem within the City of Santa Cruz Greenbelt. Community members value Pogonip for the diverse and abundant natural resources, as well as the potential opportunities it offers for recreation and education. The intent of this Master Plan is to provide a guide for long-term uses and resource management that will assist the City of Santa Cruz in fulfilling this vision.

1.1 POGONIP MASTER PLAN MIXED USE CONCEPT

Development of the Pogonip Master Plan was guided by recreational, educational and resource protection objectives. These objectives were identified in the Pogonip Land Use Options Assessment (1993) and by the Santa Cruz City Council as part of the Master Plan process. The specific objectives for the long-term use and management of Pogonip are to:

- Foster appreciation and understanding of the natural environment, as well as human interaction with the environment.
- Rehabilitate the historic clubhouse to serve as a staging area for educational programs, a meeting and retreat center, and a site for special events.
- Create an outdoor education camp, which promotes interactive environmental education, to serve youth.
- Provide a permanent garden site for the Homeless Garden Project.
- Enhance existing trails. Provide trail connections to other destinations, such as the University of California at Santa Cruz (UCSC) campus and Henry Cowell Redwoods State Park, and loop trails for Pogonip visitors.
- Identify Resource Management Areas to enhance and protect sensitive natural resources.
- Preserve and interpret historic structures, features and sites.
- Encourage use of alternative transportation and off-site parking to minimize parking and road improvement needs within Pogonip.



PHOTOGRAPH: DON NIELSEN



PHOTO COURTESY OF SPECIAL COLLECTIONS, MCHENRY LIBRARY, UCSC

CLUBHOUSE AT ITS HEYDAY; IN THE MID-GROUND IS THE 18TH GREEN.

The mix of uses proposed for Pogonip include rehabilitation of the historic clubhouse, creation of outdoor education facilities, development of the Pogonip Garden, enhancement of the trail system, and protection of sensitive natural and historic resources. These uses are illustrated on the Pogonip Master Plan map on page iii and briefly described below.

POGONIP COMMUNITY CLUBHOUSE

The historic clubhouse, a "signature landmark" in the City of Santa Cruz, would be rehabilitated to serve as a meeting and retreat center, a staging area for education programs, and a site for special events. Creation of landscaped grounds surrounding the clubhouse would provide a magnificent, scenic setting for outdoor events. A 45-car parking lot at the Upper Meadow, at the site of the existing tennis courts, would be developed to accommodate clubhouse event attendees; larger events would require a shuttle system.

POGONIP GARDEN

A permanent site for the agricultural plots and organic farming operations of the Homeless Garden Project would be provided at the Lower Main Meadow. The Pogonip Garden would include support facilities, a greenhouse area, and cultivated plots. The Homeless Garden Project serves as a job training and transitional employment opportunity for homeless people.

OUTDOOR EDUCATION CAMP

A one-half acre day-use outdoor camp area is proposed for the Lower Main Meadow, to the west of Golf Club Drive. The Outdoor Education Camp would focus on interactive environmental education programs for youth. Amenities would include a covered shelter with picnic tables, amphitheater-style seating, and restroom facilities. The Upper Meadow will also be evaluated as an alternative site for the outdoor camp.

SYCAMORE GROVE NATURE AREA

The Sycamore Grove riparian forest would be designated as a nature area, with interpretive displays, outdoor seating for educational programs, and a nature loop trail encircling the majestic grove. A key component of this enhancement effort is removal of the invasive non-native species that presently plague Sycamore Grove.

TRAILS

The existing trail system would be enhanced to provide more trail opportunities. Equestrian and bicycle access would be provided on a new multi-use trail connecting Henry Cowell Redwoods State Park, the northernmost portion of Pogonip, and the upper UCSC campus. Multi-use access will also be considered on Rincon Trail at a future date. All other trails and service roads are designated pedestrian use only. Trail segments would also be rerouted to protect sensitive natural resources, which are presently impacted by some of the existing trails.

HISTORIC SITES AND FEATURES

Historic structures and features at Pogonip include the clubhouse, the limekilns, historic roads, and the McCormick House site, all of which would be preserved. Interpretive programs and displays would also be developed to share Pogonip's history with visitors.

RESOURCE MANAGEMENT AREAS

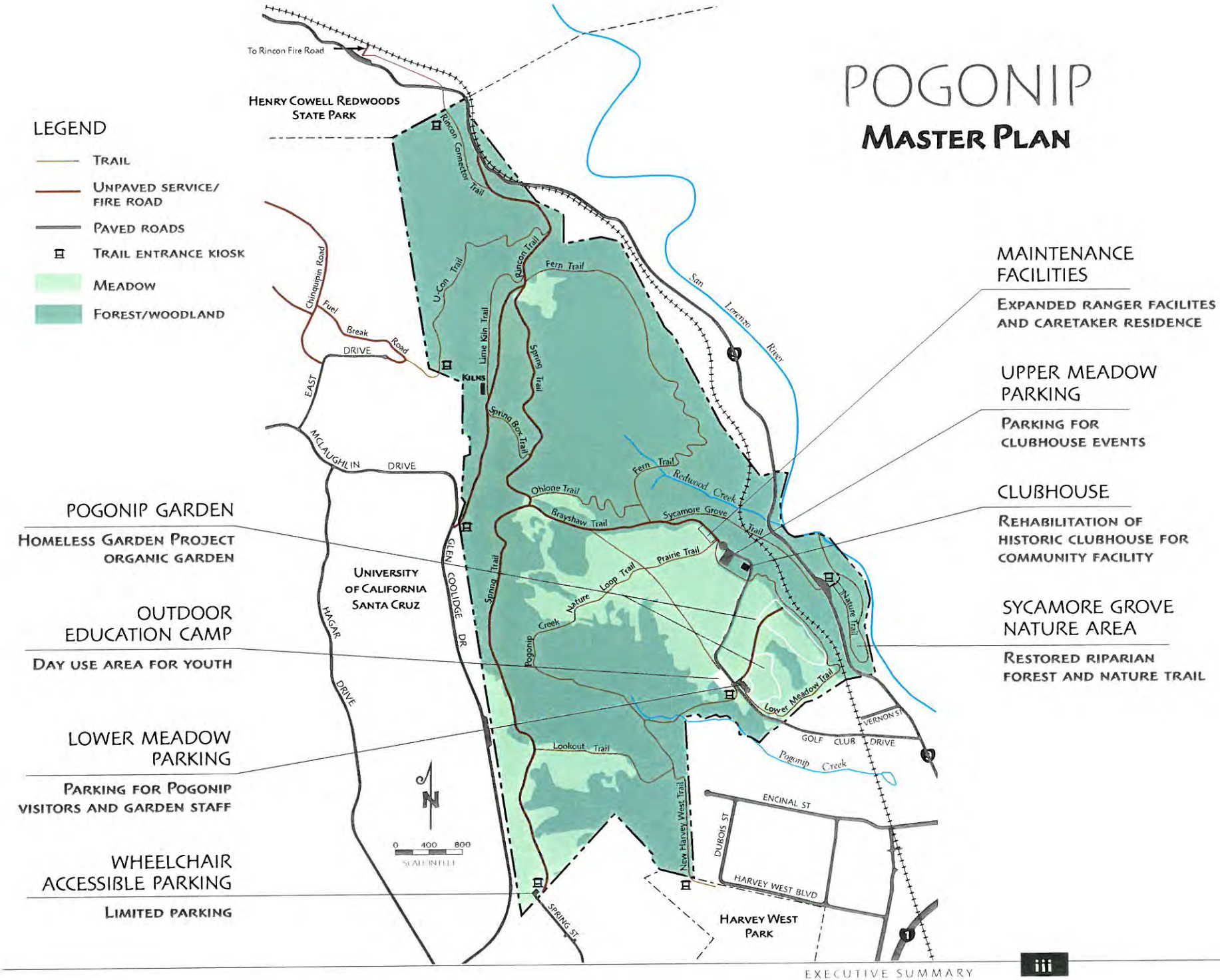
Sensitive biotic resources, including rare plant and wildlife species and unique plant communities, would be protected and enhanced. Resource Management Areas include: coastal terrace prairie; wetland/freshwater marsh; central coast cottonwood-sycamore riparian forest; central coast riparian scrub; robust spineflower habitat; and Ohlone tiger beetle habitat.

I.2 A LEGACY OF COMMUNITY INVOLVEMENT

This Master Plan reflects many years of community input, planning studies, and technical analyses. Community members have been consistently involved in planning efforts for Pogonip. In fact, citizens of Santa Cruz played a key role in getting funding through the CALPAW State Bond Act of 1988 for the purchase of Pogonip in 1989.

Citizens continued to stay involved in the Pogonip Land Use Options Assessment planning process, which was conducted between 1991 and 1993. It featured several public meetings, questionnaires, and other opportunities for community input.

POGONIP
MASTER PLAN



Callendar and Associates was contracted by the City of Santa Cruz to work with the Pogonip Task Force, a committee of citizens appointed to "evaluate the full range of alternatives and to develop a land use options assessment report for the Pogonip property." This process resulted in the City Council's acceptance of the Mixed Land Use concept-a menu of proposed land uses for Pogonip which served as the starting point for this Master Plan (see Section 1.3).

The first step in the Master Plan process was to conduct an environmental constraints analysis to gain a preliminary understanding of the potential environmental impacts of the Mixed Land Use concept. Findings of the environmental analysis were presented to community members at a public workshop, and to the Parks and Recreation Commission, Greenbelt Committee, and the City Council in early 1997. As a result, some of the earlier proposed uses, such as a campground at Sycamore Grove, are not recommended. Also, at this time Pogonip is not considered the preferred future museum site within the City of Santa Cruz and therefore, a museum is not included as a proposed use in the Master Plan.

During the Master Plan process, opportunities for community involvement were created through the formation of focus groups organized to address specific aspects of the Master Plan. At the direction of City Council, a citizen-based group of historic and design professionals was organized to explore strategies for rehabilitation of the historic clubhouse. Another Focus Group was organized to identify recommendations for trail use. Recommendations from both of these groups were brought forward to the Parks and Recreation Commission, Greenbelt Committee and City Council at public meetings.

Finally, public input was a key component of the environmental review process and consideration of the Master Plan by the decision-makers. The approval process for the Master Plan and the Environmental Impact Report is described in the last section of this Executive Summary.

I.3 SUMMARY OF MASTER PLAN ELEMENTS



This Master Plan is organized into eight elements, which include Visitor Facilities and Special Uses, Trails, Historic Resources, Natural Resources, Fire Management, Infrastructure, Operations, and Phasing and Implementation. Each of these elements, except for Phasing and Implementation, include Design Guidelines and Management Actions.

The Design Guidelines are intended to ensure that improvements at Pogonip are of an appropriate scale, fit with the landscape, and reflect the rural character of the setting. The Guidelines address physical design, layout and appropriate materials for new facilities and site improvements. Some flexibility is provided in the Design Guidelines to allow for creative design solutions and the introduction of new materials in the future, which may be preferable to those currently available.

The Management Actions provide guidance regarding protection and restoration of habitat areas and sensitive biotic resources, preservation of historic resources, and public use and safety policies. The Parks and Recreation Department as needed will generally carry out these Management Actions. They may also require coordination with other City departments and appropriate agencies, and the involvement of technical consultants, contracted labor, and volunteers. A brief summary of the Master Plan elements is presented in the following paragraphs.

VISITOR FACILITIES AND SPECIAL USES ELEMENT

Proposed new visitor facilities, including the rehabilitation of the historic clubhouse, the Outdoor Education Camp, and the Sycamore Grove Nature Area are described in this Element. It also includes an overview of the Pogonip Garden, which would be developed and operated by the Homeless Garden Project.



TRAILS ELEMENT

The Trails Element includes descriptions of the existing trail system as well as proposed new trail routes and realignments. Design Guidelines and Management Actions are presented to guide development and maintenance of trails, and provide strategies for effective management of the trail system.

Historic Resources Element

Historic resources described in this element include: the clubhouse; limekilns, quarries and associated historic features, and; the McCormick House site. Design Guidelines and Management Actions address the preservation and interpretation of these historic structures and features.

Natural Resources Element

This element describes sensitive biotic resources, which occur within Pogonip, and includes recommendations for designation of Natural Resource Management Areas to protect the sensitive plant and wildlife species, and habitats.

Fire Management Element

Prepared by a wildland fire management specialist, this element addresses values at risk from fire, fire hazards, risk of ignition, and methods of wildland fuel management.

Infrastructure Element

Infrastructure improvements including roadways, on-site parking, and municipal water and sewer extensions to serve the visitor facilities are presented in this element.

Operations Element

Proposed improvements to the Park Ranger and maintenance facilities are identified. Existing staffing and anticipated future staffing needs, based upon the new and expanded uses, are also discussed.

Phasing and Implementation Element

The final element of the Master Plan outlines a preliminary phasing plan for the new and expanded uses. Cost estimates and preliminary projected increased staffing to maintain and manage these improvements are included. Potential funding sources to implement the Master Plan are also identified.

I.4 MASTER PLAN APPROVAL PROCESS

This Master Plan was approved by the Santa Cruz City Council on July 21, 1998. The Parks and Recreation Commission and Greenbelt Committee also considered the Master Plan and recommended approval to the City Council. The Historic Preservation Commission has provided input regarding issues and uses related to historic resources.

Under the California Environmental Quality Act (CEQA), an Environmental Impact Report (EIR) was prepared to evaluate the potential significant environmental impacts of the proposed uses included in this Master Plan. Prior to adoption of the Master Plan, the City Council reviewed the information within the Final EIR and certified the document on July 21, 1998.

Throughout the approval process, community input was a key component. Many citizens have dedicated their time and ideas to the future of Pogonip. It is the City's hope this Master Plan fulfills the community's vision for Pogonip: a place of natural beauty, rich in habitat value and serenity, with opportunities for education and recreation which are environmentally and economically sustainable.



ILLUSTRATION: CISCO MONTESINOS

BOBCAT, LYNX RUFUS

ITS COMBINATION OF TUFTED EARS AND BOBBED TAIL ARE UNIQUE TO THIS WIDELY RANGING, SOLITARY CAT.



INTRODUCTION

Pogonip's physical setting, abundant natural resources, historic features, and physical constraints have molded this Master Plan. An overview of the existing setting and resources is provided in this Introduction. Because strong community interest and involvement has been key to the acquisition and planning for Pogonip, a brief planning history is also presented.

1.1 SETTING

Situated one mile from downtown Santa Cruz, Pogonip is a tranquil refuge from the urban landscape. Although busy highways, light-industrial and commercial complexes are located within one quarter-mile of Pogonip, visitors walking along the wooded hillsides and canyons are amazed at the sense of being within a remote, natural area.

Pogonip's topography is key to this sense of refuge and remoteness. The property is physically separated from most adjoining land uses by wooded slopes and generally slopes upward from the southeast corner along the San Lorenzo River, to the northwest. The elevation of Pogonip ranges from less than 100 feet along the San Lorenzo River to nearly 800 feet near the UCSC campus and Henry Cowell Redwoods State Park boundaries. A slope analysis map is included in Appendix B.

Much of Pogonip is bordered by relatively undeveloped lands, particularly to the north. The property lies between the University of California campus to the west and the San Lorenzo River/Highway 9 corridor to the east. The northernmost tip of Pogonip borders Henry Cowell Redwoods State Park. To the south is Harvey West Regional Park and light industrial/commercial development. The far southwest boundary extends along a residential neighborhood and an undeveloped canyon.

Two relatively level terraces, the lower and upper portions of the Main Meadow, are prominent features both within Pogonip and from viewsheds beyond the property. From the edge of the Upper Main Meadow, visitors can enjoy scenic views of Santa Cruz and Monterey Bay. Although much of the Main Meadow is dominated by non-native grassland species, remnant areas of prairie habitat and unique wildlife species do exist. Several small meadows also exist at Pogonip, some of which feature sensitive plant species. The northern portion of Pogonip is mostly wooded, primarily with mixed evergreen forest and upland redwood forest.

Although Pogonip is often perceived as pristine and undisturbed, much of the landscape has been altered over the course of the past 150 years. Logging production in the mid-nineteenth resulted in the massive loss of old growth redwoods in the region. Limestone production also significantly reduced the old growth forests as redwood logs were used to fuel the kilns. In the early part of this century, the Main Meadow was altered by recreational uses including a golf course and polo fields. Nonetheless, given the historic disturbance and proximity to developed



PHOTOGRAPH: DON NIELSEN

urban areas, a remarkable diversity and richness of native plant and wildlife species continue to thrive at Pogonip.

1.2 RESOURCE HIGHLIGHTS



GREAT BLUE HERON
ARDEA HERODIAS
FISHING IN THE SAN LORENZO RIVER AT SYCAMORE GROVE

Highlights of Pogonip's natural resources are presented in this section, including the geology and soils, hydrology, biotic resources, and historic structures and features. Since the City of Santa Cruz's acquisition of Pogonip, and during the Cowell Foundation's previous ownership, a considerable number of field studies and analyses have been conducted regarding these resources. Information on existing conditions included in this Master Plan is based upon these previous studies, as well as recent analyses completed for the Environmental Impact Report. A list of sources is included in Appendix A.

GEOLOGY

Pogonip's geologic conditions are relatively complex, with diverse underlying rock materials and soils (refer to the Geologic and Hydrologic Resources Map in Appendix B). The Pogonip site is a part of the Salinian block of the Central Coast Ranges, which is characterized by geologically old metamorphic rocks intruded by masses of granite rock. Some of the oldest rocks in the Santa Cruz area, marble and shist, are found at Pogonip.

Crystalline marble, known as "limestone," occurs in the upper elevations of Pogonip and along the western boundary. Limestone was a commercially valued resource within the Santa Cruz region.

The Santa Margarita Formation, a very erodible sandstone, underlies the Main Meadow and much of the southern portion of Pogonip. The area known as the Main Meadow consists of two relatively level terraces. Underlying these terraces, less permeable clay layers are interspersed with the permeable, medium-grained Santa Margarita Formation.

Pogonip also bears evidence of extensive faulting and geologic folding. Ben Lomond Fault is the closest to Pogonip; however, it is considered an ancient fault. The most recent significant seismic activity was the 1989 Loma Prieta Earthquake, measuring 7.1 on the Richter Scale. While the Santa Cruz region suffered significant damage, there is relatively little evidence of the effects of the Loma Prieta earthquake at Pogonip.

HYDROLOGY

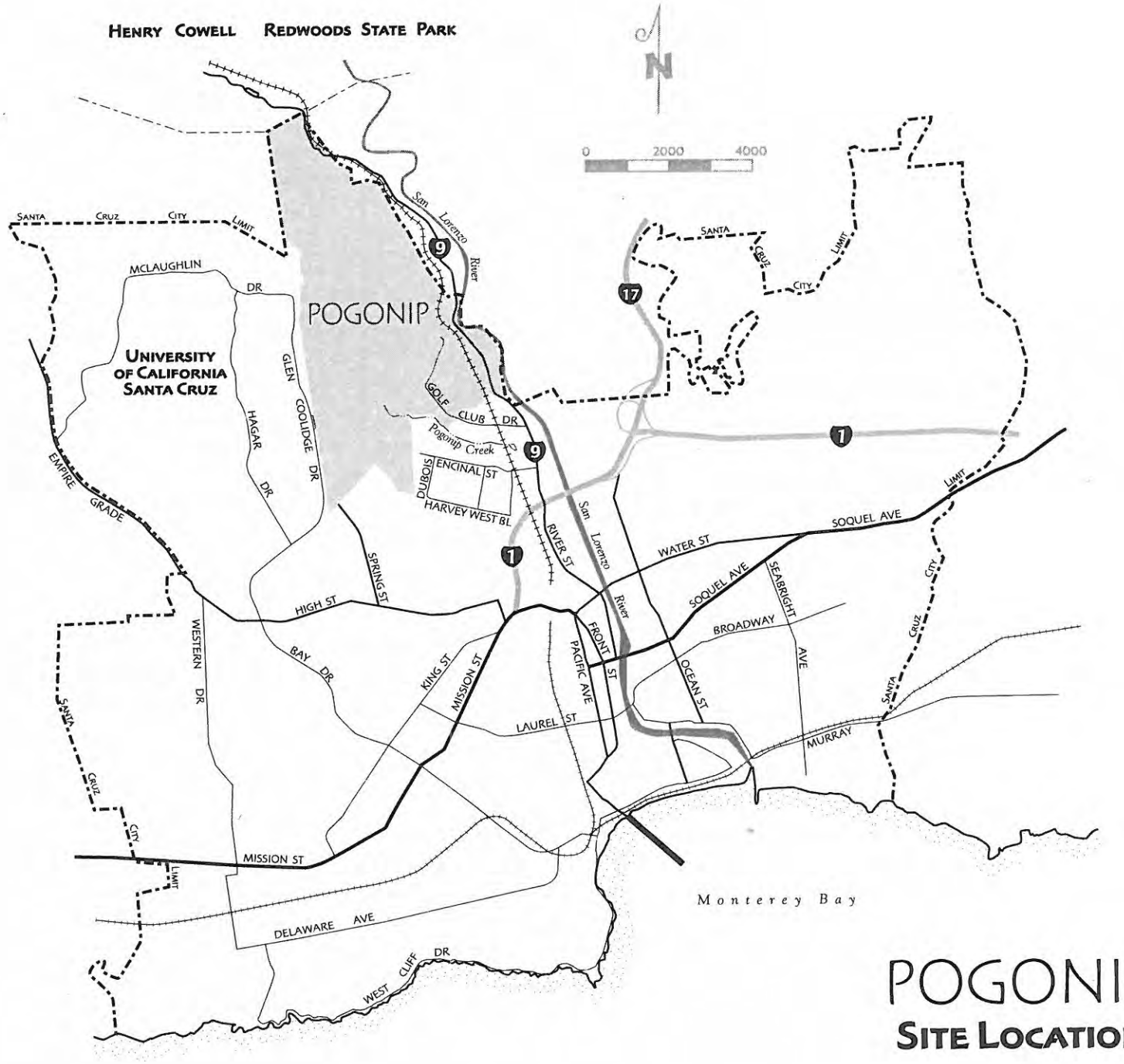
Pogonip is relatively sheltered from severe winter storms and high summer temperatures compared with the upper San Lorenzo Valley. The property lies in the lee of the higher UCSC campus lands and is somewhat protected from storms coming in from the west. Rainfall typically varies on the site from 30 to 35 inches annually. Precipitation is heaviest December through March.

Pogonip lies within the watershed of the San Lorenzo River. A portion of Pogonip, called Sycamore Grove, lies directly along the river. The two primary drainages within the central portion of Pogonip are known locally as Pogonip Creek and Redwood Creek. Pogonip Creek drains the southern portion of Pogonip. Its lower reach parallels the property line to the west of Golf Club Drive. Redwood Creek drains much of the northern portion. Both watersheds are less than 300 acres in size and empty into the San Lorenzo River.

Several springs occur within Pogonip, primarily on the steep slopes along the western boundary of the property. These springs are the result of surface water percolating into the permeable bedrock and then flowing to the surface again through cracks and channels within the rock. Springs have served as the primary water supply for the historic uses at Pogonip and continue to be used as a non-potable water supply on a limited basis.

Drainage in the southern portion of Pogonip is relatively poor because of the level terraces and underlying clay layers, which prevent surface water from percolating. This results in saturation of the thin topsoil and ponding in flat terrace areas, in addition to seeps on sloped areas. The slopes between the upper and lower portion of the meadow, just below Golf Club Drive, exhibit several seeps.

Groundwater within Pogonip is also relatively complex. In the Main Meadow areas, percolating water cannot pass through



POGONIP
SITE LOCATION

the impermeable clay layers, resulting in perched groundwater and movement of water laterally. This laterally moving water typically exits through the seeps mentioned above. A well was developed at the Upper Meadow in an effort to provide a water supply for previous uses; however, it was never utilized. The capacity of the aquifer in the western portion of Pogonip, in areas underlain by marble bedrock, may be greater; however, detailed groundwater studies have not been conducted.



MADRONE
ARBUTUS MENZIESII
LOCAL OHLONE TRIBLETS USED THE MADRONE AS AN IMPORTANT FOOD AND MEDICINAL SOURCE.

PLANT COMMUNITIES

Pogonip's plant and wildlife resources are diverse and plentiful, making it an especially valuable habitat given its proximity to an urban area. It is particularly notable for the mix of plant communities present (refer to the Plant Communities Map in Appendix B). Woodlands cover most of Pogonip, totaling over 450 acres. The remaining acreage consists of coastal terrace prairie habitat and non-native grasslands. Specific vegetation types are listed below.

COASTAL TERRACE PRAIRIE

This plant community is increasingly limited in distribution in the Santa Cruz region. It is found at various locations within Pogonip. Perennial native grasses associated with coastal terrace prairie include California oatgrass and purple needlegrass. Sensitive plant species, including the Santa Cruz popcorn flower, Santa Cruz clover, and Gairdner's Yampah, have been identified at some meadow sites.

GRASSLAND (PRIMARILY NON-NATIVE SPECIES)

This plant community occurs largely as a result of the introduction of non-native grassland species from previous uses at Pogonip and disruptions of natural cycles such as fire, which benefited native grasses. Rattlesnake grass, wild oats, fescue, and Bermuda grass are some of the dominant non-native species.

PALUSTRINE EMERGENT WETLAND

Relatively small emergent wetlands and freshwater marsh occur at Pogonip. Wet-loving plants, such as rush and sedges, thrive in these wetlands and marsh areas.

CENTRAL COAST COTTONWOOD/ SYCAMORE RIPARIAN FOREST

This riparian forest type occurs at Sycamore Grove; it is the northernmost stand of this forest type in California. Species present include sycamore, black cottonwood, and several willow species.

UPLAND REDWOOD FOREST

This forest type, dominated by coast redwood, is also found extensively in Pogonip, particularly in the northern portion. Some nearly homogeneous stands of redwood occur. Trees associated with this forest type include tan oak, madrone and Douglas fir. Understory vegetation typically consists of sword fern, sorrel, hazelnut, and redwood violet.

MIXED EVERGREEN FOREST

This oak-madrone forest association is the most dominant plant community at Pogonip and is considered a redwood border forest. The understory is typically poison oak or hazelnut. Variations of this forest type include the nearly pure stands of California Bay, one of which is located to the southwest of the Upper Main Meadow.

COAST LIVE OAK FOREST

This forest type, characterized by homogeneous stands of coast live oak, occurs adjacent to the mixed evergreen forest areas. Typically, there is a dense understory of poison oak and/or snowberry.

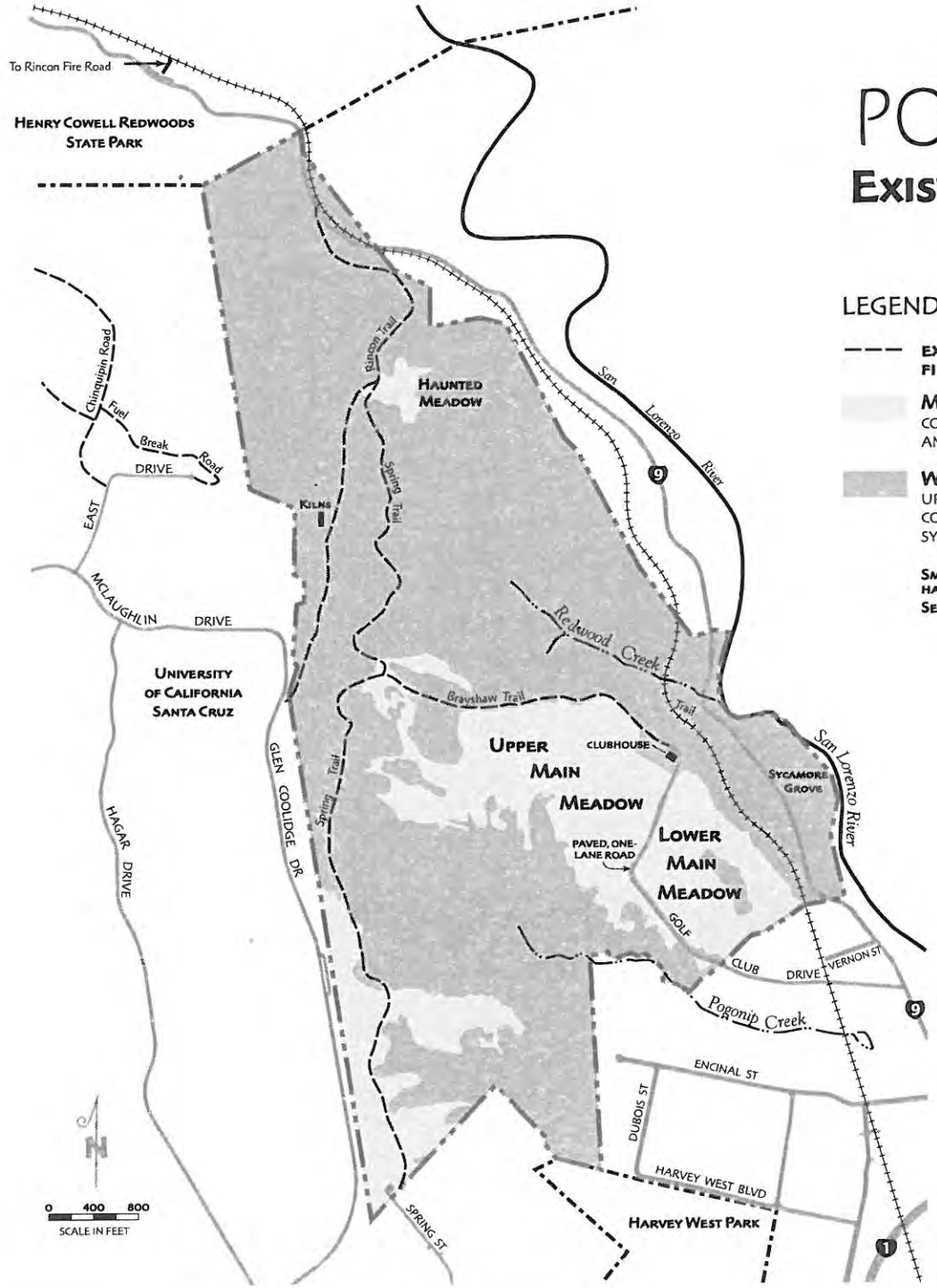
CENTRAL COAST RIPARIAN SCRUB

This willow riparian scrub occurs in two relatively small areas within Pogonip. This plant community is typically dominated by dense thickets of yellow willow.

COYOTE BRUSH SCRUB

This scrub community is dominated by homogeneous stands of Coyote brush. Ordinarily, it occurs in disturbed sites.

Several of these plant communities are recognized as sensitive habitats, including the cottonwood/sycamore riparian forest, riparian scrub, coastal terrace prairie, and wetlands. These communities are considered sensitive because they are limited in regional or statewide distribution and they feature diverse



POGONIP
EXISTING SETTING

LEGEND

- **EXSISTING UNPAVED SERVICE/ FIRE ROAD**
- **MEADOWS**
  COASTAL TERRACE PRAIRIE AND NON-NATIVE GRASSLANDS
- **WOODLANDS**
  UPLAND REDWOOD, MIXED EVERGREEN, COAST LIVEOAK AND COTTONWOOD/ SYCAMORE RIPARIAN FORESTS

SMALLER MEADOWS, WETLANDS AND SCRUB HABITAT NOT DEPICTED ON THIS MAP.
SEE PLANT COMMUNITIES MAP IN APPENDIX B.

and abundant native plant and wildlife species. Special status plant species have also been identified at Pogonip. These are primarily associated with the coastal terrace prairie and include San Francisco popcorn flower, Santa Cruz clover and Gairdner's Yampah. Two robust spineflower habitat areas also occur at Pogonip. The Natural Resources Element includes a description of these biotic resources and management strategies to ensure their long-term survival. One of the key issues is the removal of invasive non-native species to increase habitat for native plants.



ILLUSTRATION: CISCO MONTESINOS
GARTER SNAKE
THAMNOPHIS SIRTALIS

THE COMMON GARTER SNAKE IS DISTINGUISHABLE BY RED-STRIPPED MARKINGS ON ITS SIDES.

WILDLIFE

An array of wildlife species rely on Pogonip's plant communities for habitat. A list of wildlife species observed or predicted to occur at Pogonip is included in Appendix C. Some of these wildlife species are considered special status species, which are those species officially listed by the State and/or Federal government as either endangered, threatened, candidates for listing, or otherwise protected.

Special status wildlife species which have been identified at Pogonip include the Ohlone tiger beetle, redtail hawk, white-tailed kite, and bobcat. Other special status species associated with rivers and streamside habitats have the potential to occur, including the southwestern pond turtle and the California red-legged frog. The San Lorenzo River, a short segment of which flows along the Pogonip boundary, supports coho salmon and steelhead trout populations. Management Actions for protection of these species and observed locations are also included in the Natural Resources Element.

More common species are also abundant in Pogonip. In the grassland areas, wildlife species include black-tailed jackrabbit, California ground squirrel, Botta's pocket gopher, California vole, and the western harvest mouse. These small mammals provide prey for raptors, coyote, fox, and bobcat. Black-tailed deer are sometimes seen in the meadows, though often deer seek cover in denser vegetation during the day. Mountain lions are also expected to use Pogonip, particularly the northern portion and upper ridges. Several mountain lion sightings are reported annually. Both forested areas and grasslands are used by many bat species.

Numerous bird species, both resident and migrating species, are found at Pogonip. A few of the birds observed include owls, western bluebird, American robin, western meadowlark, chestnut-backed chickadee, Bewick's wren, plain titmouse, acorn woodpeckers, and sparrows. Neo-tropical migrant birds, such as Wilson's warbler, warbling vireo, and olive-sided flycatcher rely on riparian habitat within Pogonip. Raptors observed at Pogonip include white-tailed kite and red-tail hawk.

Amphibians and reptiles are also common throughout Pogonip. Typical reptile species in the grassland areas include alligator lizard, western fence lizard, and common garter snake. Freshwater marshes provide habitat for tree frogs and western toad if there is sufficient water. Redwood forests also support an abundance of amphibians, including Pacific giant salamanders and California newts.

HISTORIC RESOURCES

A walk through Pogonip offers glimpses into the history of Santa Cruz, from the limestone production of the nineteenth century to the rustic clubhouse reminiscent of the golf and polo heydays of the early twentieth century. Structures and features which merit preservation include the clubhouse, limekilns and associated features including the quarries and historic roads. These structures and features are highlighted briefly in this Introduction. A more detailed description of these resources and preservation strategies are presented in the Historic Resources Element.

The clubhouse, constructed in 1911 as part of the Casa del Rey Golf Course, is the most prominent historic feature with its scenic vantage point overlooking the Main Meadow, Santa Cruz and Monterey Bay. The two-story Craftsman style bungalow clubhouse, listed in the City of Santa Cruz Historic Building Survey, is considered eligible for listing in the State and National Register of Historic Places. The building is currently not open to public use and was condemned as structurally unsafe. It is proposed for rehabilitation and reuse as a

community facility as part of this Master Plan (Section 2.1).

The other significant historic resources are the lime kilns and features associated with the lime production industry. Rather than being identified as isolated historic resources, it is proposed that the kilns, quarries, roads, and related features be recognized, managed, and interpreted as a historic district within Pogonip (refer to Section 4.2).

1.3 PLANNING PROCESS

The planning process for Pogonip has required cautious balancing of natural and historic resource protection with the community's interest in various recreational, educational and special uses. Over the past several years, planning studies and analyses have been conducted to better understand Pogonip's resource values and ascertain the types of uses considered most appropriate for Pogonip. This section briefly describes the planning process which has evolved into the acquisition of Pogonip as a City Greenbelt land and development of this Master Plan.

BACKGROUND

Since the mid-1950s, the 614-acre property known as Pogonip was managed by the S. H. Cowell Foundation. During the early 1970s, the Cowell Foundation commissioned planning studies to look at possibilities for "preserving its magnificent natural features, while utilizing its obvious potential for sound and orderly development *(Pogonip Area Planning Study, 1970)*." These analyses identified a range of alternatives, including residential use, an office complex, and convention facilities.

Also during the 1970s, community interest grew to create a greenbelt to preserve the open space surrounding the City. In 1979, Measure O was passed which identified greenbelt lands surrounding the City. These lands included the 614-acre Pogonip property and the adjacent privately owned 25-acre property known as the Wavecrest property. Greenbelt lands were defined as lands that are "essentially unimproved and devoted to the following land uses: timber production and harvesting, agriculture including grazing, private recreation, public recreation, wildlife habitat, watershed or ground water recharge, and

POGONIP AQUISITION AND PLANNING PROCESS

1984 - 1988
COWELL FOUNDATION
POGONIP ADVISORY COMMITTEE
Explored land use options
Recommended acquisition under CALPAW

1988 -1989
POGONIP ACQUISITION
Calif. Parks and Wildlife Initiative funding
Opened to public use 1989

1991 - 1993
POGONIP LAND USE OPTIONS ASSESSMENT
Pogonip Task Force
Recommended Mixed Land Use Option
Approved by City Council 1/26/93

1995
POGONIP INTERIM MANAGEMENT PLAN
Maintenance of existing facilities
Interim management policies
Adopted by City Council 11/28/95

1996 - 1998
POGONIP MASTER PLAN
Constraints analyses
Pogonip Master Plan
Environmental Impact Report





THE CLUBHOUSE AND GOLF COURSE, HERE VIEWED FROM THE LOWER MAIN MEADOW, WERE COMPLETED IN 1911.

scientific or educational purposes that maintain the open space character of the land..."

With the Greenbelt Overlay designation in place, the S. H. Cowell Foundation continued its efforts to "arrive at a long term solution for the Pogonip taking into account both the needs of the community and the needs of the S. H. Cowell Foundation for a fair economic return." To this end, the Pogonip Advisory Committee was organized in 1984. Over the next several years, the Committee met on a regular basis to explore alternative development scenarios.

One of the alternatives identified by the Advisory Committee included public acquisition of the 614-acre Pogonip property with potential funding through the Californians for Parks and Wildlife Initiative (CALPAW), a ballot measure in 1988. The goal of this Initiative was to provide funding for "acquisition, development, rehabilitation, protection or restoration of park, wildlife, coastal and natural lands in California, including lands supporting unique or endangered plants and animals."

With the concurrence of the S. H. Cowell Foundation, the Pogonip Advisory Committee and other citizens worked to include language in the CALPAW Initiative, Proposition 70, earmarking $15 million for public acquisition of Pogonip. With the passage of this Bond Act by California voters in June of 1988, acquisition of Pogonip was fully funded.

In 1989, title to the property was transferred to the City of Santa Cruz. The adjacent 25-acre Wavecrest property remained in private ownership. Pogonip was opened to public use, though limited to pedestrian trail use only. Since that time, management and planning for Pogonip has been the responsibility of the Parks and Recreation Department.

Mixed Use Concept

In 1991, the City undertook the first step in planning for Pogonip's future as a public Greenbelt land by establishing the Pogonip Task Force. This citizen-based group was established to "evaluate the full range of alternatives and to develop a land use options assessment report for the Pogonip property." Task Force members worked closely with the planning consultant team, Callander Associates, over the following year. A summary of their work and the outcome of their efforts is presented in the *Pogonip Land Use Options Assessment*, December 1992.

As part of this process, public input was gathered from questionnaires, public workshops, and regularly scheduled meetings. After evaluating numerous land uses proposed by the public, three land use plan alternatives were identified by the Task Force:

1. Leaving Pogonip As Is;
2. Mixed Land Use Plan; and
3. Intensive Recreation Plan.

The first alternative envisioned no changes to current land uses at Pogonip, with the exception of restoration of the historic clubhouse. Uses identified in the second alternative, called the Mixed Land Use Plan, included multi-use trails, the Natural History Museum, a site for the Homeless Garden Project's organic garden, continuation of the Pogonip Club, access improvements, and a campground at Sycamore Grove. The Intensive Recreation Plan featured an 18-hole golf course and sports fields in addition to the land uses included in the Mixed Land Use Plan.

These land use alternatives were considered by the Parks and Recreation Commission and City Council. In early 1993, the City Council accepted the Mixed Land Use Plan as the preferred alternative for Pogonip. Environmental review of the proposed uses was not completed at that time. The *Pogonip Land Use Options Assessment* identified environmental review and completion of a Master Plan as the next steps.

Pogonip Environmental Constraints Analysis

In 1996, the Pogonip Master Plan process was initiated. An environmental constraints analysis was conducted as the first phase of the process. The Parks and Recreation Department contracted with the Habitat Restoration Group to conduct the analysis.

The intent of the environmental constraints analysis was to identify Pogonip's sensitive biotic, geologic, hydrologic, cultural, and scenic resources and to provide a preliminary evaluation of the effect of the proposed uses identified in the Mixed Land Use Plan on these resources. A series of constraints maps

were created to identify areas in Pogonip with highly sensitive resources, as well as areas of low sensitivity. The technical analyses and constraints maps were then used to assist in evaluating the specific land uses and their proposed location.

Based upon the findings of the *Environmental Constraints Analysis*, the Mixed Land Use Plan was refined in an effort to minimize impacts to sensitive resources. In general, the analysis suggested the most intensive uses should be focused in the previously disturbed areas with the least sensitive resources. Sycamore Grove was identified as a highly sensitive resource area, more appropriate for low intensity uses and habitat preservation than a fee campground as originally proposed. As an alternative to the campground along the San Lorenzo River at Sycamore Grove, a day-use and overnight educational camp facility was proposed for the westernmost area of the Lower Main Meadow. The proposed rehabilitation of the clubhouse and infrastructure improvements were also designed to minimize impacts to sensitive resources as a result of the constraints analysis.

Also, during the environmental constraints analysis, it was determined that Pogonip was not the final preferred site for a new museum. The Natural History Museum is located in the Seabright area of Santa Cruz; however, the facilities are inadequate for desired future expansion of programs and exhibits. Efforts are underway to seek an appropriate site for a new, expanded facility. Although the Natural History Museum is considered an appropriate use for Pogonip, the relatively remote location and other concerns have been raised. If another site is not found and at a future date Pogonip is considered the most viable location, an amendment to the Pogonip Master Plan and the required environmental review under the California Environmental Quality Act (CEQA) would be necessary.

Pogonip Master Plan

After completion of the environmental constraints analysis phase of the planning process, work began on the Master Plan itself. In February of 1997, based on the environmental constraints analysis, the City Council defined the specific uses to be included in the Master Plan. The uses are essentially a refinement of the Mixed Land Use Plan, which was conceptually approved by a previous City Council in 1993.

Also in 1997, the City of Santa Cruz purchased the adjacent 25-acre greenbelt-designated property known as the Wavecrest parcel. Acquisition of this property ensured protection of habitat and undeveloped open space and allowed for a trail connection between Harvey West Park and Pogonip. This parcel is considered an expansion of Pogonip, increasing the total size to 640 acres. Potential uses for the Wavecrest parcel, including trails and habitat protection, were identified in the *Greenbelt Master Plan Feasibility Study* (1995). These use concepts have been incorporated into the Master Plan.

Throughout preparation of this Master Plan, community input has been gathered during informational meetings and at public meetings conducted by the City Council, the Greenbelt Committee, and the Parks and Recreation Commission. Also, focus groups were organized to address specific issues, including the historic clubhouse and trails. These focus groups are described in more detail in the following paragraphs. Input regarding natural resources and education was solicited from local biotic specialists, representatives of interested agencies, educators, and the Natural History Museum. For the Pogonip Garden, the Parks and Recreation Department worked with representatives of the Homeless Garden Project to prepare the schematic plan for the garden.

Design, building, and historic resource professionals were invited to participate, at the City Council's direction, on the Clubhouse Technical Advisory Committee. The goal of this committee was to identify a range of appropriate and feasible options for preservation of the clubhouse. After evaluating several alternatives, including private sector and public sector rehabilitation of the structure, the Committee recommended the historic clubhouse be preserved as a public facility for educational programs, meetings and special events.

Use of trails within Pogonip was also identified as a key issue which could benefit from community input through a focus group. In spring of 1997, interested citizens participated in a series of workshops to identify a trail system which would



WHITE-TAILED KITE
ELANUS CAERULEUS

serve a diverse array of users. The Trails Focus Group presented recommendations regarding trail use and policies, which form the basis of the Trails Element included in this Master Plan.

Community input through these focus groups, public meetings, and previous planning efforts as part of the Land Use Options Assessment process have shaped this Master Plan.

Public input continued to be critical as part of the environmental review and consideration of the Master Plan by decision makers. The Master Plan and Environmental Impact Report review and approval process are described in the next sections.

Environmental Impact Report

Early in the Master Plan process, the Parks and Recreation Department determined the proposed land uses in Pogonip could result in potential significant environmental impacts. In accordance with the California Environmental Quality Act, a decision was made to prepare an Environmental Impact Report (EIR). Brady-LSA, of Berkeley, was contracted by the City to prepare the EIR. The Draft Master Plan and Draft EIR were prepared concurrently.



Mature oak and madrone form a canopy over Brayshaw Trail.

As stated in the DEIR, it is designed to "fully inform City decision-makers, other responsible agencies, and the general public of the proposed project and the potential consequences of project approval. The DEIR also examines various alternatives to the project and recommends a set of mitigation measures to reduce or avoid potentially significant impacts." Potential impacts are analyzed for the following areas: Land Use; Vegetation and Wildlife; Geology and Soils; Water Resources; Archaeological and Historic Resources; Visual Quality and Aesthetics; Transportation and Circulation; and Service Systems and Utilities.

As part of the EIR process, members of the public participated in an initial scoping meeting. A public review period was held to solicit comments regarding the Draft EIR. The Final EIR was then be prepared, which includes responses to the comments received and any necessary changes.

Review and Approval Process

The City is preparing this Master Plan in accordance with the City of Santa Cruz General Plan and Zoning Ordinance. The General Plan requires the City to develop, implement and maintain an updated management plan for the protection and enhancement of Pogonip. The General Plan also states the City shall "develop and implement the Master Plan for Pogonip per the mixed-use plan in the Pogonip Land Use Options Assessment (Land Use Element, 3.4.1)." Section 24.10.1745 of the Zoning Ordinance requires a special use permit or an approved Park Master Plan at the inception of a use in those lands designated as parks district to establish use and design parameters within the specific park.

In addition to the Master Plan, a General Plan Amendment and Rezoning should be completed for the 25-acre Wavecrest parcel so the land use designation and zoning for the entire 640-acre parcel is consistent. The General Plan land use designation for most of the property, 614 acres, is Natural Area; the zoning designation is Parks (PK) with a Natural Area Overlay. The remaining 25-acre parcel, acquired by the City in 1997, is currently designated as Very Low Residential in the General Plan. The zoning is Residential Suburban (R-S-10A).

The Parks and Recreation Commission is the lead advisory body to the City Council for the review of the Master Plan and EIR. The Greenbelt Subcommittee to the City Council is also responsible for review of the Master Plan and EIR and will make recommendations to the City Council. With respect to historic resource issues, the Historic Preservation Commission provided input regarding the clubhouse rehabilitation and historic site preservation recommendations. The Planning Commission has responsibility as the advisory body to the City Council for the General Plan Amendment and Rezoning.

The City Council was the final decision maker for the adoption of the Master Plan and the General Plan Amendment and Rezoning. Prior to adopting the Master Plan, the City Council reviewed and considered the information in the EIR. With certification of the EIR and adoption of the final Master Plan,in July, 1998, the City of Santa Cruz may now move forward to implement the vision for Pogonip.



VISITOR FACILITIES & SPECIAL USES

Visitor facilities and special uses proposed for Pogonip aim to recognize and enhance the unique character and setting of Pogonip-an open space rich in natural resources and historic features, situated near neighborhoods and schools. A key goal of the visitor facilities and uses is to foster appreciation and understanding of the natural environment, as well as human interaction with the environment. Another important goal is to ensure Pogonip is accessible to a diverse group of users.

This element of the Master Plan describes the proposed visitor facilities to be developed by the City of Santa Cruz. It also includes a description of the Pogonip Garden, which is considered a special use because it will be developed and managed by the Homeless Garden Project. The proposed uses include:

- **POGONIP COMMUNITY CLUBHOUSE**
  Rehabilitation of the historic clubhouse, which will serve as a staging area for education programs, a meeting and retreat center, and a site for special events.
- **OUTDOOR EDUCATION CAMP**
  Creation of an outdoor education camp for youth that promotes interactive environmental education.
- **SYCAMORE GROVE NATURE AREA**
  Restoration and enhancement of Sycamore Grove and development of a small-scale education area with interpretive facilities.
- **POGONIP GARDEN**
  Development of an organic garden site at the Lower Main Meadow to serve as a permanent site for the Homeless Garden Project.

For the Community Clubhouse, Outdoor Education Camp, and the Sycamore Grove Nature Area, a description of the proposed concept, Design Guidelines, and Management Actions are included in this element. For the Pogonip Garden, a description of the proposed use and a schematic design for the garden layout is presented. Detailed guidelines and management actions will be included in a Pogonip Garden Operations and Management Plan, which will be submitted to the City by the Homeless Garden Project at a later date.

2.1 POGONIP COMMUNITY CLUBHOUSE

CLUBHOUSE CONCEPT

With dramatic views of open meadows, the City of Santa Cruz and the Monterey Bay, the historic clubhouse at Pogonip has long been a "signature landmark" in Santa Cruz. Recognizing the historic value of the structure and importance to the community, the City is committted to preserving and rehabilitating this historic building to provide an adaptive reuse.

The Pogonip Community Clubhouse will serve as a public facility. It will provide a unique center for education programs, meetings, retreats, and special events (fundraising, nature



shows, lectures, weddings, etc.). These uses will provide for public access and generate revenue to offset operating costs. Specific use concepts include:

STAGING SITE FOR INTERACTIVE EDUCATION PROGRAMS

Educational programs could be sponsored by the Parks and Recreation Department, the Natural History Museum, K-12 school programs, University and Community College programs, and local environmental and educational organizations.

MEETING AND RETREAT SPACE FOR A DIVERSE RANGE OF USERS

Indoor space could be reserved by a range of users, including community non-profit organizations, environmental groups, educational institutions, governmental entities, business associations and private corporations. A fee system will be implemented to provide for maintenance and operation costs.

SITE FOR SPECIAL EVENTS

Special events could include cultural performances and music events, private weddings, ceremonies, receptions and benefit events for a diversity of groups. A fee system will also apply to special events.

A rehabilitation plan will be prepared for the clubhouse and the surrounding grounds. Rehabilitation will enhance the site's amenities, including the rural setting, views, architectural character, and outdoor space potential. After the rehabilitation is completed, the City may contract with a private concessionaire to maintain and operate the clubhouse facility. If a concessionaire is deemed not feasible, the City would operate the clubhouse.



PHOTO: DON NIELSEN

THE CLUBHOUSE, PICTURED TODAY, IS IN NEED OF RESTORATION.

EXISTING CLUBHOUSE FACILITIES

Constructed in 1911, the clubhouse was originally known as the Casa del Rey Golf and Country Club House. Since the early twentieth century, the clubhouse has served as a private facility for a broad range of recreational activities and special events (refer to the Historic Resources Element). Most recently, the private Pogonip Club operated the clubhouse. The Pogonip Club terminated their lease for the clubhouse and surrounding grounds in 1993.

The two-story Craftsman Bungalow style building, approximately 8,000 square feet, features several unique architectural features. The Historic Resources Element, Section 4.4, provides further information about the structure.

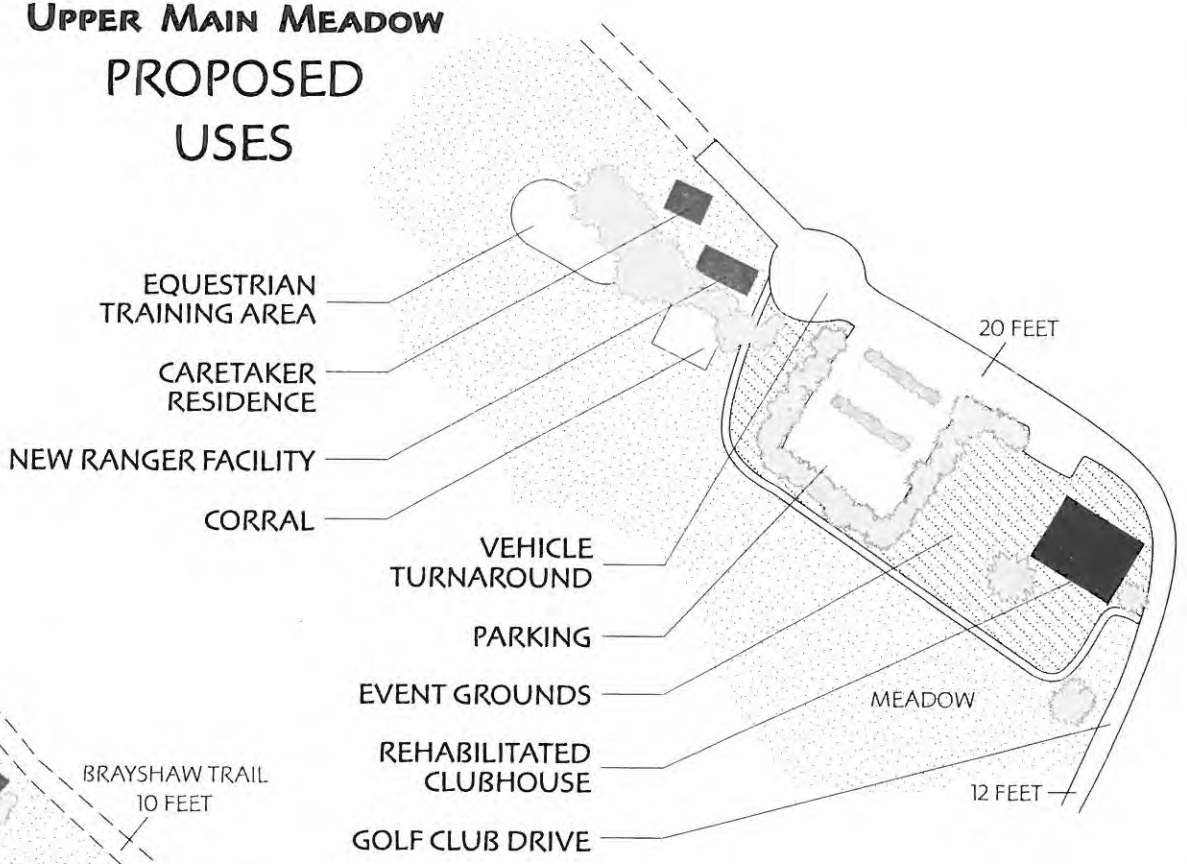
The historic clubhouse now suffers from many decades of deferred maintenance. In 1988, the clubhouse structure was declared unsafe by the County of Santa Cruz and was condemned. The inspector's report stated that "due to the extensive age of the structure, severe settling has caused the building to fall out of plumb and level to the point where the main upper structural system can no longer adequately support the building." Previous reports documenting the condition of the clubhouse also concluded that dry rot is evident in the roof rafters, exterior walls, deck and posts. According to the reports, the roof structure also appears unstable and the roof framing does not meet current code specifications to withstand wind and seismic forces. In the main room, one report indicated the front wall is tilting outward at the top by approximately six inches (Schwein, letter dated February 16, 1987). The entire roof, wall, floor and foundation structure will likely require complete rehabilitation.

In 1997, actions were undertaken by the City to mothball the building. These included installation of plywood on the windows and entrances and at the eastern elevation where shingles were missing. Management actions regarding mothballing are presented in the Historic Resources Element, Section 4.4

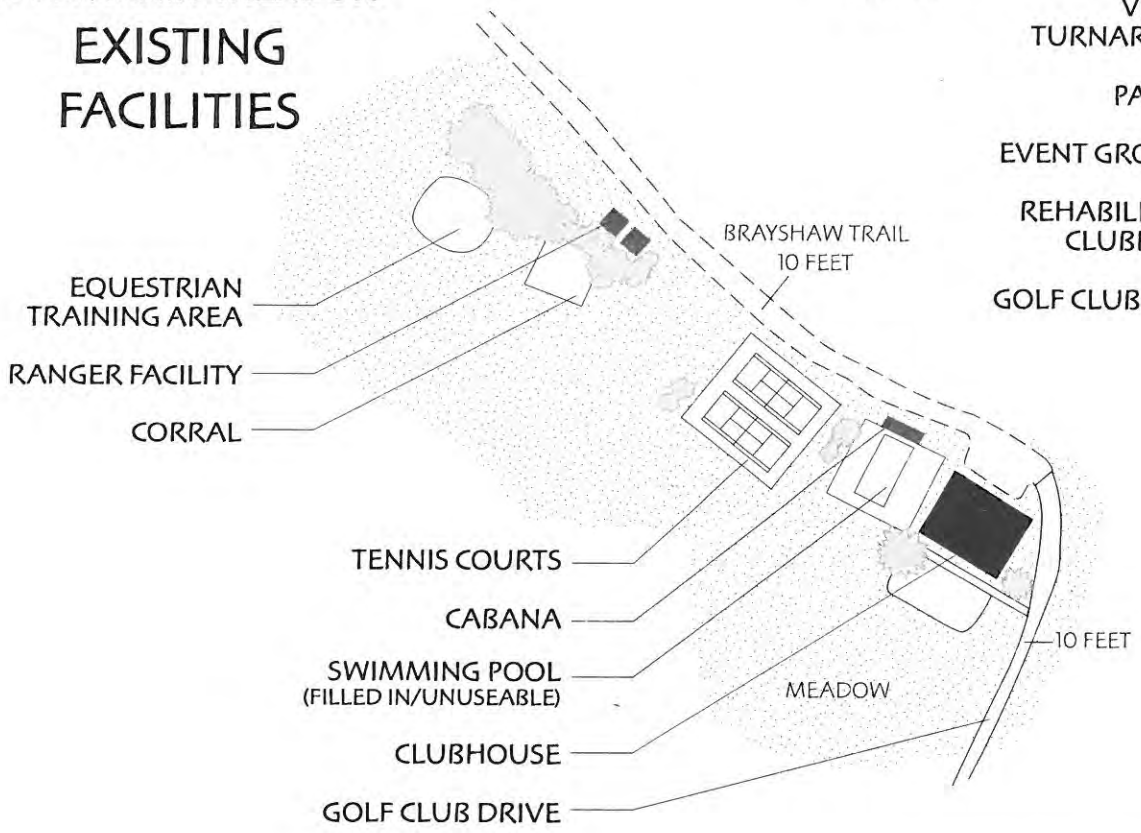
Vandalism was not a significant problem when the caretaker lived on site. Presently, there is no caretaker at Pogonip. In response to recent trespassing and vandalism incidents, an alarm system was installed. The clubhouse site will also be enclosed with security fencing to deter trespassing and vandalism.

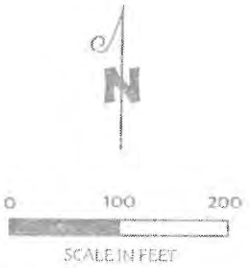
The existing utilities and services are insufficient to accommodate the proposed public use of the clubhouse. The existing septic and leach field system is inadequate for public toilet facility requirements. In 1993, a well was constructed which produces approximately 5 to 11 gallons per minute. The well

Upper Main Meadow
PROPOSED USES



Upper Main Meadow
EXISTING FACILITIES





water was never used as a potable water supply. The site has electricity; however, upgraded electrical service is needed.

Adjacent to the clubhouse are tennis courts and an old swimming pool. The two regulation-size tennis courts are playable but in need of maintenance. The 25-yard swimming pool is substandard and did not meet public use health standards. After the Pogonip Club lease ended, holes were drilled in the bottom of the pool to allow for drainage and the pool was filled with dirt. Adjacent to the pool area is a changing room/toilet facility, which is in disrepair.

Historic Structure Rehabilitation

The clubhouse will be rehabilitated to preserve its historic character to the maximum extent possible. This will include removal of the add-on to the front porch and restoration of the original facade.

Modifications to the building will include design accommodations to provide for ADA requirements to ensure accessibility for disabled visitors. Other modifications include expansion of restroom facilities, fire sprinkling, seismic retrofitting, electrical upgrade, and municipal water/sanitary sewer service improvements. The kitchen facility will also be modernized to provide for an efficient catering kitchen to accommodate meetings and events.

The Rehabilitation Plan will also include design of the surrounding grounds to provide useable space for outdoor special events. An area will be designated for portable tents to expand the space available for events. The outdoor event area is also essential to ensure that the fragile historic structure is not overused. Limited parking will be located to the west of the grounds and will be visually screened (refer to the Infrastructure Element, Section 8.2).

Construction will not occur until a Rehabilitation Plan is prepared. Immediate structural repairs may be implemented but only if deemed critical to prevent loss of the building or a key architectural component. The surrounding grounds, including the previously disturbed area to the front of the structure, and the swimming pool/tennis courts will be utilized for staging of construction activities. The tennis courts and pool are not considered to be of historic value and will be removed as part of the future rehabilitation.



Community Clubhouse and Grounds

DESIGN GUIDELINES

Clubhouse Facility

- Rehabilitate the structure to preserve the historic character of the clubhouse and to provide an adaptive reuse, which includes space for educational programs, meeting rooms, and special events.
- Ensure the rehabilitation preserves the historic character defining features, such as the front porch and facade, the roofline, unique redwood features, main room and stone fireplace, and interior balcony balustrade.
- Provide seismic upgrade as needed.
- Utilize the Historic Building Code to facilitate rehabilitation.
- Evaluate exterior construction features' (siding, etc.) ability to meet ignition- resistant construction.
- Install double-paned windows as a fire protection measure.
- Ensure the first floor is fully accessible. Designate the second floor as office areas and storage rooms, which are not, utilized as public space.
- Design one area of the clubhouse to be available for public access while events are ongoing.
- Remodel the kitchen facility to provide a commercial catering kitchen to provide food service for meetings and events. Install a propane gas tank to serve the kitchen.
- Design roof vents to minimize impacts on the historic character of the building and roofline.
- Expand and upgrade restroom facilities to accommodate events.
- Install all utility service upgrades in a manner which is compatible with the historic nature of the building (utility service should be hidden).

- Provide new water and sewer improvements utilizing municipal water and sanitary sewer service.
- Upgrade the existing electrical system and provide new electrical service, as needed.
- Ensure all exterior lighting in the vicinity of the clubhouse is shielded or directed downward to reduce long-distance visibility of such lighting. Exterior lighting should be limited to that needed for safety purposes only.
- Install Class A roofing to minimize the fire hazard.
- Install a fire sprinkler system in the main structure.
- Install a fire alarm system if required by building and fire codes.

Clubhouse Grounds

- As part of the future rehabilitation plan, design event grounds to the west and south of the clubhouse. Limit grounds to areas previously disturbed or altered.
- Design the surrounding grounds to provide useable outdoor space. Include paving and landscape features, which complement the historic character of the clubhouse. Provide a location to the west of the clubhouse to accommodate portable tents for outdoor events.
- Remove the tennis courts and swimming pool and utilize these areas for event grounds and parking.
- Design landscaped grounds to maximize views of the meadow, the City, and Monterey Bay from the clubhouse and event grounds.
- Provide walkways and benches, which complement the historic character of the clubhouse.
- Construct a wooden fence, compatible with the historic, rural character, along the boundary of the clubhouse use area.
- Use drought-tolerant native vegetation to the maximum extent possible. Minimize turf areas to minimize water use.
- Ensure the landscape plan minimizes wildland fire hazards and provides for defensible space.
- Preserve memorial redwood trees. Retain existing heritage trees where ever possible.
- Remove existing non-native landscaping that does not enhance the historic character or provide visual screening of parking and support facilities. Retain the palms, which are considered to contribute to the historic setting.
- Provide an additional restroom facility, at the northern edge of the event grounds, to be utilized for outdoor special events and for other Pogonip visitors.
- Design a trail along the southern edge of clubhouse use area, outside of the fence line. The trail should also be designed as an emergency egress route for automobiles in the case of a fire or another emergency.
- Provide low-level exterior landscape lighting for the building exterior and adjacent pathways, which complements the Craftsman Bungalow architectural style.
- Provide outdoor utilities for the outdoor event grounds.

Community Clubhouse and Grounds

MANAGEMENT ACTIONS

- Implement user fees for indoor and outdoor space rental and parking fees to offset management and maintenance costs.
- Implement a reservation system for indoor and outdoor meetings and events through the Parks and Recreation Department or a private entity as determined by the City of Santa Cruz.
- Ensure clubhouse events are compatible with the fragile nature of the historic structure.
- Limit indoor meetings and events to approximately 200 people. Depending upon the rehabilitation plan and furniture layout, the capacity may be further limited by the City's Building Code. Outdoor events should also be limited to approximately 200 people.
- Require shuttle transportation to off-site parking for any event(s), which exceed on-site parking availability.
- Prohibit amplified sound in outdoor areas. Limited





PHOTOGRAPH: DON NIELSEN

BANANA SLUGS ARE COMMON AND COLORFUL INHABITANTS OF THE REDWOOD FOREST.

amplified sound may be allowed in the clubhouse.

- Limit events occurring after sunset to indoor areas only.
- Comply with any applicable vegetation clearance regulations to minimize the fire hazards. Omit juniper as a landscape plant. Mow 15 feet from each side of the service driveway in the vicinity of the clubhouse.
- Remove acacias to the southeast of the clubhouse for fire hazard mitigation. Retain and prune the oaks on the surrounding grounds.
- Train grounds caretaker in basic fire suppression (initial attack). Have in place basic initial attack firefighting equipment (shovel, MacCleod, backpack pump or foam application equipment).

2.2 OUTDOOR EDUCATION CAMP

OUTDOOR EDUCATION CAMP CONCEPT

Pogonip's proximity to many schools and neighborhoods provides an excellent opportunity for the property to serve as an outdoor classroom. Educational programs, including those sponsored by the Natural History Museums, schools, and the Parks and Recreation Department, are in need of functional outdoor space situated conveniently to natural areas. An outdoor education camp facility at Pogonip would serve youth from throughout the area for day-use programs.

The proposed outdoor education camp will feature:

- amphitheater-style seating for presentations and gatherings;
- a shade structure;
- a grouping of six to eight picnic tables; and
- restrooms.

The key focus of the camp area will be educational programs for youth groups. Other types of group gatherings, such as family picnics, are accommodated at Harvey West Park. The possibility of developing permanent overnight outdoor camp facilities was considered and eliminated during the Master Plan process. Concerns included impacts to habitat, environmental limitations on periods of use, and increased fire hazards. The City may accommodate occasional overnight use through the existing Special Events Permit process.

The outdoor education camp will be approximately 1/2 acre or less in size and will be designed to minimize impacts to coastal terrace prairie. A site in the Lower Main Meadow, to the west of Golf Club Drive, is recommended because it offers convenient access to the Pogonip Creek Nature Trail and a diversity of plant communities. The area has also been previously disturbed. Stables, constructed in the 1940s, were once located at this site. The City will also explore an alternative location at the Upper Main Meadow. This alternative location will be evaluated as part of the Clubhouse rehabilitation planning process.



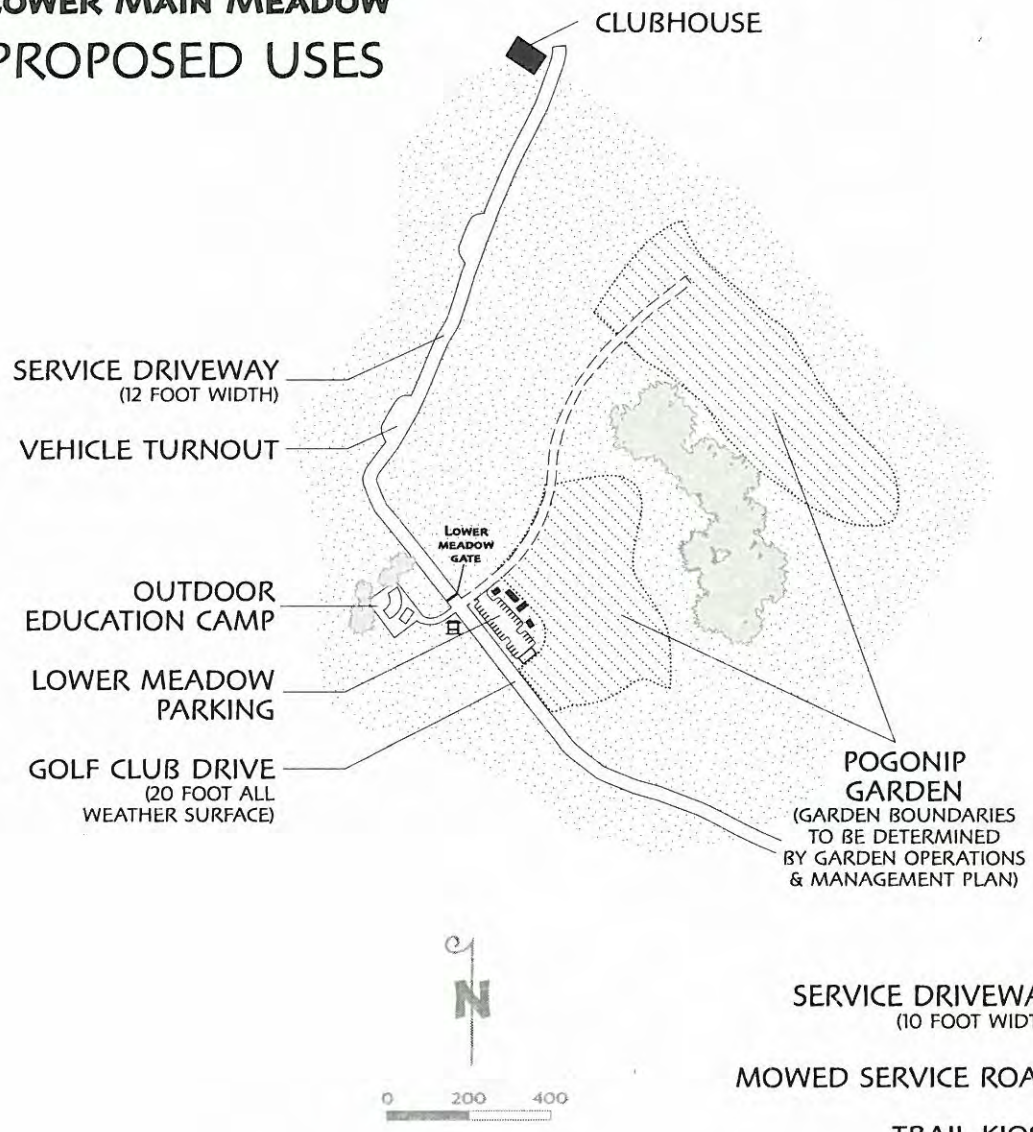
PONDEROSA PINE
PINUS PONDEROSA

SEVERAL PONDEROSA PINES, USUALLY FOUND ABOVE 1500 FEET ELEVATION, ARE LOCATED AT THE EDGE OF THE PROPOSED CAMP SITE.

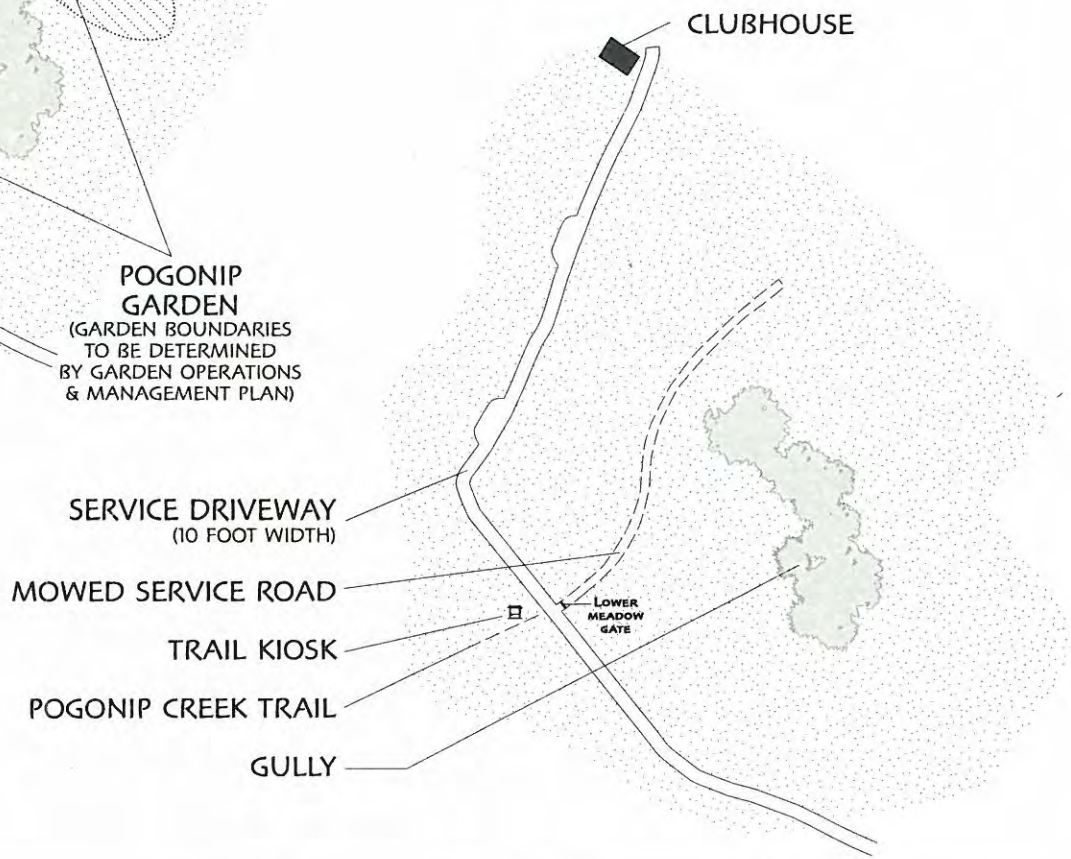
OUTDOOR EDUCATION CAMP DESIGN GUIDELINES

- Provide six wooden picnic tables and amphitheater style bench seating for approximately 30 people. Orient outdoor seating to take advantage of the open, expansive views of the meadows and forested hillsides.
- Provide a wooden shade structure over the picnic table area. The shade structure should be heavy timber construction for fire resistance and the design should complement the historic and rural character of Pogonip.
- Plant native trees, such as coast live oak, at the edge of use area to provide shade for amphitheater seating. Remove non-native acacia trees to the west of the outdoor camp use area.
- Provide a small shed for storage of educational program materials.
- Construct a wooden fence around the perimeter of the outdoor camp facility to minimize impacts to adjacent riparian areas and other vegetation.
- Use a stable slip-resistant surface, such as decomposed granite fines in the picnic table area, tent area, and the amphitheater seating.
- Install wheelchair accessible restroom facilities. Install portable toilets as an interim measure until the

LOWER MAIN MEADOW
PROPOSED USES



LOWER MAIN MEADOW
EXISTING FACILITIES



sewer line is extended. Locate the toilet facility in a manner, which minimizes visual intrusion.
- Provide potable water outlets near the picnic table area.
- Provide a service driveway for maintenance and emergency vehicle access.

OUTDOOR EDUCATION CAMP

MANAGEMENT ACTIONS

- Implement a reservation system through the Parks and Recreation Department for day-use activities by organized educational/youth groups. Group size should be limited to approximately 30 people.
- Use of the facility should be targeted to youth groups for educational purposes. No reservations should be allowed for use by private parties.
- Provide a fire extinguisher/foam water supply and possibly a backpack pump in the storage shed.

2.3 SYCAMORE GROVE NATURE AREA

NATURE AREA CONCEPT

Sycamore Grove, the area of Pogonip along the San Lorenzo River, is part of the northernmost stand of central coast cottonwood-sycamore riparian forest in California. This large grove of sycamore, black cottonwood and willow is located within the floodplain of the San Lorenzo River. A diversity of wildlife depend upon this riparian habitat; there is also potential habitat for sensitive species. Historically, however, the habitat value of Sycamore Grove has been degraded by a private campground previously located at the site, invasive non-native understory vegetation, and illegal transient use.

Due to the environmental sensitivity of this area, passive recreation and educational uses are considered most appropriate. Proposed amenities include a nature loop trail, interpretive displays, and picnic tables for field trips and passive recreation outings. Limited parking is available in the small parking area along Highway 9. Access to other areas of Pogonip is provided by a pedestrian trail, which crosses Highway 9.



SYCAMORE GROVE

THE SAN LORENZO RIVER FLOWS ALONG THE EASTERN BOUNDARY AT SYCAMORE GROVE.

Removal of the invasive understory species, which is threatening the health of the grove, is a critical component of the restoration effort. Sycamore Grove is an ideal candidate for a community group stewardship program, which would greatly benefit the nature area through volunteer clean-ups and assistance with non-native vegetation removal. An increased presence of Pogonip visitors is also likely to discourage illegal transient camping, trash, fires, and other illegal activities, which have plagued Sycamore Grove in the past.

SYCAMORE GROVE NATURE AREA

DESIGN GUIDELINES

- Create a meeting area for school groups and other users in the central area of the site that was previously disturbed by the previous campground use.
- Create an information kiosk to display information on Sycamore Grove resources and restoration efforts. Include information at the kiosk regarding fire ignition prevention, and how restoration is compatible with fire-safe conditions.
- Provide a wheelchair accessible grouping of five to six wooden picnic tables in the central area of Sycamore Grove, in close proximity to the existing unimproved parking. As needed, provide a stable, slip-resistant surface such as decomposed granite fines at the picnic table site.
- Create a nature trail loop within the Sycamore Grove area (refer to the Trails Element).
- Provide animal-proof trash facilities at use area.
- Provide one portable toilet. Install a composting type toilet if feasible.
- Prohibit lighting at the site.

SYCAMORE GROVE NATURE AREA

MANAGEMENT ACTIONS

- Restrict use to daylight hours only.
- Prohibit grills or any open fires.

- Establish an Adopt-Sycamore Grove program to assist with clean-ups, restoration and enhancement efforts.
- Continue efforts to remove invasive non-native vegetation. Ensure the site is revegetated with a ground cover species of a less ignitable nature.
- Conduct understory clearing to minimize illegal use and to reduce the fire hazard.
- Patrol the site for illegal campfires.

2.4 POGONIP GARDEN

GARDEN CONCEPT

The Lower Main Meadow is designated as the site for an organic garden, to be developed and managed by the Homeless Garden Project. The City will lease the land to the Homeless Garden Project on a long-term basis. The Homeless Garden Project's programs employ homeless persons, and provide opportunities for education and interaction with the environment, and community participation in food production. A variety of produce and other crops will be grown to generate revenues to reduce program costs. It will also serve as a job training and transitional employment opportunity for homeless people who have been unable to function in traditional educational, job training and work settings.

Additionally, the Pogonip Garden will provide an opportunity for education. School groups will be able to observe and participate in the process of growing food, and learn about sustainable agricultural practices. The close proximity of the garden site to the proposed Outdoor Education Camp will expand the opportunities of users of the Camp. The Pogonip Garden will also provide opportunities for intern programs. In time, the garden will become a place for classes and events. Finally, the Pogonip Garden will provide an opportunity for the larger community to participate in growing organic produce. A mainstay of the Pogonip Garden will be the Community Supported Agriculture (CSA) program. This program will allow local residents to buy shares in the crops produced at the Pogonip Garden. Volunteers will be able to participate in growing food following sustainable agricultural practices.

GARDEN SITE

A Garden Operations and Management Plan, to be prepared at a future date, will provide detailed design and management guidelines for the garden site. The total garden size will be limited to 9 1/2 acres. The acreage may be further reduced due to environmental constraints. The garden boundaries will be determined at a later date based upon the final garden site design and mitigation measures identified in the Environmental Impact Report.

As shown on the schematic plan for the Pogonip Garden, the cultivated area lies primarily in the most level portion of the Lower Main Meadow. The garden site will likely include a mix of vegetable crops, permacrops (soft fruit and perennials), herb plots and orchards. Native vegetation will be maintained in areas not under cultivation. Row crops will be located on the more level areas of the site, while sloping or other more sensitive areas will be used for less intensive crops or other more appropriate planting.

Access to the garden site includes a service road, surfaced with decomposed granite, capable of supporting small trucks and equipment. This service road will provide public access through the garden site for the general public visiting Pogonip. Fencing, and terracing along the service road should be designed so as not to prohibit fire truck access across the Lower Main Meadow. This service road will also connect to the proposed Lower Meadow Trail, which will provide pedestrian access around the perimeter of the Lower Main Meadow area. The Pogonip Garden will be accessible to disabled persons. Buildings and grounds will be designed to encourage use by persons with disabilities.

The schematic design for the Pogonip Garden aims to contribute to the visual experience at Pogonip, not detract from it. Therefore, structures, roads and other built features will strive for visual compatibility with the larger setting, while activities will aim to respect the tranquil nature of the open space.



VIEW OF LOWER MAIN MEADOW



CALIFORNIA FUCHSIA
ZAUSCHNERIA CALIFORNICA

A COMMON WILDFLOWER ON ROCKY BANKS, THE FUCHSIA IS AN IMPORTANT FOOD SOURCE FOR HUMMINGBIRDS.

GARDEN SUPPORT FACILITIES AND INFRASTRUCTURE

The Garden includes two locations for clusters of buildings, the Garden Center and the greenhouse area. The Garden Center, located near the Lower Main Meadow Parking area, includes approximately 1,500 square feet of space for office use, storage area, class room use, kitchen and bathroom. The Upper Main Meadow in the vicinity of the Clubhouse area will be explored as an alternative location for the structures, except for the greenhouses. This alternative location would be evaluated as part of the future detailed garden site design.

Recognizing the visibility of the Garden Center buildings near the entrance to Pogonip, these structures will be of high design quality and employ materials that are consistent with the setting. All buildings will be one story. Structures should be designed with non-combustible materials to minimize the fire hazard. The exterior area will include meeting and work areas. Trees, hedges, and other plantings may be used to screen structures, parking, provide windscreens, and provide visual interest. The Garden Center will have minimal outdoor lighting.

The second cluster of buildings, the greenhouse area, will be located in the eastern portion of the site at the base of the slope to minimize visual impacts. Approximately 2,800 square feet of greenhouse space is proposed. The greenhouse area will be divided into at least two structures, not exceeding fifteen feet in height. Shade cloth structures and a small storage area not exceeding 500 square feet will support activities in this area. Planting and screening may be used to reduce the impact of buildings. Lighting may be installed at the greenhouse area for security purposes. The greenhouse will not be illuminated on a regular basis.

Parking for Pogonip Garden employees will be provided at the Lower Main Meadow parking area. Parking spaces will be clearly marked for employees and will be separated from the public parking area. A total of eight spaces for garden employees is recommended, however, the number of spaces required may be reduced when the Garden Operations and Management Plan is considered. In addition, covered parking in the Lower Meadow parking area is proposed for garden equipment.

Trellis structures to support plants, benches, rest stops, works of art, and other amenities may also be located within the garden site. Fencing may be required to keep deer away from cultivated plots. The fence height will not exceed eight feet. Posts and fence materials will be of a type compatible with the landscape.

The Environmental Impact Report for this Master Plan evaluated use of the municipal water supply for irrigation water, however, service does not currently extend to the Lower Meadow area. Any other source of irrigation water, such as on-site groundwater or spring flow would be addressed in the Garden Operations and Management Plan and would require additional environmental review. Irrigation will utilize low volume application, consistent with the Pogonip Garden's resource conservation goals and best management practices, as well as to minimize costs.

A connection to the municipal sanitary sewer system will be made when the sewer line is extended to the clubhouse area. If the garden site is in operation prior to the sewer line extension, portable toilets will be used. Utilities include electricity and telephone service. All utility extensions will be underground.

Solar heaters may also be used as part of the domestic hot water system. In the future, the Pogonip Garden may experiment with composting toilets, alternative water sources such as the use of cisterns, or other resource conservation projects. Such projects, however, depend on the availability of financial resources and the suitability of the site to accommodate them.

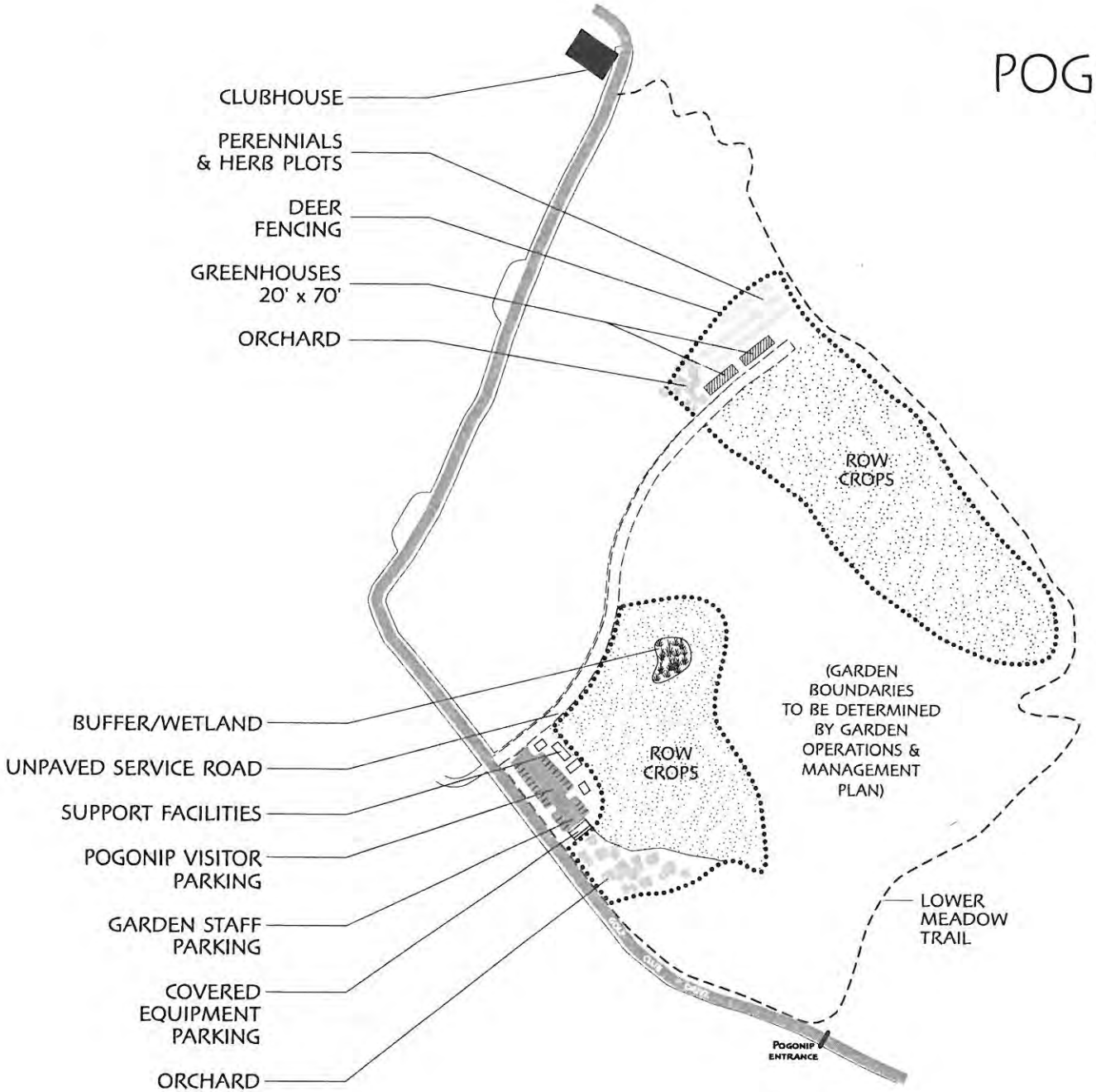
GARDEN OPERATIONS

An on-site office will be managed by the Homeless Garden Project. The Garden Center will also provide a classroom and meeting space, and a place for a kitchen and meals. At the end of the work day, all garden workers will depart the garden site. Garden operating hours will be limited to the hours of operation for Pogonip.

CSA members will be able to pick up their produce at the garden site. Pickups will be scheduled during hours that

POGONIP GARDEN

SCHEMATIC PLAN



TOTAL GARDEN AREA NOT TO EXCEED 9.5 ACRES

N

0 100 200 300

SCALE IN FEET
1"=300'

Topographic intervals equal 10'

Pogonip is open to the public, and at times that do not interfere with other peak hours of use at Pogonip. A CSA pickup point will probably also be established in town for shareholders' convenience.

Education programs will be shaped by the interest of various groups, individuals and institutions, appropriate to the growing season, and the ability of the garden to accommodate them. Visits by school groups are expected throughout the school year. Student intern programs are likely throughout the growing season. Scheduled visits may be arranged with the adjacent Outdoor Education Camp. Volunteers will be able to participate in garden activities according to the Pogonip Garden's capacity to manage volunteer participation.

Agricultural Production and Land Management

A key goal of the Pogonip Garden is setting an example in applying sustainable agricultural practices. To achieve this, Best Management Practices will be employed in its operation. The planting of crops will be matched to the soil characteristics of a particular area.

The most extensively prepared land will be for the annual production of vegetables. Most of these row crop areas will be planted in cover crop every winter. Cover crops replenish the soil and provide effective erosion control for cultivated areas. Cultivation will be by hand or tractor and will likely occur approximately three times a year on a crop rotation plan.

Fruit trees, berries, perennial flowers and herbs are proposed for the periphery of the garden site. These crops require less maintenance, resulting in less ground disturbance. Hand cultivation techniques will likely be utilized. Fruit trees would be planted in a scattered, random fashion rather than in a traditional grid pattern.

Composting will be an important aspect of the Pogonip Garden's approach to sustainable agricultural practices. Several composting areas will be established in different locations at the garden. Locations will be selected, and composting operations will occur, in a manner that minimizes impacts to ground water and surface water resources. This may involve covering the compost during the rainy season, and/or installing drains to divert surface drainage. In addition to composting, other soil amendments may include bone meal, blood meal, fish emulsion, horse manure and soybean meal.

The Pogonip Garden will be operated as an organic garden, in accordance with California Certified Organic Farm (CCOF) standards. No unapproved pesticides or herbicides will be used. Instead, natural methods of pest control, such as the use of ducks, will be used.

Garden Implementation

Design Guidelines and Management Actions for the Pogonip Garden will be addressed in the Garden Operations and Management Plan. This plan must be reviewed and administratively approved by the Parks and Recreation Department prior to implementation of any portion of the Pogonip Garden. The Garden Operations and Management Plan will include, at a minimum:

- phasing of infrastructure, support facilities, and agricultural production;
- identification of Best Management Practices;
- specific information on hours of operation, allowable activities, etc.; and
- CSA pick-up arrangements

The Garden and Operations Plan will be reviewed by the Parks and Recreation Department and updated as needed. A detailed site plan, and grading, drainage and erosion control plans must also be submitted and approved by the Parks and Recreation Department prior to any soil disturbance. In addition, a contractual agreement will be developed between the City and the Homeless Garden Project specifying the scope of the program and the management requirements.



Lower Main Meadow from Golf Club Drive



TRAILS

The Pogonip Master Plan focuses on improving and enhancing the existing trail system. Much of the trail system has been in place for decades, with some trails dating back to the mid-nineteenth century. Pogonip offers a diversity of trail experiences; trails wind through redwood groves, along shaded creeks, open meadows, and under majestic oaks. This Trails Element describes existing trails, proposed improvements, trail use, and citywide and regional trail opportunities. Design Guidelines and Management Actions are also identified.

3.1 TRAIL SYSTEM

The Pogonip trail system totals approximately 9 miles. It includes both unpaved service roads, approximately 10 feet wide and single-track trails, 3 to 4 feet wide. The service roads total three miles, while single-track trails total six miles. All of the service roads and most of the trails existed prior to the City's acquisition of Pogonip in 1989.

The service roads include Rincon Trail, Spring Trail and Brayshaw Trail. It is believed that Rincon and Spring Trail were constructed in the mid-nineteenth century as part of the transportation system for the limestone quarrying operations (refer to the Historic Resources Element). In some locations the limestone bed is several feet deep. The service roads are maintained for patrol vehicle access. Section 3.3 provides a more detailed description of these service roads.

Existing single-track trails include: Fern Trail, Limekiln Trail, Lookout Trail, Lower Meadow Trail, Ohlone Trail, Pogonip Creek Nature Trail, Prairie Trail, Rincon Connector Trail, Sycamore Grove Trail, and Spring Box Trail. Two new trails approved as part of the Master Plan process include the U-Con Trail and Harvey West Trail. These trails are also described in Section 3.3.

Management and maintenance of the service roads and single-track trails are addressed in the guidelines in Section 3.4. Typically this includes annual mowing or brushing, and drainage and erosion control measures. In some locations within Pogonip, there are numerous informal or unauthorized trails that are used as cut-through routes between existing trails or provide access to illegal camping sites. Under the management guidelines, these unauthorized trails would be closed.

3.2 TRAIL USE

Trail use has been a key issue throughout the Pogonip planning process. Prior to adoption of this Master Plan, the trail system was limited to pedestrian use only. As part of the Pogonip planning process, various alternatives for providing equestrian and bicycle access were evaluated. Trails that would be open to bicycle, equestrian and pedestrian access are referred to as multi-use trails.

Three trail use alternatives (A, B and C) were identified.



ILLUSTRATION: CISCO MONTESINOS

CHESTNUT-BACKED CHICKADEE
PARUS RUFESCENS

AS ITS NAME SUGGESTS, THIS CHICKADEE IS IDENTIFIABLE BY ITS BRIGHT CHESTNUT SIDES AND FLANKS.

Each alternative offered a different level of access for equestrians and bicyclists. These alternatives were based in part on the recommendations of the Trails Focus Group, organized as part of the Pogonip Master Plan process. All three alternatives were analyzed in the Environmental Impact Report prepared for this Master Plan.

As part of the adoption of this Master Plan, the City Council selected a phased approach to Alternative B as the preferred trail use system. Alternative B designates Rincon Trail (a service road) as multi-use and authorized construction of a new multi-use trail connection to the upper UCSC campus. A trail segment connecting to Henry Cowell Redwoods State Park would also be designated for multi-use. This would allow continuous access for pedestrians, equestrians and bicyclists between the State Park, Pogonip and UCSC (refer to Section 3.4). The remaining eight miles of trails within Pogonip will remain pedestrian use only.

The phased approach approved by City Council allows for the multi-use connection between the State Park, Pogonip and UCSC to be completed in the first phase. This connection includes only the northernmost segment of Rincon Trail. The remainder of Rincon Trail, from the new UCSC connector trail to the Coolidge Drive entrance, will remain pedestrian use only. At a future date, City Council could consider designating all of Rincon Trail as multi-use.

The two trail use options that were not approved were Alternative A and C. Alternative A provided equestrian and bicycle access on the three service roads (Spring, Rincon and Brayshaw Trails) and the new trail connection to UCSC and the State Park. This alternative was most similar to the trail system identified in the Mixed Land Use Plan, which was conceptually approved by the City Council in 1993. Alternative C limited all trails to pedestrian use only. The new UCSC connector trail was not proposed as part of this alternative.

The key to the success of multi-use trails approved by City Council will be effective trail management and maintenance. The Trails Focus Group recommended a multi-faceted approach for trail management and enforcement of trail use regulations. Such an approach involves education, regulations, enforcement and monitoring, as reflected in the Trail Design Guidelines and Management Actions (refer to Section 3.5).

Another trail use issue at Pogonip is dog use. Dogs on leash are permitted on all trails within Pogonip except for trails within sensitive habitat areas. Dogs are also prohibited on trails connecting directly to UCSC and Henry Cowell Redwoods State Park because of dog use restrictions within those properties.

3.3 TRAIL ALIGNMENTS AND IMPROVEMENTS

This section describes the service roads and trails in detail. It also includes recommended realignments and improvements that will minimize further erosion and protect sensitive habitat and wetland areas.

SERVICE ROADS

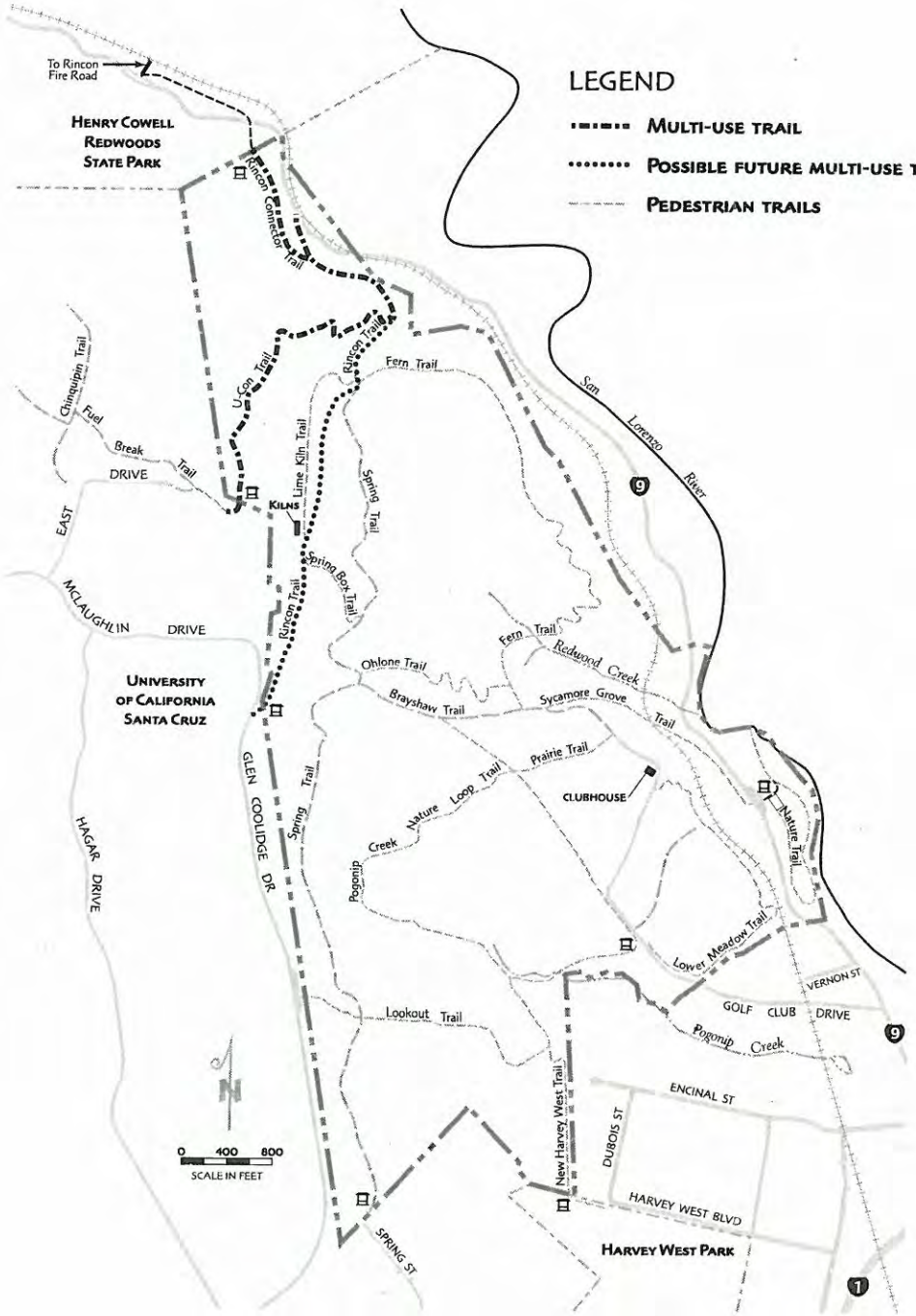
BRAYSHAW TRAIL (0.5 MILE)

Brayshaw Trail connects the Upper Main Meadow and clubhouse area to Spring Trail. This trail is open to pedestrians only. Dogs on leash are permitted.

Brayshaw Trail is relatively level in the vicinity of the Upper Main Meadow, but then climbs steeply along the edge of the historic McCormick House site. Brayshaw Trail passes through mixed evergreen forest and a eucalyptus grove. The range in elevation is approximately 250 to 450 feet. In the steepest section the trail exceeds 25 per cent grade. In this steep section, the ridge is very narrow and limits opportunities for realigning the service road.

RINCON TRAIL (0.9 MILE)

Rincon Trail traverses the northern portion of Pogonip. Rincon Trail descends from UCSC at Glen Coolidge Drive through Pogonip northward to Highway 9. The northernmost segment is designated for pedestrian, bicycle, and equestrian use. The remainder of Rincon Trail to the Coolidge Drive entrance is designated as pedestrian only. At a future date, City Council may consider designating all of Rincon Trail as multi-



POGONIP
TRAIL USE

SERVICE ROADS

Rincon Trail	E/B/P
Brayshaw Trail	P
Spring Trail	P

NEW TRAILS

U-Con Trail	E/B/P
Harvey West Park Trail	P

EXISTING TRAILS

Rincon Connector Trail	E/B/P
Fern Trail	P
Limekiln Trail	P
Lookout Trail	P
Lower Meadow Trail	P
Ohlone Trail	P
Pogonip Creek Nature Trail	P
Prairie Trail	P
Spring Box Trail	P
Sycamore Grove Trail	P

P - PEDESTRIAN, E - EQUESTRIAN, B - BICYCLE



MAIN MEADOW ABOVE THE MONTEREY BAY

use; however, there are traffic safety issues at the Coolidge Drive intersection that must be addressed as discussed in the Environmental Impact Report. Dogs on leash are permitted.

From the Coolidge Drive entrance to Pogonip, Rincon Trail descends from an elevation of approximately 640 feet to 400 feet, with an overall grade of approximately six per cent. The trail passes through upland redwood forest and mixed evergreen forest.

Rincon Trail is a historic resource within Pogonip. Maintenance of Rincon Trail must adhere to the Historic Road Maintenance Guidelines, Appendix E in this Master Plan. The Rincon fire road continues within Henry Cowell Redwoods State Park.

SPRING TRAIL (1.6 MILES)

Spring Trail extends from the terminus of the Spring Street cul-de-sac to the intersection with Rincon Trail in the northern portion of Pogonip. Spring Trail is designated for pedestrian use only. Dogs on leash are permitted.

Spring Trail has a minimal change in elevation from approximately 400 to 450 feet, with an overall gradient of less than one per cent. The southern portion of Spring Trail passes through grassland; to the north the trail is shaded by upland redwood forest and mixed evergreen forest. Spring Trail intersects with Rincon Trail at the edge of Haunted Meadow, a highly diverse remnant of coastal terrace prairie.



MOUNTAIN CARPENTER BEE
XYLOCOPA TABANIFORMIS

THESE LARGE, SOLITARY BEES CONSTRUCT BURROWS IN STRUCTURAL TIMBERS AND DEAD TREES.

Portions of Spring Street are experiencing serious erosion problems due to high run-off from Glen Coolidge Drive and UCSC during the winter months. Improvements to Spring Trail include measures to address gully washouts due to this run-off. These improvements will be completed as part of a separate cooperative effort between the City, Santa Cruz County and UCSC.

Spring Trail is a historic resource within Pogonip. Maintenance of Spring Trail must adhere to the Historic Road Maintenance Guidelines, Appendix E in this Master Plan. Benches may be installed along Spring Trail as appropriate. The benches should be located at sites that do not impact sensitive habitats, including coastal terrace prairie and springs.

TRAILS

There are ten existing single-track trails within Pogonip. These trails include Fern, Limekiln, Lookout, Lower Meadow, Ohlone, Pogonip Creek, Prairie, Sycamore Grove, and Spring Box. Two new trails were approved as part of the Master Plan process, Harvey West Trail and the U-Con Trail. A description of each trail alignment and proposed improvements are described below.

FERN TRAIL (0.8 MILE)

Fern Trail extends from Brayshaw Trail to Rincon Trail within the northeastern portion of Pogonip. Some sections, however, are narrower and have not been fully improved. The northern half of this trail route was previously known as the Haunted Meadow Trail. Fern trail is designated as pedestrian use only. Dogs on leash are permitted.

From Brayshaw Trail, the trail route passes through a small area of coastal terrace prairie. Beyond the meadow, the trail drops down into a drainage that presently lacks a stable crossing. The trail continues north, climbing through mixed evergreen forest and several meadows. At the northern end, the trail passes through Haunted Meadow, an area of coastal terrace prairie habitat and rare plant species.

Proposed improvements include rerouting the alignment at the southern end to provide the most stable crossing of Redwood Creek. The existing crossing is badly eroded. Within steeper slope areas, open turns are recommended. Several informal pathways also exist along this route leading to illegal transient campsites. Measures will be taken to close these trails. At Haunted Meadow, the trail should be relocated out of the meadow area to the edge of the woodland to alleviate impacts to the coastal terrace prairie and rare plant species.

HARVEY WEST TRAIL (0.4 MILE)

This new trail route provides a direct connection between Harvey West Regional Park and existing Pogonip trails through the recently acquired 25-acre Wavecrest property. Completion of this trail route is scheduled for Phase I of the Master Plan

implementation. The trail will be designated for pedestrian use only. Dogs will be prohibited because the trail connects to a sensitive wildlife area.

The trail route begins at the Harvey West Park entrance located off Dubois Street. The trail will continue along the edge of the Harvey West Park boundary to Pogonip, connecting to Lookout Trail. This trail will be situated along the edge of the tree line to screen views of adjacent light industrial buildings to the maximum extent feasible.

A kiosk would be installed at the Harvey West Park entrance to Pogonip. Benches may be appropriate at the top of the trail, offering trail users a resting area and scenic viewpoint.

LIMEKILN TRAIL (0.5 MILE)

Limekiln Trail is named for the historic limekilns, located at the southern terminus of the trail. The trail generally parallels the Rincon Trail route through upland redwood forest. This trail is designated as pedestrian use only. Dogs on leash are permitted. The trail route will be realigned in order to avoid intersecting with the new multi-use U-Con Trail.

LOOKOUT TRAIL (0.5 MILE)

Lookout Trail extends from the southernmost portion of Pogonip to Spring Trail, climbing from approximately 200 feet to over 600 feet in elevation. This trail is designated as pedestrian use only. Dogs are prohibited on Lookout Trail because it is located within a sensitive wildlife area.

The trail passes through grasslands and mixed evergreen forest. Due to the change in elevation of nearly 500 feet, some portions of the trail are very steep. Additional open turns and other improvements are needed to avoid further erosion. Benches may be appropriate at locations along Lookout Trail, which provide resting areas and offer scenic vistas.

LOWER MEADOW TRAIL (0.6 MILE)

Lower Meadow Trail provides a loop route connecting the Golf Club Drive entrance and the clubhouse. This trail is designated as pedestrian use only. Dogs on leash are permitted. A segment of the Lower Meadow Trail is located within the future Pogonip Garden site. This segment may be improved and widened at a future date to accommodate tractors and other garden equipment.

Proposed improvements include creating a new trail along the Golf Club Drive corridor, on the east side of the paved road, from the existing entrance gate up to the proposed Lower Meadow parking area. The proposed access road through the proposed Pogonip garden site would serve as the northern leg of this loop. The remainder of the Lower Meadow Trail route would be cleared of grassland vegetation with open turns provided in steeper areas.



OHLONE TRAIL (0.3 MILE)

Ohlone Trail is a single-track trail paralleling Brayshaw Trail, a service road. It is designated as pedestrian use only. Dogs on leash are permitted.

The trail winds up a relatively steep slope, to the north of Brayshaw Trail on the other side of a gully. It passes through mixed evergreen forest and grassland areas. Proposed improvements to this trail include creation of switchbacks or open turns to avoid potential future erosion.

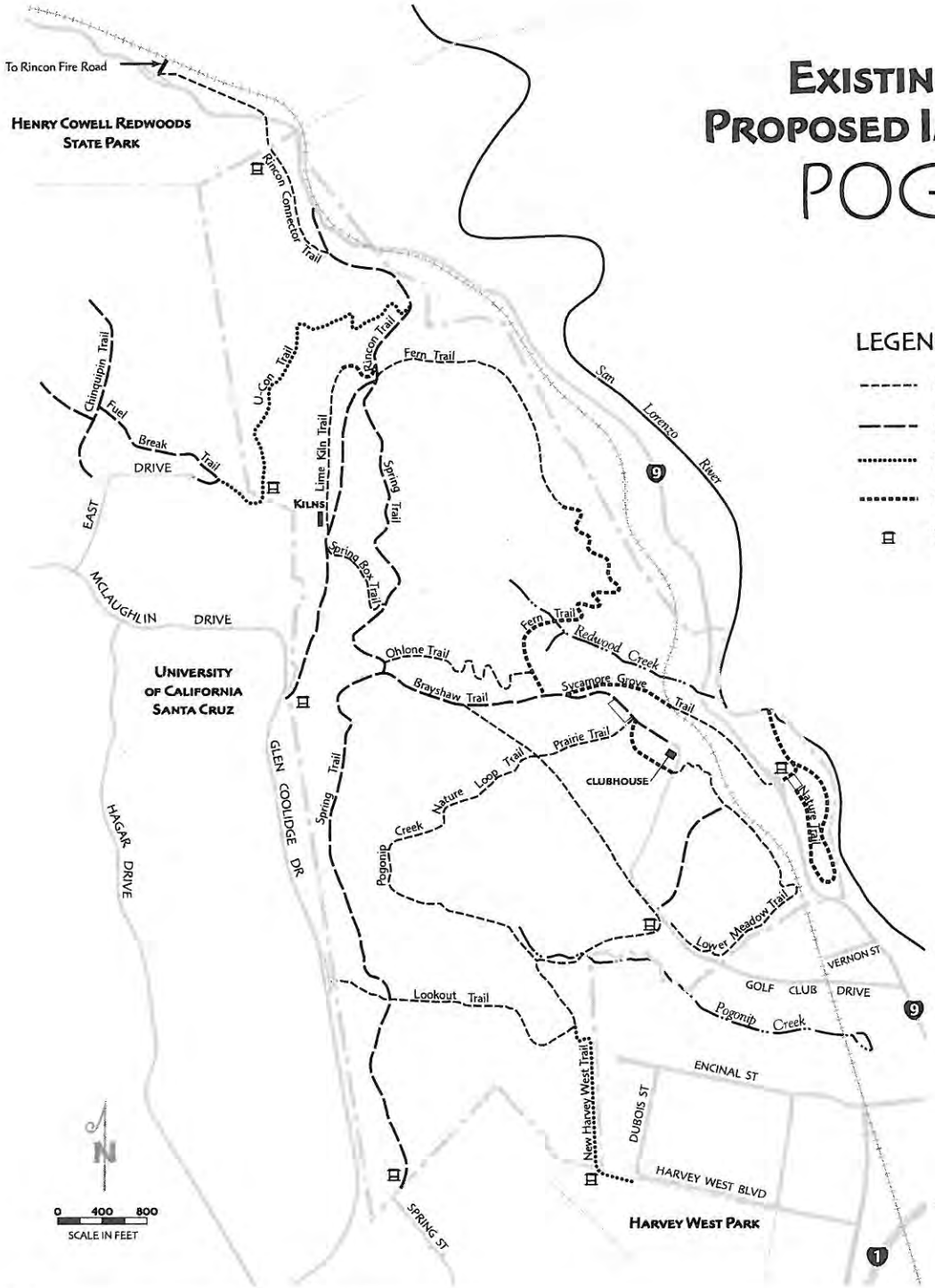
POGONIP CREEK NATURE TRAIL (1.2 MILES)

The Pogonip Creek Nature Trail is a loop route, connecting existing portions of trails previously known as Old Stables Trail and Pogonip Creek Trail. This trail route passes through an amazing diversity of plant communities, including coastal terrace prairie, mixed evergreen forest, central coast riparian scrub, redwood stands, and a bay grove. The Nature Trail begins at the proposed Outdoor Education Camp site. This nature trail is designated as pedestrian use only. Dogs are prohibited on all segments of the trail except the section connecting Golf Club Drive and Prairie Trail.

Recommended improvements to Pogonip Creek Nature Trail include appropriate trail markers corresponding to an interpretive trail brochure. A bridge crossing is also needed at Pogonip Creek. A kiosk presently exists at the Pogonip Creek Trail entrance at Golf Club Drive. Benches may be appropriate along the Nature Trail at locations that do not impact sensitive habitats and species.

Existing Trails & Proposed Improvements

POGONIP



LEGEND

- Existing trail
- Existing service road
- Proposed new trail
- Proposed realignment
- Trail entrance kiosk

PRAIRIE TRAIL (0.3 MILE)

Prairie Trail is a relatively short trail through the Upper Meadow that connects to the Pogonip Creek Nature Trail. Known Ohlone tiger beetle habitat is found at the intersection with the existing Pogonip Creek Trail. Improvements include any rerouting necessary to avoid wetlands within the Upper Meadow. Monitoring of trail use is also needed to ensure protection of the Ohlone tiger beetle habitat. The trail is designated for pedestrian use only. Dogs on leash are permitted.

RINCON CONNECTOR TRAIL (0.2 MILE)

The Rincon Connector Trail is located in the northernmost tip of Pogonip. This trail segment was constructed to provide a through connection to Henry Cowell Redwoods State Park. The trail is located within an area of upland redwood forest. This trail is open to pedestrians, bicyclists and equestrians. Dogs are prohibited.

SYCAMORE GROVE TRAIL (1 MILE)

The proposed Sycamore Grove Trail includes a Nature Loop within the Sycamore Grove Nature Area and a connection across Highway 9 and the railroad to Brayshaw Trail. A portion of this route was previously known as Redwood Trail. To the west of Highway 9, the trail climbs through upland redwood forest and mixed evergreen forest. This trail is designated for pedestrian use only. Dogs are prohibited in the Sycamore Grove nature area.

This trail will require coordination with the Big Trees and Pacific Railway Company to designate and improve the trail crossing of the railway corridor. The upper portion of Sycamore Grove Trail will also be realigned to connect to Brayshaw Trail just beyond the Ranger facilities.

The Nature Loop within the Sycamore Grove Nature Area will provide public access to the San Lorenzo River in the northern portion of the site. Improvements will include closure of several informal pathways and creation of a single pedestrian trail route. A kiosk is recommended for the Nature Area. Benches may be appropriate along the Sycamore Grove Nature Loop Trail and along Sycamore Grove Trail.

SPRING BOX TRAIL (0.1 MILE)

Spring Box Trail provides a direct trail connection between Rincon Trail and Spring Trail. This trail also provides access to the spring box area. Wood-rail fencing is proposed around the lower spring box to discourage use as a swimming hole. Benches may be appropriate in the vicinity of the spring box. This trail is designated for pedestrian use only. Dogs on leash are permitted.

U-CON TRAIL (0.5 MILE)

This new trail route will serve as a multi-use trail connection between Pogonip and the UC Santa Cruz campus. It provides a convenient route between the Rincon Trail service road within Pogonip to the existing Fuel Break fire road within the UCSC campus. This trail would be open to pedestrians, bicyclists and equestrians. Dogs will be prohibited.

Volunteers, in cooperation with City and UCSC staff, identified the trail route. It begins to the north of the intersection of Rincon and Spring Trail. In order to avoid crossing Limekiln Trail, the northernmost portion of Limekiln Trail will be realigned to connect to Rincon Trail further to the south, in the vicinity of Haunted Meadow. This trail route passes through woodland, chaparral, and a small grassland area at the western end.

3.4 CITY-WIDE AND REGIONAL TRAIL OPPORTUNITIES

Pogonip is a key link for the Santa Cruz Circle Trail; a trail route encircling Santa Cruz that connects all of the City's Greenbelt lands. Pogonip also offers opportunities for trail connections to adjacent properties, including UCSC and Henry Cowell Redwoods State Park. These citywide and regional trail opportunities are described briefly in this section.

SANTA CRUZ CIRCLE TRAIL

The Santa Cruz Circle Trail is a citizen-initiated vision to connect the City's Greenbelt lands, the coastline paths, and the San Lorenzo River pathways. The Circle Trail concept focuses on utilizing existing trail segments on publicly owned properties. Much of the trail route is in place and small plaques,



ILLUSTRATION: CISCO MONTESINOS

WESTERN HARVEST MOUSE

REITHRODONTOMYS MEGALOTIS

A COMMON RESIDENT IN THE GRASSY AREAS OF POGONIP, THIS NOCTURNAL MOUSE FEEDS ON SEEDS, PLANT CUTTINGS AND INSECTS.

depicting the Circle Trail symbol, have been posted along several trail segments. The Circle Trail is a multi-use trail concept; however, it is recognized that not all segments will be accessible to all trail users, such as wheelchair users, bicyclists, and equestrians. The Santa Cruz Circle Trail Feasibility Study (1995) describes each segment of the Circle Trail route. At present, the proposed Circle Trail route within Pogonip includes portions of Spring Trail and Brayshaw Trail, connecting the Spring Street entrance to the clubhouse. From the clubhouse, the route would continue along Golf Club Drive and/or any future trails paralleling this roadway, to the Golf Club Drive entrance to Pogonip. The trail route then proceeds along Golf Club Drive to River Street/Highway 9 to the San Lorenzo River pathway. Further coordination is needed with UCSC representatives regarding the connection between Spring Trail and the UCSC lands. There is no existing designated direct trail connection at this time. City staff will continue to work with citizen volunteers to complete the Circle Trail.



LOWER SPRING BOX

COWELL-WILDER REGIONAL TRAIL

With the recent acquisition of Gray Whale Ranch as part of the California State Park system, an opportunity has arisen to create a continuous trail route connecting Wilder Ranch State Park, UCSC lands, Pogonip, and Henry Cowell Redwood State Park. This route will be designated as the Cowell-Wilder Regional Trail and will be open to pedestrian, bicycle and equestrian use. Creation of this trail connection will require considerable cooperation among the various land managing entities and each land manager will need to comply with their respective planning and environmental review requirements for their own properties. Volunteers have been key in planning this trail route and will be instrumental in the development of the U-Con Trail, which provides the key link between these properties.

3.5 TRAIL MANAGEMENT AND GUIDELINES

A multi-faceted approach is recommended for trail management and enforcement of trail use regulations. This approach is based upon lessons learned from other open space managers and various analyses and compilations of trail management information. This approach involves appropriate trail design, education, regulations, enforcement and monitoring.

TRAIL DESIGN GUIDELINES

- Ensure trails that also serve as service roads are a minimum of ten feet in width to provide for patrol and emergency vehicle access. Where existing service roads exceed ten feet in width, these wide areas will be maintained to provide vehicle turn around locations.
- Construct multi-use trails (pedestrian, equestrian and bicycle use) to be a minimum of eight feet where possible. In some areas, where multi-use trail connections are needed between existing service and fire roads, single-track trails, approximately three to four feet in width, may be utilized as connector routes to minimize impacts to sensitive environmental resources and site conditions.
- Construct pedestrian trails to be three to four feet in width.
- Limit clearing of vegetation along trails to a maximum vertical height of twelve feet and a maximum width of four feet on either side of the trail tread.
- Realign existing trails to avoid wet meadows and spring areas. If rerouting is not feasible, construct a raised boardwalk or log turnpike (Pogonip Creek Nature Trail).
- Install bridges as needed for creek crossings (Pogonip Creek Nature Trail, Spring Box Trail, Limekiln Trail, Fern Trail, and U-Con Trail). The type and design of each bridge will depend upon the site-specific conditions of the crossing.
- Provide drainage improvements on trail routes, to include drainage dips, water bars, culvert pipes, and check dams as appropriate and recommended by technical specialists. The Parks and Recreation Department will coordinate with the erosion control specialists to design site-specific solutions.

- Provide kiosks at trail entrances to Pogonip, including Harvey West Trail in the Harvey West Park area; Spring Trail at the Spring Street entrance; Sycamore Grove Nature Area; the Outdoor Education Camp; Rincon Trail entrances; the U-Con Trail entrance; and in the vicinity of the clubhouse. At kiosks, include trail system maps, safety information, regulations, and interpretive displays.
- Develop and implement a coordinated trail sign program to ensure signs are easy to read, consistent in message and design, and do not detract from the visual quality of Pogonip. . Post trail identification at intersections of all trails. Wooden posts will be six inches by six inches with vandal resistant trail information. Trail signs will include the name of the trail, distance to intersecting trails, and trail use designations.
- Post trail etiquette signs as appropriate.
- Use cause and effect sign messages to discourage inappropriate trail use.

TRAIL MANAGEMENT ACTIONS

- Establish a Ranger Enforcement Plan to ensure appropriate trail use and to minimize potential trail use conflicts.
- Establish a monitoring program where forms are made available to users to report problem areas, such as off-trail use, illegal camping, etc. Response forms would be used to assist in targeting enforcement.
- Coordinate with State Parks to establish a Joint Volunteer Patrol to provide eyes on the trail, discourage inappropriate use and alert Rangers to incidents.
- Distribute brochures describing appropriate trail etiquette. Coordinate with various organizations to provide educational outreach on trail courtesy and appropriate trail use at bicycle shops, schools, etc.
- Identify reduced speed (slow) trail segments, as needed (blind curves, limited visibility, and steep areas).
- Implement seasonal/temporary trail closures during the wet season or periods of high fire danger as needed.
- Ensure maintenance of Rincon, Spring and Brayshaw Trails provides for emergency and patrol vehicle access.
- Ensure maintenance of Rincon and Spring Trails does not result in negative impacts to the historic fabric of these roads.
- Monitor impacts of trails near sensitive species (both wildlife and vegetation). If negative impacts occur, reroute trail segments or take other appropriate measures as needed. Monitoring areas include Pogonip Creek Nature Trail, Prairie Trail, Fern Trail, and Spring Trail.
- Utilize various techniques to discourage use of non-designated paths, such as planting native vegetation, posting signs indicating area closed, and installing logs, stones, fencing to discourage use.



ILLUSTRATION: CISCO MONTESINOS

BIG BROWN BAT
EPTESICUS FUSCUS

THIS COMMON INSECTIVORE MAKES ITS HOME IN CREVICES AND CRACKS.



HAUNTED MEADOW VIEWED FROM SPRING TRAIL



HISTORIC RESOURCES

Several historic structures and features are still intact throughout Pogonip; however, protection and restoration strategies must be undertaken to ensure these resources are preserved for the future. A key component of any restoration or preservation strategy will be education and interpretation of these resources. This Historic Resources Element provides an overview of Pogonip's history, an inventory of the historic structures and features, and Design Guidelines and Management Actions which address preservation, interpretation, and management of these unique resources.

4.1 OVERVIEW OF POGONIP HISTORY

Although it is likely Native Americans relied upon the resources found within Pogonip, no prehistoric sites have yet been identified within the property boundaries. Archaeological sites have been recorded on adjacent and nearby properties. Native Americans are believed to have lived in the Bay and Coast regions for at least 5,000 years.

Ethnographic history indicates the Ohlone lived within the vicinity of Pogonip during the initial period of the European settlement of the area during the late eighteenth century. Records from the Santa Cruz Mission, established in 1791, referred to the tribelet living in the vicinity of the Santa Cruz Mission as the "Uypi." Many of the Uypi worked in the mission agricultural fields, which were located in the area today known as Harvey West Park. Tragically, within approximately five years of mission founding, the Ohlone population suffered a dramatic decline. Many lives were lost due to exposure to European diseases. Little is known about the Ohlone's use of the area now known as Pogonip.

In the 1830s and 1840s, after Mexico gained independence from Spain and secularization of the missions occurred, land grants were given by the Mexican administration to Mexicans and other pioneers. One of these land grants, called Cañada del Rincón en el Río San Lorenzo de Santa Cruz, encompassed what is now known as Pogonip. The Rincón land grant also included much of the present day UCSC lands and Henry Cowell Redwoods State Park. This land grant was originally awarded in 1843 to Pierre Sansevain, who began a successful lumber enterprise and constructed a mill along the San Lorenzo River in the area now known as Paradise Park. This marked the beginning of a period of extractive industry, primarily limestone production and logging, within the Pogonip area.

LIME PRODUCTION INDUSTRY

In the late 1850s, much of the Rincon Rancho lands were purchased by Albion Jordan and Issac Davis with an eye toward lime production. Jordan and Davis, two east coast entrepreneurs, had discovered extensive deposits of high quality limestone in the Santa Cruz area. Limestone was used to produce lime, a key product in the building industry during the



mid-to-late nineteenth century. Lime was used for mortar, plaster, and whitewash.

Limestone was converted to lime by burning the limestone in wood-fired kilns. A typical kiln required about 70 cords of redwood for each firing. Santa Cruz was a prime location for the lime industry, given the location on Monterey Bay, proximity to San Francisco by sea, and the abundant supply of redwood to fuel the kilns.

The Davis and Jordan Lime Company built several limekilns, a shipping wharf, and roads extending up into the timber areas along the San Lorenzo River. It is not known whether Davis and Jordan actually built the limekilns at Pogonip. Through the 1850s and 1860s, the company quarried limestone and logged forests within the Rancho lands to produce high-quality lime. Ultimately, the enterprise they started became the largest lime business in California.

In 1865, Henry Cowell purchased Jordan's interest, which totaled about 3,800 acres. Later in 1888, Cowell became the sole owner of the Rincon Ranch and established what ultimately became known as the Henry Cowell Lime and Cement Company. The 1880s marked the peak of the limestone industry within the Santa Cruz region.

Cowell Ranch

During the late nineteenth century, Henry Cowell acquired more extensive land holdings in the Santa Cruz area. At one time, the Cowell Ranch was over 10,000 acres in size. Cowell also expanded his operations from lime production and distribution to tan bark, peeled oak, bituminous rock, and a dairy operation.

By the 1940s, lime production had ended and the majority of the Cowell Ranch was used exclusively for cattle grazing. In the mid-twenties, a herd of elk was imported and grazed at Pogonip. Buffalo and bobwhite quail were also imported. Trespassing hunters and disease killed off the introduced species.

Division of the Cowell Ranch holdings began in the 1950s. Over 1,600 acres of the Cowell Ranch were donated to help create Henry Cowell Redwoods State Park, which shares the northern boundary with Pogonip. The western portion of the ranch, totaling over 2,000 acres, was later sold to the University of California in 1961. After the sale to the University, the remaining 614-acre property eventually became known as Pogonip.



PHOTO COURTESY OF SPECIAL COLLECTIONS, MCHENRY LIBRARY, UCSC

TEEING OFF IN THE 1920S AT CASA DEL REY GOLF CLUB

Recreational Use

Pogonip has a interesting history of nearly a century of recreational use, ranging from golf, to polo, and finally a private social club. Beginning in the early part of this century, the Cowell family leased the central portion of property now known as Pogonip for private recreational activities. This area included the clubhouse and much of the Main Meadow.

Originally, the name Pogonip referred to the 145-acre area leased for recreation. The term Pogonip, a Shoshone Pauite word meaning a type of ice fog, was also used as a place name in the Santa Cruz area in the late 1880s for a creek and volunteer fire station. It is not known exactly how the word came to be used in the Santa Cruz area or why the name was given to the property.

The Casa del Rey Golf Clubhouse and 18-hole golf course was first significant recreational development at Pogonip. The clubhouse and golf course were completed in 1911. Scenic vistas from the tees were promoted as part of the Casa del Rey Hotel and Casino on the waterfront. Within just a year of the grand opening, financial troubles arose. The clubhouse and golf course were soon taken over by the Santa Cruz Golf Club, whose lease extended until 1935. With the opening of the Pasatiempo golf course in the mid-thirties, the Santa Cruz Golf Club declined in use mostly due to competition from the newer, modern course. Also during this time period, Pogonip was home to the Pogonip Blue Rock and Skeet Club which used the Main Meadow area.

During the early days of the golf course, a vacation retreat was also built at Pogonip. A site on the hillside just above the upper portion of the Upper Main Meadow was leased to a E. O. McCormick to construct the estate, which included a large white house, a swimming pool and extensive gardens. The house burned down sometime after the late 1940s. Ruins of the McCormick

House, the pool site, and remnants of the gardens can still be seen amidst the grove of eucalyptus along Brayshaw Trail.

After the decline of the Santa Cruz Golf Club, the Main Meadow of Pogonip was transformed into popular polo fields. The clubhouse was also renovated and a swimming pool constructed. During the 1930s, the Pogonip Social and Polo Club became internationally known. During the peak use as polo grounds, the club was visited by movie stars and international caliber polo players. Stables were also built at the lower portion of the Main Meadow, just to the west of Golf Club Drive. Over the years, the stables became dilapidated and were finally torn down in 1986.

The Pogonip Social and Polo Club was especially noteworthy due to Dorothy Deming Wheeler and the women's polo team, which won the Pacific Coast Championship seven consecutive years. Dorothy Wheeler ensured the polo club was not restricted to men, and Santa Cruz became one of the few areas where coed games were accepted. During WWII, the horses and polo grounds were used by Dorothy Wheeler to train a women's mounted corps. After the war years, the polo club declined and the polo grounds eventually closed.

From the 1950s through 1980s, recreational use at Pogonip focused on the clubhouse, The Pogonip Club, a locally well-known family and social club with a private membership, operated the clubhouse under a lease from the Cowell family. In more recent years, the Pogonip Club made recreational improvements including construction of the tennis courts. Over the decades, the clubhouse has been the scenic site of many gatherings, weddings, and festivities. Most longtime residents of Santa Cruz have enjoyed at least one, if not many, memorable occasions at the clubhouse.

Over the years, deferred maintenance and the lack of updated, improved infrastructure led to the closure of the clubhouse. In 1988, the clubhouse was officially condemned by the County of Santa Cruz as structurally unsafe. Since the City acquired Pogonip in 1989, the clubhouse, tennis courts, and swimming pool (substandard for public use) have remained closed to public use. Mothballing measures have been undertaken by the City of Santa Cruz with the intent of rehabilitating the structure for use in the future. The clubhouse, and the other historic structures and features at Pogonip are described in more detail in the following sections.

4.2 LIMEKILNS, LIMESTONE QUARRIES AND HISTORIC FEATURES

Several historic structures and features within Pogonip reveal evidence of the mid-nineteenth century limestone quarrying and production. These historic features, located in the northwestern portion of Pogonip, include three limekilns, two developed limestone quarries, at least four small quarries, and other features such as tailings piles and the road network.

The exact history of the limekiln construction and use at Pogonip has not been determined, although some believe the Pogonip limekilns may have been constructed prior to 1850, making the Pogonip kilns some of the oldest kiln features in the Santa Cruz region. The larger limekiln located to the west at the UCSC entrance is much more extensive and was constructed at a later date. A total of twelve limekiln sites are located throughout the Santa Cruz area; several of these are located within State Park properties.

The limekilns at Pogonip are constructed into the hillside along the Rincon Trail, a key feature in the historic transportation network. Two of the kilns are joined by a central buttress. The third kiln, much smaller in size, is located nearby to the south, also along Rincon Trail. A diagram of the two larger kilns is included in Appendix D.

The hillside construction enabled limestone to be loaded from the top of the kiln. A historic access road is located just to the north of the kilns. A small quarry is located behind the kiln, to the west. The limekilns were fueled from the bottom with redwood logs. Oxen-teams were typically used to haul the redwood and lime. Troughs and water delivery systems found along the Rincon Trail may be remnants of the lime production period.



The Ladies play Polo. God bless them

PHOTO COURTESY OF SPECIAL COLLECTIONS, MCHENRY LIBRARY, UCSC

POGONIP SOCIAL & POLO CLUB

PHOTO OF HORSEWOMEN FROM *THE PACIFIC COAST GOLFER AND POLOIST*. CAPTION BELOW EXPRESSES, "THE LADIES PLAY POLO, GOD BLESS THEM."

Deterioration of the kilns at Pogonip has occurred over the past century, both from natural processes and human impacts. The lime mortar appears to be in a state of advanced deterioration, and will likely continue to decompose due to the natural elements, particularly moisture. There is evidence of fallen debris both inside the kiln and along the front of the kiln walls, and the kiln walls show evidence of cracking. Horizontal support beams are also deteriorated or missing. Graffiti and vandalism problems have been relatively minor, although there has been some limited damage over the years.

The City of Santa Cruz has taken steps in recent years to minimize impacts from natural processes and people. These steps have included installation of wooden platforms on top of the kilns and installation of wooden covers at the arch entrances to prevent access into the kiln structures. When the City acquired Pogonip, debris was found in the kilns indicating they had been used as living quarters. The wooden platforms have been effective in preventing access inside the kilns, however, the platforms are sometimes used inappropriately as a sitting or gathering area, for which they were not designed. Wood rail fencing is being installed to discourage access on top of the platform and deter people from climbing on or damaging the kiln walls. Ultimately, it is hoped the platforms can be removed to allow visitors to view the firing areas and because they detract from the historic nature of the site.

Most recently in 1996, several redwood trees growing within and immediately adjacent to the two larger kilns were cut down. A total of nine trees were removed to minimize further deterioration of the kilns. These second-growth trees growing within the kiln walls were substantial in size. The largest tree, actually three trunks, was rooted in the buttress of the kiln and exceeded 100 feet in height and 75 inches in diameter. Prior to the tree removal, the two kilns were photographed and measured in detail to ensure all critical information was recorded in the event of any damage to the kilns during the tree removal operations. The trees were removed in sections using a crane; no damage occurred to the kilns directly from the tree cutting. The stumps remain and the sprouts are trimmed as needed. The tree removal resulted in considerable public controversy within the Santa Cruz community, creating a debate between the need for historic preservation versus natural resource protection. Opponents of the tree removal project noted that many of the redwoods at Pogonip had likely been logged to fuel the Pogonip limekilns or other kilns in the area.

In addition to the kiln structures, the historic road network within Pogonip is also considered a significant historic feature. Segments of Spring Trail and Rincon Trail are believed to have been originally constructed as part of the transportation system connecting the timber areas, limestone quarries and limekilns. The limestone roadbed, in some places several feet deep, is still visible at several locations (refer to Appendix E, Historic Roadways Maintenance Guidelines).

The historic resource preservation goal for the Pogonip limekilns is to curtail deterioration by minimizing the effects of natural processes and visitor impacts. This is the most feasible strategy given the substantial costs of long-term reconstruction of the limekilns and the City's commitment toward rehabilitation of other historic resources within Pogonip, most notably the clubhouse. Should significant funding become available in the future, a long-term stabilization plan for the limekilns should be considered.

Steps may also be taken in the future to place the limekilns and the associated features on the California or National Register of Historic Places. Historic resource specialists have recommended the limekilns and related feature be managed as a "historic district," rather than be considered as individual sites and remains. Initial preliminary evaluations indicate the limekilns and associated features may meet the eligibility criteria. The City also aims to implement interpretive programs and facilities to educate the public about the limestone production industry and its effect upon the Pogonip landscape.



LOCAL LIMESTONE WAS CONVERTED TO LIME BY BURNING IN KILNS. LIME WAS USED FOR MORTAR, PLASTER AND WHITEWASH.

LIMEKILNS AND ASSOCIATED FEATURES

MANAGEMENT ACTIONS

- Install and maintain safety barriers, such as wood rail fencing, and signs as needed for public safety and to

curtail further deterioration of the kiln features due to visitor impacts.

- Conduct trimming of redwood stumps resulting from the tree removal operation.
- Clear vegetation from the kiln walls to prevent further deterioration due to plant growth.
- Conduct Park Ranger patrols in the vicinity of the kilns and quarries to discourage vandalism and inappropriate public use.
- Restrict public use in the ravine located between the two kiln sites.
- Maintain fallen debris within the kilns and at base of kiln walls in place, unless a restoration plan is developed and specific appropriate measures are recommended.
- Create an on-site interpretive display. Utilize the services of professional historic specialists. The display should be designed to retain the historic character of the site and minimize damage from vandalism.
- Remove the wooden platforms to provide for public viewing of the kiln interior and to restore the historic character of the site. Prior to removal of the wooden platforms, implement appropriate measures to ensure public safety is maintained. Consult with a qualified historic resource specialist prior to removal of the platforms.
- Monitor decay of the limekiln through continued measurement of cracks and comparison with baseline photographs.
- Preserve historic fence lines and other features, such as spring boxes and troughs along the historic roads. Replace fence posts only as needed to preserve historic fence lines. Replace barbed wire with smooth wire as needed for public safety reasons.
- Encourage further documentation and research of the limekilns and associated features to increase the understanding of limestone production within the Santa Cruz region and the construction and operation of the Pogonip limekilns.
- Consider nomination of the limekilns and associated features as a Historic District under the California or National Register of Historic Places.
- Complete a comprehensive stabilization plan, under the guidance of qualified professionals, should funding become available in the future. Specific stabilization measures might include restoration of the top of the kiln walls, replacement of decayed structural beams, reconstruction of the center buttress, etc.
- Comply with Historic Roadways Maintence Guidelines, Appendix E.

4.3 HISTORIC CLUBHOUSE

The clubhouse at Pogonip was originally constructed in 1911 as part of the Casa del Rey Golf Course. Although the structure was declared unsafe for occupancy in 1988 and some elements of the clubhouse have been altered over the past decades, it is considered a valuable historic resource and is proposed for rehabilitation as a community facility (refer to the Visitor Facilities and Special Use Element).

Designed by architect L. D. Esty, the clubhouse is an example of an early twentieth century resort Craftsman Bungalow architectural style. Wood shingle siding, a large porch and second-story wooden decks characterize the clubhouse. Unique, rustic architectural features include the use of unstripped redwood log pillars for the front porch and unstripped redwood for the railing and balusters of the second-story deck. The first floor, 5,177 square feet, features a main hall with a massive stone fireplace, a lounge with a second floor balustrade and a kitchen. The second floor, totaling 2,839 square feet, includes several smaller rooms.

Comparisons with historic photos indicate some alterations have been made. Most notably, a portion of the front porch was enclosed, and a gable roof over the entry and a side stairway to the second story porch were removed. The deck on



PHOTO COURTESY OF SPECIAL COLLECTIONS, MCHENRY LIBRARY, UCSC

THE POGONIP CLUBHOUSE

THIS HISTORIC SCENE WAS FEATURED ON A POSTCARD FROM THE 1920S.

the west side appears to be a more recent addition. Structural renovations were also made in the late 1980s.

Historically, the grounds to the front of the clubhouse were open turf, either as part of the golf course or polo grounds. The 18th hole was located directly in front of the clubhouse. Historic photos also depict a large pond which has since been filled. Today, the site is surrounded by annual grassland, predominantly non-native species, to the south and west, and mixed evergreen forest to the north and east. Exotic landscaping at the front entrance and side elevations also exists.

The clubhouse is recognized locally as valuable historic resource and is listed in the City of Santa Cruz *Historic Building Survey*. It is not listed in either the National Register of Historic Places (NRHP) or the California Register of Historical Resources (CRHP); however, early consultations indicate it does appear to meet the eligibility criteria for the NRHP.

The Management Actions identified in this section provide guidance regarding mothballing until the clubhouse is rehabilitated for public use. The intent of mothballing is to secure the structure temporarily from weather and potential vandalism. A report has been prepared outlining specifications for mothballing (Sanchez, 1996). Design Guidelines and Management Actions for the rehabilitation of the historic clubhouse and surrounding grounds are presented in Section 2.1 of this Master Plan.



PHOTO COURTESY OF SPECIAL COLLECTIONS, MCHENRY LIBRARY, UCSC
MCCORMICK HOUSE

CLUBHOUSE

MANAGEMENT ACTIONS

- Maintain plywood covering on all door and window openings.
- Fill in gaps in existing shingles as needed.
- Cut back vegetation within approximately two feet of the building exterior. Remove any tree branches overhanging the roof.
- Monitor the interior of the clubhouse for any signs of increased structural instability.
- Continue the caretaker program to discourage vandalism and illegal access.
- Conduct periodic Ranger patrols through the structure to ensure no significant damage has occurred.
- Maintain an automated alarm system for the clubhouse.

4.4 MCCORMICK HOUSE SITE

A vacation retreat for Southern Pacific official E. McCormick was constructed in Pogonip during the early part of this century. It burned down prior to the City's acquisition of Pogonip. The lands for the home and extensive botanical gardens were leased from the Cowells. The McCormick house site is situated just to the south of Brayshaw Trail. The house site is not considered a significant regional or statewide historic resource, although, it is of interest to the local community.

Within the approximately two-acre estate site, little remains. The building foundation, footings, stone walls and walkways are now overgrown with non-native vegetation. A concrete reservoir, believed to have been used as a swimming pool, is located just to the south of Brayshaw Trail. It is now enclosed with a chain-link fence for public safety reasons.

Evidence of exotic landscaping and orchards, once part of an extensive botanical garden, still exists. Much of the garden has been lost, although the garden layout and some plant species may still be of historical interest.

MCCORMICK HOUSE SITE

MANAGEMENT ACTIONS

- Create an interpretive display along the Brayshaw Trail. Any future interpretive brochure for Pogonip Creek Nature Trail should also identify the orchard area below the house site.
- Remove non-native vegetation which does not have historical interest.
- Replace existing chain-link fencing surrounding the swimming pool/reservoir with a more aesthetic fence design which is less visually obtrusive. The fence must be designed to prevent access for public safety reasons.
- Remove debris from the concrete basin as appropriate.

5 NATURAL RESOURCES

Management of all natural resources within Pogonip is an important responsibility. Some of these resources, however, are considered sensitive biotic resources and require dedicated protection and enhancement efforts. Sensitive biotic resources are defined as those plant and wildlife species which are officially listed by the State and/or Federal government and the California Native Plant Society (CNPS) as having a special status. Plant communities which are considered as High Inventory Priority Plant Communities by the California Department of Fish and Game, and areas recognized as sensitive habitat by the City of Santa Cruz General Plan, are also considered sensitive resources.

Sites where sensitive habitat areas, plant communities, and plant and wildlife species occur at Pogonip will be designated as Natural Resource Management Areas. The key focus of management will be preservation and enhancement of the sensitive resources. Within these areas, other public uses may be limited to ensure the primary goal of natural resource protection can be achieved. Where proposed uses potentially impact sensitive biotic resources, specific mitigation measures are identified in the Environmental Impact Report prepared for the Pogonip Master Plan.

The Resource Management Areas are differentiated based upon the type of plant community or sensitive species present. Six types of management areas are identified within Pogonip. They include:

- Coastal Terrace Prairie
- Wetland/Freshwater Marsh
- Central Coast Cottonwood-Sycamore Riparian Forest
- Central Coast Riparian Scrub
- Robust Spineflower Habitat
- Ohlone Tiger Beetle Habitat

This element describes these special status species and plant communities and identifies specific Management Actions for each Resource Management Area. Management of the woodlands and plant communities of lesser sensitivity is addressed in the final section of this element

Much of the information regarding sensitive biotic resources in this Master Plan is based upon reports previously prepared for the City or completed as part of the Pogonip Master Plan environmental review process. These include, in part, the *Pogonip Biotic Assessment* (Habitat Restoration Group, 1996) and the *Pogonip Environmental Constraints Analysis* (Habitat Restoration Group, 1997).



COFFEE BERRY
RHAMNUS CALIFORNICA

THESE BERRIES ARE A FOOD SOURCE FOR WILDLIFE.

5.1 COASTAL TERRACE PRAIRIE

Most of the rare and unique plant and wildlife species found at Pogonip are associated with the coastal terrace prairie plant community. This type of habitat occurs in the Main Meadow, along Spring Trail, at Haunted Meadow, and other smaller



GAIRDNER'S YAMPAH
PERIDERIDIA GAIRDNERI

meadow areas shown on the Sensitive Biotic Resources Map. These areas vary in the level of diversity and frequency of perennial native grasses and other plant species.

Along California's central coast, coastal terrace prairie typically features California oatgrass *(Danthonia californica)* and purple needlegrass *(Nassella pulchra)*. In the more diverse coastal terrace prairie areas, other types of perennial native grasses and special status plant species have been identified.

At Pogonip, rare plant species identified include San Francisco popcorn flower *(Plagiobothrys diffusus)*, Santa Cruz clover *(Trifolium buckwestorium)*, and Gairdner's Yampah *(Perideridia gairdneri ssp. gairdneri)*. The San Francisco popcorn flower has been found only at Haunted Meadow, which is located near the junction of Rincon Trail and Spring Trail in the northern portion of Pogonip. It is an annual which flowers early in the season, typically in March, and dies well before the summer season. Santa Cruz clover is also found only within Haunted Meadow. It typically blooms in April and May. Gairdner's Yampah is the most common rare plant found at Pogonip. It has been identified at several sites within Pogonip as shown on the Sensitive Biotic Resources Map. Gairdner's Yampah first appears as green grass-like leaves in February and March. It then produces a flowering stalk, which typically blooms in August.

Pogonip also features a type of grassland known as mima-mounds. The mima-mound area is located at the Upper Meadow, to the southwest of the existing Ranger facilities. Mima-mounds are natural formations featuring relatively evenly spaced earthen mounds, approximately one foot or higher, with low-lying, poorly drained areas in between the mounds. At Pogonip, the mounds are dominated by non-native grassland, while the low-lying areas have mostly native vegetation of relatively low diversity. At other mima-mound sites in the region, uncommon to rare plant species are often found in the low-lying areas. These species have not been identified at the Pogonip mima-mounds. In the past, it is likely the mima-mounds at Pogonip supported a higher number of native plant species.

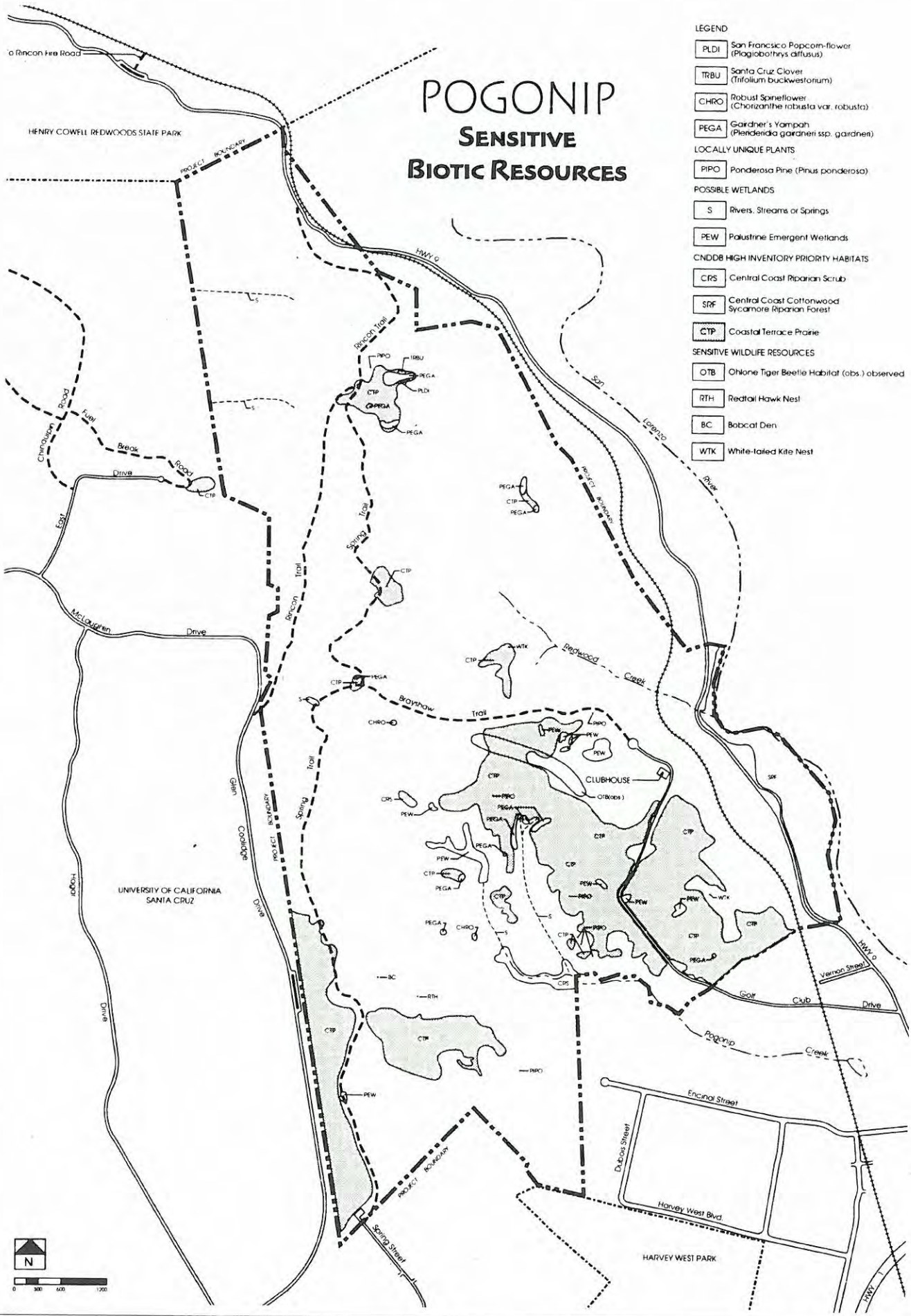
In addition to coastal terrace prairie's significance due to the presence of rare and special-interest plant species, it also provides valuable habitat for wildlife, including sensitive species. A site at the Upper Main Meadow is particularly noteworthy as habitat for the Ohlone tiger beetle, a unique local beetle under consideration for Federal listing (refer to Section 5.5, Ohlone Tiger Beetle Habitat).

Other special status wildlife species which rely on prairie habitat and grassland areas include White-tailed kite which forage in the lower and upper areas of the Main Meadow. Grassland habitat in the vicinity of Spring Street may provide suitable habitat for the burrowing owl, a California species of special concern.

Because of the limited distribution and significance of coastal terrace prairie at Pogonip and within Santa Cruz, all coastal terrace prairie areas not proposed for other uses will be considered Resource Management Areas. Preservation and enhancement of meadows where rare plant species have been identified is the highest priority for resource management. As mentioned earlier, Haunted Meadow is particularly valuable due to the presence of three rare plant species and diversity of other native plant species present.

Some of the future uses for Pogonip, including the Pogonip Garden, Outdoor Education Camp and Lower Meadow parking, are proposed for sites located within areas of coastal terrace prairie habitat. Implementation of these uses will require mitigation measures as described in the Environmental Impact Report for this Master Plan.

The Management Actions listed below focus on diligent management to ensure the long-term survival of coastal prairie. This requires cycles of disturbance to minimize the build-up of thatch (dead grass) and growth of invasive non-native species. Natural disturbance includes fire and grazing. Some of the management actions aim to mimic these types of disturbances. For grasslands with more non-native vegetation, prescribed burns and grazing would also be beneficial and could succeed in significantly enhancing the quality of the habitat by promoting growth of native prairie species.


POGONIP
SENSITIVE
BIOTIC RESOURCES
LEGEND
PLDI San Francisco Popcorn-flower (Plagiobothrys diffusus)
TRBU Santa Cruz Clover (Trifolium buckwestorium)
CHRO Robust Spineflower (Chorizanthe robusta var. robusta)
PEGA Gairdner's Yampah (Perideridia gairdneri ssp. gairdneri)
LOCALLY UNIQUE PLANTS
PIPO Ponderosa Pine (Pinus ponderosa)
POSSIBLE WETLANDS
S Rivers, Streams or Springs
PEW Palustrine Emergent Wetlands
CNDDB HIGH INVENTORY PRIORITY HABITATS
CRS Central Coast Riparian Scrub
SRF Central Coast Cottonwood Sycamore Riparian Forest
CTP Coastal Terrace Prairie
SENSITIVE WILDLIFE RESOURCES
OTB Ohlone Tiger Beetle Habitat (obs.) observed
RTH Redtail Hawk Nest
BC Bobcat Den
WTK White-tailed Kite Nest
HENRY COWELL REDWOODS STATE PARK
o Rincon Fire Road
PROJECT BOUNDARY
HWY 9
San Lorenzo River
Rincon Trail
Chinquapin Road
Fuel Break Road
East Drive
McLaughlin Drive
Spring Trail
Redwood Creek
Brayshaw Trail
CLUBHOUSE
OTB(obs.)
Golf Club Drive
Vernon Street
Pogonip Creek
Hagar Drive
Glen Coolidge Drive
UNIVERSITY OF CALIFORNIA SANTA CRUZ
Encinal Street
Dakota Street
Harvey West Blvd.
Spring Street
HARVEY WEST PARK
HWY 1
N
0 300 600 1200



HAUNTED MEADOW

THIS MEADOW OF LEGEND IS HOME TO VALUABLE NATIVE VEGETATION INCLUDING THREE RARE PLANT SPECIES.

COASTAL TERRACE PRAIRIE MANAGEMENT ACTIONS

- Develop a management and enhancement program for Haunted Meadow which aims to ensure the long-term survival of the native prairie and rare species. Develop the program in consultation with the California Department of Fish and Game, a qualified botanist, and other specialists as appropriate. Target removal of non-native species. Utilize management strategies such as mowing, prescribed burning and grazing.
- Implement an invasive, non-native species eradication program within the next five years for coastal terrace prairie habitat. Target the removal and control of species such as acacia, bull thistle, French broom, and other non-native species.
- Implement a program to remove coyote brush, poison oak, blackberry and juvenile trees within the existing prairie habitat to prevent further loss of coastal terrace prairie acreage.
- Reroute existing trails to the edge of coastal prairie habitat at Haunted Meadow, Fern Meadow, and other meadow areas where sensitive native plant species occur.
- Monitor populations of rare plant species along Pogonip Creek Trail, Fern Trail, and Spring Trail to ensure use does not result in the loss or degradation of the site. If negative impacts occur, realign trail segments, install fencing, or implement other measures as appropriate.
- Implement prairie management programs in conjunction with any trail realignments or development within areas of coastal terrace prairie.
- Develop a grazing plan for appropriate grassland areas as resources and funding becomes available. Focus the grazing plan to maximize benefits for habitat restoration and wildland fire management (refer to the Fire Management Element).
- Coordinate with the City of Santa Cruz Fire Department to conduct small-scale prescribed burns in grassland areas. Conduct prescribed burns within areas of coastal terrace prairie using service roads as boundaries wherever possible, even when the vegetation type is different at the road. Consult with a qualified biologist regarding timing and appropriate mitigation measures.
- Provide interpretive materials and signs for the public and educational programs describing coastal prairie habitat and the rare plant species.

5.2 WETLAND/FRESHWATER MARSH

Wetlands addressed in this section include streams and marshes. Management of the habitat along the San Lorenzo River at Sycamore Grove is discussed in Section 5.3 of this element.

Pogonip features several small seasonal wetlands, or freshwater marshes, located within depressions in the Main Meadow and along Pogonip Creek Nature Trail. Wet-loving plants, or hydrophytes, are found within these areas, including: brown-headed rush (*Juncus phaeocephalus*), common rush (*Juncus patens*), velvetgrass (Holcus lanatus), and sedges (*Carex densa*). The botanical value of these wetlands is somewhat lessened by the abundance of non-native weeds. These wetlands do not retain standing water throughout the year, although during the wet season, there may be some ponding.

Wetlands are also found at Pogonip where year-round free-flowing springs originate. The most notable springs include those along Spring Trail and the site between Rincon and Spring Trails. The actual extent of the wetlands at Pogonip, both within the meadows and near springs, has not been delineated.

Wetlands can provide water for small mammals and breeding sites for amphibians. Due to the small size, shallow depth and short ponding duration, the marshes within Pogonip are not considered viable habitat for California Red-legged frogs or Southern western pond turtles, both of which are special status wildlife species. Sycamore Grove, however, is considered potential habitat for both species (refer to Section 5.3).

The City of Santa Cruz General Plan includes a policy recommendation that development be setback at least 100 feet

from a wetland. No structures are proposed within the setback areas of the known wetlands at Pogonip, however, the proposed Garden site and meadow area in the vicinity of the Ranger facilities feature small wetlands. Wetland buffers, as determined by a qualified biologist, are needed to minimize the impacts of these uses.

WETLAND/FRESHWATER MARSH MANAGEMENT ACTIONS

- Provide an adequate buffer, as determined by a qualified biologist, between wetlands and Pogonip uses. Where possible, setbacks should be at least 100 feet from the wetlands.
- Reroute trails or install boardwalks as needed to minimize and avoid impacts to wetlands.
- Conduct an inventory and identify specific management actions for streams and springs.

5.3 CENTRAL COAST COTTONWOOD/ SYCAMORE RIPARIAN FOREST

California's northernmost stand of Central Coast Cottonwood-Sycamore riparian forest occurs within the floodplain of the San Lorenzo River at Pogonip. This approximately 10-acre riparian forest, known as Sycamore Grove, features a large grove of sycamore (*Plantanus racemosa*), black cottonwood (*Populus balsamifera ssp. trichocarpa*), and various willow species.

Sycamore Grove provides potential habitat for several sensitive wildlife species, including the California red-legged frog, Southwestern pond turtle, and yellow warbler. The red-legged frog and Southwestern pond turtle have been found to the north and south of Sycamore Grove. Surveys are needed to confirm the presence or absence of these species at Pogonip. Sycamore Grove's riparian forest also serves as a migration corridor, and provides valuable nesting and foraging habitat for a diversity of common wildlife species.

The riparian habitat is degraded by the invasive non-native vines climbing up the trunks of trees and covering the ground surface. There are also isolated occurrences of pampas grass, French broom and acacia trees. Much of this non-native growth is result of previous disturbance, particularly the campground previously located at Sycamore Grove decades ago. The site also suffers from debris, trash and trampling resulting from transient camping and other inappropriate activities. In cooperation with the Natural Resources Employment Program initial steps have been undertaken to restore and enhance the riparian forest habitat.

A long-term vegetation management program is needed to ensure the long-term health and survival of the riparian forest habitat. The existing levels of invasive non-native species must continue to be reduced. This will promote the re-establishment of a higher diversity of native plant species and minimize continued degradation of the western sycamore trees.

RIPARIAN FOREST MANAGEMENT ACTIONS

- Remove German ivy, English ivy and Virginia creeper vines and runners that are covering the native riparian trees. Use a combination of chain saws, hand saws and clippers to sever vines at trunks of native trees. Leave severed foliage of invasive vines in place to decompose naturally.
- Remove German ivy and runners that are covering native shrubs and other low-lying native vegetation by hand pulling and minor hoeing. Ensure all German ivy foliage is bagged and removed from the site so that new plants do not establish. Schedule removal for December if possible.
- Revegetate as needed with appropriate native species, such as willow and blackberry, in consultation with a qualified botanist. Avoid species which would significantly increase the wildland fire hazard.
- Conduct focused surveys to determine the presence or absence of California red-legged frogs and southwestern pond turtles. If these species are found , install interpretive displays and provide educational materials describing the sensitive nature of the California red-



SYCAMORE GROVE

legged frog and southwestern pond turtle. Restrict collection of adult California red-legged frogs and tadpoles.

5.4 CENTRAL COAST RIPARIAN SCRUB

Within Pogonip, the Central coast riparian scrub is characterized by willow species which form dense thickets. Willows serve as valuable habitat for neotropical migrant birds. Due to the intermittent nature of the creek flows at Pogonip, wildlife use is most likely seasonal in nature. The habitat value is also somewhat moderated by the prevalence of non-native understory vegetation.

The distribution of central coast riparian scrub is relatively limited within Pogonip. Riparian scrub habitat occurs along the Pogonip Creek and one other isolated site in the upper reach of the Pogonip Creek drainage area.

CENTRAL COAST RIPARIAN SCRUB MANAGEMENT ACTIONS

- Minimize visitor impacts to the riparian vegetation by monitoring trail user impacts along Pogonip Creek Nature Trail and encouraging users to stay on the trail.
- Install a pedestrian/equestrian bridge at Pogonip Creek on the Pogonip Creek Nature Trail to minimize impacts to the riparian habitat.
- Limit trail use in the vicinity of riparian habitat to pedestrian use only, with the exception of mounted ranger patrols.

5.5 ROBUST SPINEFLOWER HABITAT



ROBUST SPINEFLOWER
CHORIZANTHE ROBUSTA

The robust spineflower (*Chorizanthe robusta var. robusta*) occurs at Pogonip and only three other sites within the Santa Cruz region. This unique annual plant has been listed by the U.S. Fish and Wildlife Service (USFWS) as an endangered species. Because of this federally-listed status, it is a species which must be addressed under the California Environmental Quality Act and therefore requires consultation with the California Department of Fish and Game.

Within Pogonip, two habitat areas have been identified. One habitat area is located in the bottom of a sandy gully to the south of Brayshaw Trail and the reservoir/pool site. The second area is located near the Pogonip Creek Nature Trail in the southwest portion of the Upper Main Meadow within the grassland area. This plant is most visible when the pink foliage is in bloom during April and May.

Future management actions to protect and potentially enhance robust spineflower habitat should be closely coordinated with the appropriate State and Federal agencies, the California Department of Fish and Game and the USFWS, due to the federal listing. Key management issues include gathering census data and monitoring potential future visitor related impacts, particularly for the spineflower habitat near the Pogonip Creek Nature Trail and the proposed Outdoor Education Camp.

ROBUST SPINEFLOWER HABITAT MANAGEMENT ACTIONS

- Develop a management program for the two robust spineflower habitat areas to ensure the long-term survival of this endangered species. Develop the program in consultation with the California Department of Fish and Game and a qualified botanist.
- Coordinate with contracted botanists and/or qualified volunteers to gather and record census data.
- Monitor pedestrian trail use along the Pogonip Creek Nature Trail to ensure there are no negative impacts to the robust spineflower habitat area. Install signs, as appropriate, to educate visitors about the biotic sensitivity of this plant species.

5.6 OHLONE TIGER BEETLE HABITAT

The Ohlone tiger beetle (*Cicindela ohlone*), found only in remnant stands of native prairie on coastal terraces in the Santa Cruz area, has been identified in the Upper Main Meadow at Pogonip. Potential habitat may exist at other sites within Pogonip, though no additional sites have been documented. Management and monitoring of the known habitat area is important to ensure the long-term survival of this species, which

is currently being considered for listing by the Federal government as an endangered wildlife species.

This unique beetle has adapted to relatively level areas of poorly drained clay or sandy clay soils which provide the needed conditions for egg laying and larval development. The larvae and inactive adult beetles shelter in burrows in these soil conditions. The Ohlone tiger beetle relies on small open areas where the native prairie is low and sparse; within these bare patches the beetles are believed to hunt and thermoregulate. When disturbed, the beetles often seek cover in denser grasses.

In the Upper Main Meadow, a colony of Ohlone tiger-beetle has been identified near the intersection of the existing Pogonip Creek Trail and Old Stables Trail (to be renamed Prairie Trail). At this site, the beetles have been found in areas of sparse grass with some exposed, bare ground. Potential habitat may also exist in the prairie area along the proposed route for the new trail connection to Harvey West Park.

OHLONE TIGER BEETLE HABITAT MANAGEMENT ACTIONS

- Develop an Ohlone tiger beetle management strategy for the Upper Main Meadow site at which the beetle has been documented. Coordinate with the appropriate State and/or Federal agency and a qualified biotic specialist regarding enhancement of grassland areas for beetle habitat.
- Monitor pedestrian trail use along the Prairie Trail to ensure there are no negative impacts to the beetle or its habitat. Install signs, as appropriate, to educate visitors about the Ohlone tiger beetle and the habitat sensitivity.
- Conduct non-native species removal, limited grazing, or other prairie management strategies to prevent further expansion of invasive non-native species within the habitat area. Consult with the U. S. Fish and Wildlife Service and a qualified biologist prior to implementing any action in the beetle habitat.
- Conduct surveys for the Ohlone tiger beetle to confirm the presence or absence in the vicinity of the new trail connection to Harvey West Park. If the beetle is determined to be present, develop a management strategy for the documented habitat.

5.7 GENERAL RESOURCE MANAGEMENT

Much of Pogonip features woodland plant communities which will also be protected as valued natural resources but are not considered sensitive biotic resources. These woodland communities include mixed evergreen forest, upland redwood forest, and coast live oak forest. In addition to the woodlands, there are also areas of coyote brush scrub and non-native grassland. These plant communities are described in the Introduction to this Master Plan and shown on the Plant Communties Map in Appendix B.

The key focus within habitat areas of lesser sensitivity is to prevent future degradation due to invasive non-native species, visitor-related impacts, and illegal uses such as camping. The Management Actions are applicable to all portions of Pogonip which are not designated as a Resource Management Area or developed/landscaped for visitor or Pogonip Garden use.

GENERAL RESOURCE MANAGEMENT ACTIONS

- Remove trash and inorganic debris during periodic clean-ups and in response to reports of illegal camping or dumping.
- Retain dead and downed trees, snags and limbs in-situ for habitat where appropriate. Remove only if the situation will result in a public safety hazard or if needed to minimize fire hazards (refer to Fire Management Element).
- Prevent the further spread of invasive non-native species. Target sites such as the eucalyptus grove along Brayshaw Trail and areas of extensive ivy and vinca.
- Close informal pathways through woodland and scrub plant communities.
- Discourage use of chemical treatments for vegetation



OHLONE TIGER BEETLE
CICINDELA OHLONE

THIS RARE MEMBER OF THE ORDER COLEOPTERA IS FOUND IN THE COASTAL PRAIRIE HABITAT OF THE UPPER MAIN MEADOW.

management whenever possible. Chemical treatment shall be in accordance with the City's Integrated Pest Management Program.

- Prohibit commercial timber harvesting within Pogonip.
- Prohibit use of wood products pressure treated with harmful chemicals in the area surounding riparian areas including springs and seeps. Consider use of wood products treated by alternative methods as those products become available in the future.
- Conduct monitoring of trees along Spring Trail and the lower portion of Rincon Trail inventoried by the Sierra Club and Friends of Pogonip in 1995.



FIRE MANAGEMENT

The main goal of fire management is prevention of loss of life, and then property. This encompasses visitor safety (usually through evacuation), minimizing the chance of fire spreading beyond Pogonip, and reduction of damage to values at risk on site. These goals are usually realized through quick fire containment, specific protection of identified features, and minimization of the damage of suppression itself. Because of Pogonip's proximity to large off-site values at risk, coupled with the presence of species adapted to fire, priority for property protection is likely to be placed on minimizing the fire spread off-site rather than aggressive containment within Pogonip.

This Fire Management Element, prepared by Wildland Resource Management Inc., addresses values at risk from fire, fire hazards, risk of ignition, methods of fuel management, and fire management actions.

6.1 VALUES AT RISK FROM FIRE

Pogonip is exceptional in its proximity to the developed areas of Santa Cruz. The off-site values at risk from fire are plentiful around Pogonip. Several residential neighborhoods abut the property: neighborhoods at the end of Spring Road, Big Trees Manor and Paradise Park on the eastern edge of the park off Highway 9. Pogonip is unusual for an undeveloped open space area in that it is also adjacent to commercial properties to the southeast of the property boundary, near Harvey West Park. To the west, most the University of California campus is relatively remote from Pogonip; however, several resident halls and office buildings are located near the Rincon Trail entrance.

Structure and features within Pogonip, which could be damaged from the fire, include the historic clubhouse, railroad tracks and trestle, fencing, and the historic limekilns. More improvements will be at risk from fire in the future: Clubhouse renovation improvements, structures in the outdoor education camp and Pogonip garden, the Ranger facilities, and the caretaker's residence.

Because vegetation in the park has adapted to the occurrence of fire, the natural values which may be damaged from fire are minor if the fire is of low to moderate intensity. Most species on the site such as redwood, coast live oak, bay, coyote bush, have the ability to resprout after fire, or have seeds which depend conditions created after afire for enhanced reproduction. However, a fire of a level of intensity similar to the Oakland/Berkeley Tunnel fire in 1991 could damage the seed bank of wildflowers.

A severe fire can also be expected to top-kill a high proportion of trees and shrubs in Pogonip. While the species will generally recover in the approximately distribution and frequency, the structure of the vegetation, wildlife habitat value and aesthetics of the site will be dramatically changed in the burned area.



VISTA FROM UCSC

6.2 FIRE HAZARDS

There are a variety of ways to measure, define, and describe fire hazard, but most use potential fire behavior and the components that influence the ability to suppress a fire as the basis for determining hazard. Factors in assessing hazard based on potential fire behavior include the fuels, topographic and weather conditions. Factors that are involved in the ability to suppress a fire are water availability and access. Hazard assessment, as detailed in the various methodologies that follow, describes how severe a wildfire may be but does not provide any information regarding the risk of a fire or the chance a fire will burn in the area. Ignition risks are discussed in Section 6.3.

TOPOGRAPHIC FEATURES AND HAZARDS

Topographic features, such as slope, aspect, and the overall form of the land, have a profound affect on both the abiotic and biotic components of an area's ecology. For example, topography influences local weather patterns, vegetation types and distribution, and creates microclimates with localized moisture conditions. By influencing the local wind, fuel, moisture and heat availability, topography directly and indirectly affects the intensity, direction, and spread rate of wildfires.

Pogonip, located in the south end of the Santa Cruz Mountains within the Coast Ranges, has relatively rugged topography. The western boundary coincides with the distinct, high ridgeline, which forms a boundary with the UCSC campus. Elevations within Pogonip range from approximately 100 feet in elevation at the entrance of Lower Meadow, to approximately 750 feet in elevation in the northwest portion of Pogonip.

A mixture of densely forested valleys with steep canyons and open meadows in flats or ridgelines characterize the topography of Pogonip. Ridges are noticeably flat-topped with gentle, rounded upper slopes and steeper slopes towards the valley bottom. Most of the permanent and intermittent streams flow south and southeast and have carved valleys with primarily east and southeast facing slopes with several smaller ridgelines which run east-west. These valleys and canyons have very steep sides, with slopes averaging over 30 per cent.

These steep slopes would promote rapid fire spread uphill. Because winds burn more rapidly uphill, fires will burn up to the high point of Pogonip in the northwestern portion of the property and generally westward. While most of the time, the values at risk from fire uphill are natural features, which are adapted to fire, the topography creates an influence which promotes spread off of Pogonip and toward residential halls and office buildings of the UCSC campus. Ignitions along Highway 9 could burn westward and uphill to the Clubhouse and interior of Pogonip. Ignitions near Spring Trail could also quickly move off the property because of the terrain.

Canyons that could funnel fire spread include the canyon containing Redwood Creek, the canyon northeast of the Spring Street entrance, and the two canyons bounded by Pogonip Creek Trail. These all generally channel spread into the park. The canyon between Ohlone and Brayshaw Trail could funnel fire spread within Pogonip, but also promote conditions, which might cause fire to spread westward and uphill off of the property. Under north wind conditions where the drainage that follows Highway 9 is aligned with the wind, the area could experience dramatic fire spread.

The ridgeline along Coolidge Drive tends to promote turbulent winds, as the prevailing wind confronts updrafts in the afternoon. A similar situation of turbulent winds caused by the combination of terrain and winds can also be expected should a wildfire occur in this location.

WEATHER PATTERNS AND HAZARDS

Like topography, weather conditions have a large influence on fire behavior. Weather conditions significantly impact the potential for fire ignition as well as the rate, intensity, and direction in which fires burn. Wind, temperature, and humidity are the more important weather variables used to predict fire behavior.

The Santa Cruz area has warm, dry summers and cool, moist winters characteristic of the fog belt area. In general, most

of the measurable rainfall, about 45 inches a year, occurs during the winter months (mid-October to mid-April). Thus, May to October is the time of highest fire danger and constitutes the fire season. Temperatures are usually moderate in Santa Cruz, where the marine influence of the bay is associated with cool and moist air.

During the summer and fall, foggy mornings are common, but the fog usually burns off by noon, with pleasantly hot afternoons. Breezy afternoons, when the wind blows in from the west in advance of fog, can represent a frequent fire danger where the wind can promote rapid spread in fine fuels which are dry. This occurs as frequently as one-quarter of the days in fire season. After hours of sunshine during the day, the fuels are dried out and require at least one hour, though most of the time longer, to accept the moisture from the fog. In the afternoon, the wind in front of the fog dramatically increases the fire's spread rate, for the winds "fan the flames". This is particularly important to the values at risk above or to the east of Pogonip. Additionally, this wind also causes turbulence at the ridgeline between Pogonip and the UCSC campus and the neighborhood in the vicinity of Spring Street. The period of danger is short; however, damages from this short weather event can be significant. Most damage in wildland/urban interface fires occurs during the first two hours of the fire.

Northern and eastern winds bring the most severe fire weather. While not frequent, these winds occur in California approximately 35 per cent of the days in September, and over 50 per cent of the days in October. Under these conditions, humidities drop to 20 per cent and temperatures soar to over 100 degrees Fahrenheit. Northerly winds would be particularly troublesome because they would be aligned with the canyon following Highway 9.

The easterly winds that helped spread the 1991 Oakland Fire do not blow with the same intensity in the east-facing hills of Pogonip. However, the overall weather pattern associated with these type of winds creates extremely low humidities and enhances the possibilities of ignition and extreme fire behavior.

Additionally, occasional episodes of several still, stagnant days formed by stationary highs can occur during droughts. During these periods of continuous high temperatures and low relative humidities, fuels dry to a point when the burning index ratings according to the National Fire Danger Rating System are over 81 and indicate extreme resistance to control.

Westerly winds can in some cases mediate the tendency of a fire to burn uphill to the west as it would travel against the wind. The combination of terrain and wind direction is problematic where they are aligned, as would occur under a north wind along Highway 9. Additionally, winds and terrain combine to form turbulence along the western boundary of Pogonip. Fortunately, winds from the southwest, which is the general direction of the canyons, do not normally coincide with extreme fire weather.

Access Limitations

The current access within Pogonip is limited to Golf Club Drive and Rincon, Spring, and Brayshaw Trails. Four-wheel-drive firefighting vehicles can traverse the unpaved service roads for the initial attack of a fire; however, larger and longer vehicles such as crew buses are precluded from making an effective contribution to fire suppression. Similarly, crews may need to walk a considerable distance to the fire site if a fire starts in location not accessible by the service roads. Access is most closely tied to response time, so that limited access prevents timely deployment of most efficient firefighting resources and generally results in a larger fire where back-up to initial response apparatus is required.

Water Availability for Fire Suppression

Pogonip currently has little water availability. Hydrants are available outside of the property at the end of Spring Street and Golf Club Drive; however, the only water source within Pogonip is located in the vicinity of the Clubhouse.

Despite the ability of four-wheel drive vehicles to enter Pogonip, water for fire suppression would more likely be brought in via helicopter buckets, and aerial support. With less than

optimum water supply, fire suppression is more difficult and can easily result in a larger fire with a greater potential for damage.

Wildland Fuels

To a fire, all biomass is fuel. Many types of vegetation burn differently, a result of several characteristics: the way the plants in that community grow; the proportion of live biomass or dead material; the proportion in various size classes; and the distribution, both horizontally and vertically, of the biomass (separated as live or dead). Vegetation types are categorized in terms of the above factors into fuel types. The most significant factor in distinguishing between fuel types is the amount and distribution of smaller diameter dead biomass, because it is this material that most commonly carries the fire. The wildland fuels in Pogonip include large expanses of four different fuel types. The distribution of these fuel types within Pogonip and the fire behavior of each of these wildland fuels are described below.

The wildland fuels at Pogonip include:

- Annual Grass (NFFL fuel model #1),
- Riparian Forest (NFFL fuel model #8).
- Hardwood Forest (NFFL fuel model #9), and
- Redwood Forest (NFFL fuel model #10).

Because there has not been a major fire in Pogonip in the last 80 years, the wildland fuels are at an unnaturally high level of accumulation. Under current fuel conditions, the expected fire behavior for the majority of the time is moderate and can usually be contained within Pogonip. Ignitions and rapid fire spread in the Annual Grass fuel type is possible almost every day after the grass has cured, from May to November. Fire behavior in the Riparian Forest Fuel Type is generally benign except under the most severe conditions. However, under severe fire weather, fire behavior can be expected to be dramatic and challenging in the Hardwood Forest and Redwood Forest fuel types.

The information on characteristics and fire hazard reduction goals for each fuel type was compiled by Amphion, Inc. for the East Bay Hills Vegetation Management Consortium and subsequently modified for use in Pogonip.

Annual Grass Fuel Type

The Annual Grass fuel type encompasses the Coastal Terrace Prairie and Non-native grasslands vegetation types. Annual Grass fuel type dominates the southern portion of Pogonip and is located in an area of high visitor use, next to residents, near the entrance at Golf Club Drive, and near the main access road to UCSC campus. The Annual Grass fuel type nearly always covers the top of the slope in flatter locations.

While the Annual Grass fuel type will ignite easily and burn rapidly, the hazard posed by grassland is far less than the Hardwood Forest with an understory. Fire generally spreads rapidly in the grassy fuel type and can exhibit dramatic flame lengths. However, the total heat output of grass is minor when compared to other fuel types. Fire behavior in grass is most responsive to changes in conditions—either a change in moisture or change in height or continuity. Containment is often the greatest challenge in suppression, with the greatest threat coming from the tendency for grass to lead into more hazardous fuels with greater fuel loads and heat production. Because of its low heat output and short burnout time, structure survival is high when grass comprises the fuels adjacent to buildings.

Annual Grass Characteristics:

- Annual grasses die back each summer forming a mostly dead fuel type
- Easy to ignite during the summer
- Carry fires into other fuel types in the summer. Serves as a damper to fire spread at other times (when live and green)
- Spreads rapidly
- Total heat output relatively low
- Responds quickly to changes in temperature and moisture (dries out or wets rapidly)
- Adapted to fire. Most native perennial species either resprout easily to rejuvenate individual specimen after fire, require fire to trigger germination or fire actually enhances production by reducing competition by annual grasses.

Fire Hazard Reduction Goals for Annual Grasses:

- Shorten height of grasses during fire season to decrease chance of carrying fire up into taller adjacent plant materials or structures and reduce overall fuel quantity.
- Manage potential ignition sites, such as along roadsides, facilities, and overlooks.
- Encourage native perennial grasses. In spite of the greater biomass/ fuel content perennial grasses are preferred to annual grasses since the perennials dry out later in the season and present a shorter period of potential ignition.
- Reduce brush encroachment.

Riparian Forest Fuel Type

The Central Coast Riparian Scrub and Central Coast Cottonwood Sycamore Riparian Forest within Pogonip are categorized as the Riparian Fuel Type. The Riparian Forest fuel type is located in moist conditions near creeks and rivers, generally at lower elevations. The riparian forest is an important natural community for its productivity, critical habitat for a large variety of vertebrate species and its intrinsic value. Great care should be exercised to avoid adverse impacts to this vegetation type.

Where no understory exists, slow burning surface fires with low flame lengths are the rule in this type, with isolated pockets of accumulated fuels flaring up and possibly starting crown scorch. Only under severe fire weather do these fuels pose significant fire hazards. Closed canopies of hardwoods support densely compacted surface fuels composed mostly of leaves, and some twigs. Where little understory growth is present, the potential for crown fires is minimized.

Riparian Forest Characteristics:

- Difficult to ignite
- Responds very slowly to changes in temperature and moisture
- Natural structure may form protective canopy
- Relatively low ratio of dead to live materials Often lacking well developed understory Fire Hazard Reduction Goals for Riparian Forest Treatment Areas:
- Encourage dense, healthy canopy to shade out more flammable understory and exotic species.
- Remove flammable exotic species.
- Discourage growth of a ground cover that cures during the summer.
- Encourage and protect this vegetation type.

Hardwood Forest Fuel Type

The Hardwood Forest Fuel Type is composed of Mixed Evergreen Forest and Coast Live Oak Forest vegetation types. The Mixed Evergreen Forest includes redwood forests, forests of Douglas fir/redwood mix, and hardwood-dominated stands such as bay, oak/bay mix and oak forests, which could be separated as distinct fuel types in subsequent, more detailed plans. The fuel type that the Coast Live Oak Forest fits in is determined by the amount, size, and age of the understory. The fuel types grade into each other without clear or distinct boundaries. The Hardwood Forest fuel type occurs throughout Pogonip on lower positions on the slope in the canyons, at varying slope steepness.

Where the mixed hardwood forest does not support an understory, slow burning fires with low flame lengths are the rule, as in the Riparian Forest Fuel Type. Isolated pockets of accumulated fuels may flare up and possibly scorch tree crowns. Only under severe fire weather does this type of forest growth pose significant fire hazards.

In contrast, where an understory is present in the mixed hardwood forest, fires will burn with greater intensity than other fuel types due to greater volume of fuel on or near the ground, both from tree deposition and understory vegetation. Large dead branches contribute significantly to long smoldering burnout; a thick understory contributes to higher probability of crown fires and associated spotting. Both of these characteristics make this the greatest fire hazard in Pogonip under severe fire weather, both in terms of starting new fires via spotting and the difficulty of containment and extinguishment.



The closed canopy provides a moist environment, which is usually resistant to ignition. This vegetation type responds slowly

to changes in temperature and moisture so that the forest dies out slowly but also remains dry for a longer period of time.

A deep leaf litter (averaging four inches deep) consisting of oak, blackberry, leaves has accumulated within the Mixed Evergreen Forests. Sometimes this plant community has a brush understory, which would carry fire into the canopy and result in crowning and torching, and potential mortality from cambial heating. When the canopy of the oaks become ignited, countless embers can be produced and carried in the wind to locations several hundred yards away. Even where oak forests are absent of a shrubby understory, low branches may make them vulnerable to torching and crowning from a grass fire on the site.

Heavy undergrowth of vines, especially in openings has developed in some locations of the Mixed Evergreen Forest. The fuels are continuous horizontally and vertically. A preponderance of fine fuels exists in both the live facade of greenery but also a mat/tangle of dead material which can comprise over 50 per cent of the biomass. In addition, heavy fuels in the form of dead oak branches have accumulated over the decades.

Mixed Evergreen Forest Characteristics:

- Ignition dependent upon build-up of surface fuels, behavior is dependent on ladder fuels (including low hanging branches) that carry fire into tree canopy. Relatively easy to ignite if there is a tall grass groundcover and build up of dead material in shrubs. Difficult to ignite if these fuels do not exist (or if live materials are pruned far off the ground) because the live leaves are relatively fire resistant.
- Heat output high if understory is well developed
- Responds more slowly to changes in temperature and moisture where grasses are absent
- Naturally adapted to frequent low intensity fires, such as through understory grasses or a short groundcover Fire Hazard Reduction Goals for Hardwood Forest Treatment Areas:
- Encourage dense, healthy canopy to shade out more flammable understory and exotic species.
- Reduce large accumulations of dead branches on the forest floor, from one to six inches in diameter.
- Maintain or create vertical separation between tree canopy and surface fuels below.
- Reduce ladder fuels, particularly non-native species.



COAST LIVE OAK
QUERCUS AGRIFOLIA

Redwood Forest Fuel Type

The Redwood Forest Fuel Type includes the Upland Redwood Forest vegetation type. This is the dominant fuel type in the more remote northern portion of Pogonip, often on steep slopes and eastern aspects.

This type supports significant fuel loads both from tree deposition and understory vegetation. Consequently, this fuel type burns with intensity. Understory development contributes to a higher probability of crown fires and associated spotting. Dead and down woody fuels include some larger (greater than three inches in diameter) fuels that pose occasional control and containment problems. Concentrations of dead down woody fuels will contribute to isolated torching of trees and under severe dry wind conditions, spotting and crowning is likely.

Both of these characteristics make this the greatest fire hazard, both in terms of starting new fires via spotting and the difficulty of containment and extinguishment from smoldering fuels. However, the dangerous fire behavior is expected only under severe fire weather. In addition, the Redwood Forest has a low ignition potential because of the moist nature of the forest and general remote location.

Redwood Forest Characteristics:

- Ignition dependent upon build-up of surface fuels and ladder fuels that carry fire into Redwood canopy. Usually difficult to ignite canopy, however natural litter (or duff) is somewhat flammable and will smolder creating a fire that is difficult to fully extinguish.
- Once large fuels ignite heat output is high though fire burns slowly
- Responds more slowly to changes in temperature and moisture

- Has potential for torching and crowning in worst weather conditions Fire Hazard Reduction Goals for Redwood Forest Treatment Areas:
- Encourage and protect this vegetation type.
- Encourage dense, healthy canopy to shade out more flammable understory and invasive non-native species.
- Maintain or create vertical separation between tree canopy and surface fuels below.
- Reduce ladder fuels, particularly non-native species.
- Although redwood forests are often thought of as fire resistant, intense fires can damage it. Light fires are beneficial in this vegetation type, with many of the associated species having adaptive attributes.

EUCALYPTUS FOREST FUEL TYPE

The Eucalyptus Forest Fuel type is composed of the eucalyptus forest vegetation type. The eucalyptus forest exists in two isolated locations in Pogonip. The larger Eucalyptus forest occurs next to the Brayshaw Trail in the central portion Pogonip. The smaller grove is located within a less accessible area that is located in the southern central portion of Pogonip.

This vegetation type is the most flammable type of forest due to the large amount of highly ignitable forest litter, bark, and foliage throughout the stand. Generally there is a continuity of fuels horizontally and vertically. The high density, low branches, thick understory and accumulated large dead branches and logs on the forest floor contribute to this hazardous fuel type. Fires in this fuel type can burn quickly, intensely, and are prone to produce spot fires at great distances from the stand.

EUCALYPTUS FOREST CHARACTERISTICS:

- Ignition can occur almost year round
- Presence of volatile oils increase speed of fire spread, total heat output and ignitability
- Ignited leaves and bark easily carried airborne, increases potential for starting new fires long distances from fire (spotting). Size of leaves and bark large enough to ensure ember is still viable (versus small particles that could be extinguished in flight)
- Heat output high when fuel has accumulated
- Large limbs respond more slowly to changes in temperature and moisture. Preponderance of fine fuels (leaves, loose bark, and small twigs) respond more rapidly.
- Susceptible to freeze damage and insect attacks which increases the ratio of dead to live fuels
- Adapted to fire. Ability to rejuvenate through stump sprouting makes it difficult to remove.
- Fastest and heaviest accumulator of fuels. Fire Hazard Reduction Goals for Eucalyptus Forest Treatment Areas:
- Prevent further spread of existing eucalyptus forest areas.
- Ease control of fire by thinning outer edges of stand.
- Control resprouting.
- Reduce stand size by removing the outermost trees where feasible.
- Convert to more fire safe vegetation type where feasible. In general, Eucalyptus forest is a non-native vegetation type, which supports a low diversity of species. Replacement by hardwood forest or grass is generally desirable, though the transition can be somewhat disruptive. Careful planning can minimize and shorten the adverse effects.

6.3 RISK OF IGNITION

Fire risks are those factors that cause fires to be ignited. Risk of ignition is determined in a qualitative manner; no methods have been developed to assign probabilities of risk associated with varying land uses or human behavior. According to the California Department of Forestry and Fire Protection, the ten most common ignition sources of wildfires in California in 1995 were, in descending order of occurrence, are mechanical use, vehicles, debris burning, arson, electrical power, campfire, playing with fire, smoking, lightning, and railroads.

Of the ten most common ignition sources of wildfires in California in 1995, the four causes most likely to arise with the proposed uses at Pogonip include campfire, playing with fire,



CONTROLLED BURN AT ARANA GULCH

vehicles, and mechanical use. These uses will require some mitigation measures for the increased ignitions.

Property open to people without any patrol or control of the activities creates special ignition risks. For example, it was a private open space where young adults were socializing and were thought to have caused the 1987 Morse Fire in Pebble Beach. With increased use, fire detection and reporting Pogonip could be improved over the current condition.

As demonstrated by the relative percentage of acreage burned by different causes, some causes of fires typically have longer detection time and are placed in locations that are difficult to access and thus have greater response times associated with them. The acreage involved with mechanical use, vehicles, debris burning, electrical power, and smoking total only one-third of the acreage burned in 1995, whereas the acreage burned from arson, campfire, and playing with fire total nearly half of the acreage burned.

IGNITIONS AT POGONIP

Fires in Pogonip have almost always occurred in the later summer during August and September. The most common causes of ignition are illegal campfires, followed by arson, powerline ignitions, and then children playing with matches. To date no fires have been started by mechanical equipment (such as those cutting grass, or tilling of fields), although this activity is among the most common sources of ignition in California.

Recently, an arsonist set several fires in the northern portion of Pogonip, the UCSC campus, and Henry Cowell Redwoods State Park. This series of arson-set fires were unusual in that they were set as far away from a road as one mile. Fire investigations have shown that arsonists do not usually travel far from vehicles, or road edges in order to facilitate undetected escape.

A powerline, which grounded, caused an ignition several years ago at the end of Spring Street. This fire prompted the City to expand the mowed fuel break to a width of 70 feet from the either side of the power line. Roadside fires, such as might occur along Glen Coolidge Drive, are a potential source of ignition within Pogonip.

Roadside fires are typically frequent sources of ignition in wildland fires in California. The cause of ignitions may be from hot catalytic converters on automobiles, which ignite dry grass, or from cigarettes thrown out windows, or car fires from malfunctioning automobiles.

Because humans generally cause ignitions, it follows that those locations with greatest access are more likely to ignite than remote locations. Fuels, which are either highly ignitable ("flashy"), or those locations, which are suitable for the greatest cause of fires in Pogonip, illegal campfires, should be identified for fuel modification to reduce the chance of ignition. Fuels, coupled with topographic and cover conditions which are conducive to illegal campfires are located along the southern boundary, along the railroad grade, and near the site of the proposed Sycamore Nature Area.

IGNITION POTENTIAL OF WILDLAND FUELS

Fuels, which are easily ignited, are those that are small, dry and are highly aerated. Tall, dry grass is perhaps the most easily ignited wildland fuel. Short grass which has thatch can also be ignited but will spread slower. Sparse grass, which as been cut with the thatch removed usually, does not ignite easily. Tall uncut grass occurs in the southern portion of Pogonip away from the park boundaries where the grass is cut annually.

The ignition potential of north coastal scrub has a moderately high ignition potential due to the high number of dry twigs in the stand, and common occurrence of dry grass and herbs under the shrubs. Mixed evergreen forest fuel type ignition potential is dependent on the understory vegetation, but is usually moderate due to the moderating effects of canopy cover. Where there is a closed canopy and an understory that has few shrubs of litter build-up the ignition potential is low. The ignition potential of redwood forests is low due to high level of moisture most of the time. Similarly, vegetation in riparian corridors also have a low ignition potential because of the high foliar moisture and humid conditions which normally exist in those locations. The ignition potential of eucalyptus forest is high and it is considered the most flammable type of

forest at Pogonip. The ignition potential is high year-round because of the flammable nature of the leaves and the preponderance of small kindling in the forest.

Reducing Ignition Risks

Reduction of ignition risks can be accomplished through management of public use and fuel modification. Because people cause most fires, the most direct ways of mitigating the risk are to limit the number of people and restrict their unsafe behavior. However, there are several limitations to restricting the number of people using Pogonip and restricting unsafe behavior.

One of the goals for Pogonip is to increase public use, therefore widespread restriction of the number of people is contrary to the long-term vision. Nonetheless, there are management actions that can be undertaken. One method is to close access to the property during times of high fire danger, however, it is not feasible to completely close Pogonip because of the many access points and paucity of fencing.

Existing regulations currently restrict unsafe behavior at Pogonip. At present, smoking, barbecues, camping, and use of vehicles are prohibited. Actions to reduce the ignition potential will need to focus on minimizing illegal behavior. Minimizing the ignition risks of facility operations, such as mechanical equipment use during hot, dry, wind weather, is also important.

Fuel modification management actions could be effective at Pogonip. Because grassland is the most ignitable fuel, cutting grass as it cures is the most common action to limit ignitions. Typically, grass is cut along roads, along boundaries and in other locations, where vehicles may park, cigarettes may land, or children may play.

Because of the past limited maintenance budget for Pogonip, wildland fuel management to prevent ignition and slow fire spread has been concentrated on grass cutting. Grass is currently cut in strips 30 to 70 feet wide in two locations: from the Spring Street gate to Coolidge Drive and along the utility corridor along the eastern edge of the Lower Meadow. Grassland areas are also mowed at a distance of five feet from both sides of service roads. In addition, strategic locations that could serve to limit fire spread are cut. These locations include a fifty-foot strip along the southeastern boundary, and along the Lower Main Meadow southeast of the Clubhouse. Usually grass is cut by the first week in May; in those years with late rains, a second cut in June or July is required. Also, when possible, trees growing inside the 30-foot fuel break have been limbed up to a height of four feet.

For future wildland fuel management, grassland areas should be mowed in locations of planned increased public use. This encompasses the locations near the Outdoor Education Camp, around the parking lot at the Lower Meadow, and around the clubhouse, Ranger facility, and caretaker's residence.

In places near structures with a ready water supply, the irrigation of plants, and/or the use of less flammable plants are methods to limit ignition using the effect of moisture as a dampening agent to potential ignitions. This method would be suitable around the clubhouse, caretakers residence, and in the area of the Pogonip Garden.

The conversion of grass to a less flammable natural vegetation type (such as north coastal scrub and mixed evergreen forests) is another method of reducing the overall ignition potential of the park. This method may not be as appropriate where the grassland is composed of valued species and where the increased hazard that comes with higher amounts of biomass in the shrub lands and forests may create more danger.

Lastly, steps can be taken to make the areas of illegal campfires less conducive for that use. The limbing up of lower branches of trees and the removal of potential firewood changes the site to a condition where camping is not a private activity (thus easily detected), and where finding fuel for a campfire is difficult. This method is appropriate in locations where campfires have been found, such as in the Sycamore Grove, along the railroad grade, and above Harvey West Park.

Many agencies cut vegetation, which abuts the roadside to limit ignitions. In fact, Public Resources Code 4290 requires that a fuel modification zone shall be established on each side of all roads 30 feet from the center line. This requires elimina-



tion of all ground fuels over 18 inches in height within ten feet of the outside edge of the road surface. It also includes maintaining tree and shrub crown separation of ten feet between individual specimens within the remainder of the zone. The California Department of Transportation (Caltrans) performs roadside maintenance of the vegetation along Highway 9. Ignitions have not been a problem because the vegetation along Highway 9 consists of lush vines and shrubs. Should conditions change and dry vegetation cover the roadside, actions such as mowing will need to be taken to curtail the risk of ignition.

6.4 METHODS OF WILDLAND FUEL MANAGEMENT

Fire hazard is managed by changing the vegetation, reducing the fuel volume within a vegetation type (as by grazing or mowing) or changing the distribution of fuels (as grading or cutting and mulching the fuel). The goal is to maintain a fuel condition where the fire is easy to control. Grasslands have the lowest resistance to control so it is important to maintain them. Shrubs such as coyote bush and poison oak invade the grassland and, over time, change the fuel type to one that makes a fire more difficult to suppress.

Maintenance treatments in the oak woodlands are also necessary. Grass under oak woodlands produces the least amount of heat, and thus a grass fire under oaks would not greatly damage the resource. However, if shrubs were allowed to encroach under the oaks, the heat produced by these burning bushes would kill the oaks.

The following methods, in order of decreasing effectiveness, are used to make fires less resistant to control. A mixture of these techniques is often used in fuel management. The specific methods include:

- reducing total amount of fuels so that there is not enough or much to burn;
- designing the spacing of the vegetation (both horizontally and vertically) so that the fire cannot spread; and
- reducing the flammability of the fuels by increasing the moisture of the vegetation or by changing the vegetation to less flammable species.

Treatments should be conducted in focused areas in both the interior and perimeter of Pogonip. Treatment of the natural features in the interior of Pogonip need not be done every year. The methods used will vary, again because of the terrain and acreage, and the shapes of areas to be treated: a larger acreage can be included in a prescribed burn, whereas areas too small or too thin cannot. Also, the large areas limit possibilities because of costs (hand labor, for instance, is ruled out over longer periods of time).

Fuel management treatments along the perimeter of Pogonip need to be done each year in grasslands as homes near grasslands are jeopardized every year, unless a permanent firebreak is installed. In contrast, perimeter treatments in areas adjacent to woodlands need to performed only once every ten years, because the branches do not grow back so fast, and fuel is slow to accumulate.

Perimeter treatments are less extensive in total area than interior treatments; only a strip approximately 30 to 70 feet wide is usually treated. This opens more possibilities for manipulation, since costs, such as for hand labor, may be more bearable for smaller areas. Also, a wide spectrum of mechanical treatments are possible as mowing is not possible for an entire hillside but is feasible for a perimeter strip. Lastly, perimeter treatments can be expected to have a higher level of refinement, with more attention to detail because of the smaller scale of the operation performed.

The following section includes a description of treatment alternatives for the various fuel types. Specific recommended management actions are presented in the Section 6.5.

Types of Fuel Management Methods There are various types of fuel management methods including grazing, mechanized treatments, hand labor, prescribed burning, revegetation, use of chemicals, and landscape design. Often a combination of methods is used throughout a property. Often it is desirable to alter management methods on a particular site, i.e. graze one

year and weep whip the following year. At Pogonip, several of the methods described below would be effective in reducing fire hazard. This fuel management information was compiled by Amphion, Inc. for the East Bay Hills Vegetation Management Consortium and has been modified based upon conditions at Pogonip.

Treatments that use hand labor cut and either remove the vegetation from the site or pile and dispose of it later. Contractors, volunteers, members of conservation camps, or even inmates of correctional facilities often do hand labor. Municipalities and private landowners increasingly contract for skilled hand labor for weed abatement because of this treatment's effectiveness and its minimal negative environmental impact. This method is used as a means of understory removal and to prune lower limbs of trees, and to thin forests.

Grazing, a biological treatment, relies on the use of livestock to reduce the amount of vegetation (fuel). The livestock most commonly used are goats, and to a lesser extent, sheep. They are used in areas that are a mixture of grass and brush, or solely grass. This method is usually used for removal of understory in the Mixed Evergreen Forest or even in the Upland Redwood Forest.

Mechanical treatments rip up, bury, flail, or cut down vegetation and rearrange the fuel structure. Mechanical treatments generally use a tractor with a variety of attachments, such as a cutting blade or a series of short chains. These attachments can scrape off grass, beat up or cut the fuel into small pieces.

Prescribed burning reduces the volume of fuel through combustion. Fuel material can be ignited by hand or remotely. Burning is generally conducted under specific regulation, when conditions permit both adequate combustion and control. These conditions occur most often in the spring and fall but can also occur in the foggy days of summer.

Planting species that are less flammable than those on the site may be appropriate adjacent to residences but not for extremely large areas (over five acres). This technique is comparatively expensive for a space that large. This technique may be the most suitable method for reducing the fire hazard in locations adjacent to structures, such as near the clubhouse, or where erosion potential is extreme.

Chemical treatments are not recommended at Pogonip because of the policy to restrict use of herbicides and pesticides. Typically chemicals are used to kill plants that are not compatible with the low resistance to control concept in fuel management. These include non-native weeds (such as French and Scotch broom, or yellow star thistle) that grow too fast, too big, or have leaves which are too oily (and therefore burn with greater intensity). Vegetation is not removed, but further growth is stopped because the plant is killed. Where plants are killed, any standing vegetation is an increased fire hazard until the leaves drop off the plant. Thus, the fuel volume is not decreased by this treatment but will slowly be reduced by decomposition.

Finally, in compatible recreational land use, parts of the landscape are either paved, farmed or irrigated, or mowed in order to perpetuate a fire-safe condition. Organic gardens, golf courses, ballparks, or picnic areas are examples of compatible land uses applied to reduce the fire hazard in a specific location.

Potential Treatment Methods and Limitations for Annual Grasses:

Hand Labor: Cutting the grasslands changes the structure by laying down the fuel. The cut materials tend to blow away or decompose over time. Weed whipping is recommended only for small areas warranting treatment due to the high cost of this type of treatment. Must be done every year to reduce the fuel.

Grazing (horses and goats): Need to monitor animal selection with respect to seasonal grassland production, stocking rate, and quantity and quality of residue left. Vegetation and wildlife response varies greatly by grazing practices utilized. Adverse grazing effects may include increased surface erosion, expansion of weed populations and depletion of sensitive herbaceous species. Goats may deplete oak seedlings if not protected. Perennial grasses are sensitive to duration of grazing. Short grazing periods are critical to avoid adverse impacts in these areas.

Mechanical (mowing): Good for roadsides and open fields. Equipment limitations on slopes greater than 30 per cent, limited access or multiple obstacles. Similar to hand labor in that it does not remove fuel, but does change its structure by "laying down" the cut materials.

Prescribed Fire: Burns in the summer or early fall will favor native plants. Burning in foggy periods is possible using the fine grassy fuels to carry the fire (results are tied to fuel moisture and composition). Repeated prescribed burns are necessary to remove annual grassland fuels. Controlled burns require coordination with fire agencies and notification of nearby neighborhoods. Burning often can be made more acceptable if alternated in a cycle with other methods.

Potential Treatment Methods and Limitations for Riparian Forests:

Hand Labor: Effective for removal of invasive non-native species. Grazing: Not recommended. If goat grazing is utilized to clear understory materials, particularly invasive non-native plants, protection of trees and desirable species is required.

Mechanical: Not recommended. May be used selectively to clear encroaching brush at margins of area. Utilize on slopes less than 30 per cent to avoid adverse effects due to heavy equipment. Potential Treatments and Limitations for Hardwood Forests:

Hand Labor: Effective for pruning lower branches of trees, and removal of flammable understory and invasive non-native species. Effective for selective thinning of stands by removals of trees or stems on sites too steep for equipment or with other special considerations.

Grazing: Effective for temporary removal of poison oak, other flammable understory, and non-native invasive species. Goat herder should prevent movement of animals directly from areas of non-native invasive species to areas without such. Goat grazing of understory materials must include protection of trees to prevent girdling and of species of special concern. Prescribed burn: Pile or stationary burns are effective for removal of dead limbs or other materials gathered by hand. Requires use of other methods to prepare stand prior to safe use and to prevent crowning.

Mechanical: Not commonly used because of numerous tree trunks, but may be suitable to reduce brush encroachment depending on stand structure. Utilize on slopes less than 30 per cent to avoid adverse effects due to heavy equipment.

Potential Treatments and Limitations for Redwood Forests:

Hand Labor: Effective for removal of dead limbs and other treatment prior to treatment with prescribed fire. Effective for selective thinning of stands by removal of hazardous trees or on sites with other special considerations.

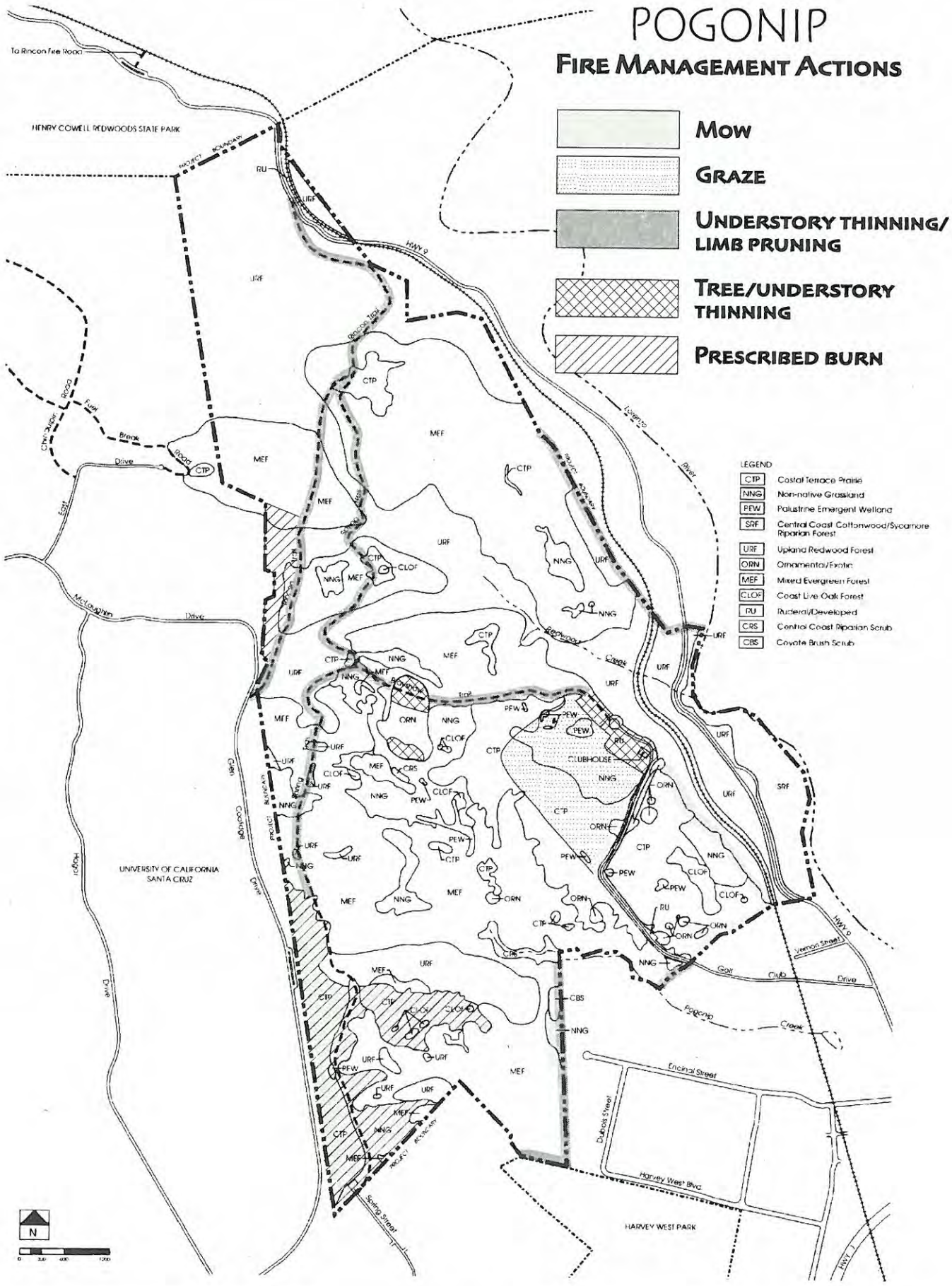
Grazing: Not recommended. In open stands, protection of trees and desirable species is required if goat grazing is utilized to clear understory materials. Effective for temporary removal of poison oak, other flammable understory, and non-native invasive species. Goat herder should prevent movement of animals directly from areas of non-native invasive species to areas without such.

Mechanical: Not recommended. May be used selectively to clear encroaching brush at margins of stands. Utilize on slopes less than 30 per cent to avoid adverse effects due to heavy equipment.

Prescribed burn: Pile or stationary burns are effective for removal of dead limbs or other materials gathered by hand and for removal of litter and duff below trees. Low intensity broadcast burns are effective for removal of litter build-up especially in open redwood stands. Sometimes requires use of other methods to prepare stand prior to safe use and to prevent crowning.

Potential Treatment Methods and Limitations for Eucalyptus Forest:

Hand Labor: Effective for removal of loose bark and other treatment debris prior to treatment with prescribed fire. Effective for pruning of lower branches, removal of invasive non-native species and flammable understory. Also, effective for selective thinning of stands by removal of smaller trees in


POGONIP
FIRE MANAGEMENT ACTIONS
MOW
GRAZE
UNDERSTORY THINNING/ LIMB PRUNING
TREE/UNDERSTORY THINNING
PRESCRIBED BURN
LEGEND
CTP Costal Terrace Prairie
NNG Non-native Grassland
PEW Palustrine Emergent Wetland
SRF Central Coast Cottonwood/Sycamore Riparian Forest
URF Upland Redwood Forest
ORN Ornamental/Exotic
MEF Mixed Evergreen Forest
CLOF Coast Live Oak Forest
RU Ruderal/Developed
CRS Central Coast Riparian Scrub
CBS Coyote Brush Scrub
To Rincon Fire Road
HENRY COWELL REDWOODS STATE PARK
HWY 9
Fire Break Road
McLaughlin Drive
East Road
Glen Coolidge Drive
UNIVERSITY OF CALIFORNIA SANTA CRUZ
CLUBHOUSE
Redwood Creek
Golf Club Drive
Vernon Street
Encinal Street
Dufour Street
Harvey West Blvd
Soquel Street
HARVEY WEST PARK
N

well-established stands, and on sites too steep for equipment or with other special considerations. Haul routes planned for removal of cut trees must minimize adverse impacts.

Prescribed burn: Effective for removal of litter build-up. Requires use of other methods to prepare stand prior to safe use and to prevent crowning. Intermixed Oaks and Bays should be protected.

Mechanical: Utilize on slopes under 30 per cent to avoid adverse effects due to heavy equipment. Haul routes planned for removal of cut trees must minimize adverse impacts.

6.5 FIRE HAZARD REDUCTION MANAGEMENT ACTIONS

The following description of treatments summarize methods available for use in areas which are identified for treatment. These prescriptions were developed by Amphion, Inc. for the East Bay Hills Vegetation Management Consortium in 1994 and subsequently modified for recommended use at Pogonip. The treatment prescriptions are organized under vegetation fuel types.

FIRE HAZARD REDUCTION MANAGEMENT ACTIONS

ANNUAL GRASS

Annual grass fire management actions apply to the following treatment areas: the Lower and Upper Main Meadow, along service roads, and fuelbreak zones along the southern and southwestern boundaries of Pogonip.

- Coordinate with a qualified biotic resource specialist for timing of treatments within coastal terrace prairie habitat. Target treatment, if feasible, after seed set and prime breeding periods (approximately July 1) to reduce disruption to nesting birds and seed production of native perennial species. Treatment start dates should be based on field conditions and are not calendar specific.
- Monitor treatments within coastal terrace prairie management areas. Follow up monitoring of the response to management practices needs to consider grassland structure and composition, as well as fuel loading and measurement of residue.
- Continue horse grazing within the Upper Main Meadow.
- Consider use of goats or other livestock for grazing in other grassland areas. For coastal prairie plant communities, consult with a qualified botanist regarding appropriateness and timing of grazing.
- If grazing is considered, the adopted standards must address: residual dry matter related to slope; timing; stocking rates; monitoring program and frequency; protection of sensitive biotic resources including riparian corridors and wetlands; supplemental feeding standards; control program for spread of weedy exotics; and watering .
- Where grazing is not feasible, mow grassland areas along service roads, fuel break zones, and property boundaries. Maximum standing height of dead grasses should be between four-to -six inch range.
- For grassland areas along service and entrance roads, conduct mowing a minimum of ten feet on slopes less than 20 per cent. Increase to 30 feet on slopes greater than 20 per cent.
- Mow grass along portions of the property boundary for a distance of minimum distance of 30 to 70 feet, depending on slope steepness, relative position of values at risk, and access to human use. * Continue mowing the fuelbreak along the perimeter of the Lower Main Meadow.
- Within grassland treatment areas, reduce brush crown cover to 20 per cent maximum for slopes greater than 20 per cent.
- Conduct equipment cleaning, feed restrictions, residual dry matter and seasonal restrictions to minimize exotic species invasion.
- Conduct prescribed burns in coastal prairie areas, using service roads as boundaries wherever possible, even

when the vegetation type is different at the road. Consult with a qualified botanist regarding timing and appropriate mitigation measures.

Riparian Forest

Riparian forest fire management actions apply to Sycamore Grove.

- Avoid treatment in healthy stands with closed canopy and minimal understory shrubs.
- Maintain and encourage species diversity of trees.
- Remove invasive exotic understory species.
- Coordinate with Caltrans to ensure roadside management is conducted along Highway 9, particularly if Caltrans does not perform vegetation cutting, and/or if vegetation changes to a type that is highly ignitable.

Hardwood Forest

Hardwood forest fire management actions apply to the following treatment areas: the Spring, Rincon and Brayshaw Trail corridors; along the southern boundary, and; along the eastern boundary in the vicinity of development.

- Maintain and encourage species diversity of trees and understory. Maintain canopy cover and preserve all oak trees.
- Conduct a sensitive biotic resource inventory of the woodland area prior to conducting thinning or removal of understory and pruning of trees, especially prior to the initial treatment
- Within 30 feet along service road corridors, maintain a eight-foot vertical clearance between live foliage and understory fuel. Remove flammable and non-native species to maintain a sparse understory. Where necessary, remove native flammable species (coyote brush, poison oak, blackberry, and monkey flower). Target removal of shrubs with low vigor, dying or dead shrubs. Ensure understory thinning does not decrease species diversity. Prune lower branches that are thinner than 3 inches in diameter to a height of eight feet. Remove freshly cut and dead materials that are on the forest floor that are one to four inches in diameter. Other freshly cut material may be removed or mulched to pieces shorter than eight inches.
- Within a distance of 30 to 50 feet along the eastern and southern property boundaries in the vicinity of adjacent development, maintain an eight-foot vertical clearance between live foliage and understory fuel. Prune branches up to three inches in diameter. Prune up a maximum of one-third the height for trees that are not taller than 24 feet tall. Remove flammable and non-native species to maintain a sparse understory
- Coordinate with Big Trees and Pacific Railway Company to maintain the right-of- way along the eastern portion of Pogonip.

Redwood Forests

Upland redwood forest fire management actions apply to the following treatment areas: Spring and Rincon Trail corridors; the rail corridor; to the east of the Clubhouse site; the eastern boundary of Pogonip in the vicinity of development, and; along the western boundary in the area adjacent to development at UCSC.

- Avoid treatment in healthy stands with closed canopy and minimal understory shrubs, in places where duff has not accumulated. Maintain and encourage redwood trees.
- Surveys for nesting raptors should be conducted by a qualified wildlife biologist prior to active management in this type.
- Within 30 feet along service road corridors, maintain a eight-foot vertical clearance between live foliage and understory fuel. Target removal of flammable and non-native understory species. Where necessary, remove native flammable species (coyote brush, poison oak, Himalayan blackberry, and monkey flower). Target removal of shrubs with low vigor, dying or dead shrubs. Ensure understory thinning does not decrease species diversity. Prune lower branches that are thinner than

3 inches in diameter to a height of eight feet. Remove freshly cut and dead materials that are on the forest floor that are one to four inches in diameter. Other freshly cut material may be removed or mulched to pieces shorter than eight inches.

- Thin the understory and prune lower branches as described above for service roads for a distance of 30 to 50 feet in the following areas: eastern boundary west of Highway 9 where property lies adjacent to development.
- Coordinate with UCSC to explore possibility of conducting prescribed burns in the Upland Redwood Forest between the Rincon Trail and the boundary with UCSC.

Eucalyptus Forest

Eucalyptus forest fire management actions apply to the following treatment areas: the existing grove along Brayshaw Trail, and; in the southern central area of Pogonip.

- Contain expansion and reduce the fuel load within the eucalyptus grove, located in the vicinity of Brayshaw Trail. Remove juveniles trees (less than approximately six inches in diameter) for 100 feet inside of the perimeter of the eucalyptus forest. Remove or chip all materials less than four inches in diameter.
- Prior to removal or thinning, a survey must be conducted by a qualified biologist to determine the presence of nesting raptor pairs and Monarch butterflies. Measures would then be undertaken to avoid impacts to these species.
- Remove loose bark along Brayshaw Trail for a distance of 30 to 50 feet from edge of service road.
- Remove dead material on the forest floor that is one to six inches in diameter. Material from one to four inches may be chipped. Improved Areas and Facilities
- For improved areas and new facilities, such as the clubhouse grounds, caretaker residence, and outdoor education camp, avoid use of vegetation that has a high potential for ignition and design landscape to prevent the spread of fire to the structure.
- Remove juvenile acacias within 30 feet to the east side of Brayshaw Trail within the vicinity of the Clubhouse. Understory should be maintained at an 8-foot height.
- Landscape area around new facilities with fire-resistant plantings.
- Ensure key on-site personnel, including Park Ranger, maintenance staff, caretaker, and Pogonip garden manager, are trained in basic fire suppression and the appropriate initial attack fire fighting equipment is readily accessible.
- Include information regarding fire ecology and prevention at entrance and trail staging area kiosks, and in interpretive and educational materials, whenever possible.



INFRASTRUCTURE

Infrastructure within Pogonip is presently very limited; only one narrow paved access road exists and there is no existing potable water supply or sewer system adequate for the uses proposed in this Master Plan. This element describes the proposed roadway, parking, utilities and service improvements needed to accommodate the clubhouse rehabilitation, Pogonip Garden, and the Outdoor Education Camp.

The first section, Transportation and Circulation, describes the existing transportation system, proposed improvements, and recommendations for alternative transportation modes. Parking improvements are described in Section 7.2. Utilities and Services, Section 7.3, describes the historic and existing water and sewer systems, and proposed improvements for all utilities and services. For both transportation and utilities, Design Guidelines and Management Actions are identified as appropriate.

7.1 TRANSPORTATION AND CIRCULATION

Roadway improvements and new on-site parking will be relatively limited to preserve the rural, undeveloped character of Pogonip. Proposed roadway improvements to Golf Club Drive will provide public vehicle access to the Lower Main Meadow area, with vehicle access in the upper portion of Golf Club Drive restricted to clubhouse events only. All existing unpaved roads will continued to be limited to fire/service road vehicle access only.

GOLF CLUB DRIVE

At present, the only paved access within Pogonip is Golf Club Drive, a narrow one-lane road connecting the Golf Club Drive entrance and the clubhouse area. The current condition of the road is poor. This ten-foot wide roadway was constructed to serve the clubhouse activities when the property was owned by the Cowell Foundation; however, it is not considered a significant historic feature. When the City acquired Pogonip, Golf Club Drive was included under the lease to the Pogonip Club. With the lease no longer in effect, the City is responsible for the maintenance and any future improvements of the roadway. Currently, it is used for service and emergency vehicle access only.

Outside of the Pogonip property, from the Pogonip entrance to the railroad trestle, Golf Club Drive is approximately ten feet in width and minimally improved. The railroad trestle, owned by the Big Trees and Pacific Railway Company, is limited in height and width clearance. From the trestle to the intersection with Highway 9, Golf Club Drive is a two-lane road with curb, gutter and sidewalk. A stop sign controls traffic on Golf Club Drive as vehicles exit onto Highway 9.

To accommodate the proposed uses at Pogonip, the existing Golf Club Drive alignment between the Pogonip entrance and the Lower Meadow will be widened to provide a 20-foot all weather surface, which includes a 10-foot travel lane. These improvements are needed to provide public access for the



LOWER GATE AT GOLF CLUB DRIVE ENTRANCE

Pogonip Garden, Outdoor Education Camp and other Pogonip visitors and to provide emergency vehicle access.

Beyond the Lower Meadow gate, the paved access route to the clubhouse and Upper Meadow parking will be designed as a service driveway. The paved surface will be widened to twelve feet with turnouts as needed. Access to the Upper Meadow parking area will be restricted and controlled for clubhouse events only.

Improvements to Golf Club Drive outside of the Pogonip property are addressed in the Environmental Impact Report prepared for this Master Plan. Phasing of the roadway and parking improvements at Pogonip are described in the Phasing and Implementation Element.

Service Roads

Unpaved service roads include Rincon, Spring and Brayshaw Trails. Service road entrances are located at the terminus of the Spring Street cul-de-sac, at the southern Rincon Trail entrance at Glen Coolidge Drive, and the northern Rincon Trail entrance at Highway 9. These entrances provide access for Park Ranger patrols and emergency vehicles.

Rincon and Spring Trails are considered historic transportation features (refer to the Historic Resources Element and Appendix E). Portions of these routes were originally constructed as part of the transportation system associated with lime production, which occurred within the region during the mid-to-late nineteenth century. The original road fabric is still evident in some locations.

Rail Line

A rail corridor exists through the southeastern and northeastern portions of Pogonip. This rail corridor is owned and operated by the Big Trees and Pacific Railway Company. Existing rail service includes a recreational/tourist train service which operates between Roaring Camp in Felton and the beach area of Santa Cruz.

If rail service should be discontinued in the future, conversion of the rail corridor to a trail route should be explored. Rail-to-trail conversions are an effective means of providing trail access while also preserving the rail corridor intact. Use of the existing rail corridor as a trail route within Pogonip, however, is not considered a feasible use at this time and is not a future use proposed in this Master Plan.



Rail Tracks at the Sycamore Grove Trail crossing.

Alternative Transportation

Alternative modes of transportation to Pogonip include transit service and bicycle access. Transit service is provided by the Santa Cruz Metropolitan Transit District to the vicinity of the Harvey West Park entrance to Pogonip. On weekends, during anticipated peak park use, this transit service is provided hourly.

Bicycle access to Pogonip currently exists from the Harvey West Park entrance and the Golf Club Drive entrance. Bicycle racks are available near both of these entrances.

Other Transportation Issues

Regional transportation planning efforts which could impact Pogonip at a future date include the proposed eastern access road and the *Major Transportation Investment Study*. The eastern access road refers to a potential roadway alignment through Pogonip to provide an eastern road access to UCSC. At this time, a specific project description is not available for the eastern access.

The *Major Transportation Investment Study*, under the direction of the Santa Cruz County Regional Transportation Commission, provides an analysis of various study alternatives of the Watsonville-Downtown Santa Cruz-UCSC transportation corridor. One of the alternatives includes a cog railway between Harvey West Park and UCSC, which would pass through the southwestern portion of Pogonip, in the vicinity of Spring Street. Both the eastern access and cog railway will require extensive environmental review by the respective lead agencies as separate projects.

TRANSPORTATION AND CIRCULATION

DESIGN GUIDELINES

GOLF CLUB DRIVE

- Preserve the rural character of the Golf Club Drive entrance to the maximum extent possible.
- Improve Golf Club Drive to provide a 20-foot all weather surface inside the existing fence line from the entrance gate to the Lower Meadow gate within Pogonip.
- Designate the roadway from the Lower Meadow gate to the Upper Meadow parking as a service driveway. Improve the driveway to a minimum of 12 feet wide.
- Provide turnouts on the service driveway every 400 feet consistent with the Municipal Code requirements for a driveway. Design turnouts to minimize grading and impacts to biological and visual resources. Post "No Parking" signs at turnouts on the service driveway. Ensure this regulation is strictly enforced during clubhouse events.
- Where possible, access along the rear of the clubhouse through the parking area to Brayshaw Trail should be a minimum of 20 feet to provide for emergency vehicle staging areas.
- Design the turn-around at the end of service driveway to be a minimum of 90 feet in diameter. The actual dimension will be determined by the Fire Department to ensure an adequate turning radius for mutual-aid response fire vehicles. Screen the turn-around from view by planting fire resistant, native shrubs and trees at the perimeter of the turn-around.
- Create a "gateway" experience at the Golf Club Drive entrance to Pogonip. Create an entry sign using natural materials, such as redwood and cobble. Plant native vegetation, such as prairie wildflowers, along the entrance corridor as an accent.
- Maintain gates at the entrance to Pogonip and just above the Lower Meadow parking area. The gate design must provide for emergency vehicle access. Install an opening mechanism on the gate at the Lower Meadow to control vehicle access to the service driveway.

SERVICE ROAD

MANAGEMENT ACTIONS

- Maintain the service roads (Brayshaw, Spring, and Rincon Trails) as unpaved access routes at the existing width, which ranges from approximately ten to twelve feet. In some locations where the existing width exceeds twelve feet, the wider road bed will be maintained to serve as a vehicle turn-around.
- Clear vegetation along service roads to a maximum twelve-foot vertical clearance and four-foot width clearance on either side of the unpaved roadbed to provide emergency vehicle access. For fire management, the understory should be cleared or thinned and grassland areas mowed along the service roads.
- In areas of highly erodible soils, consider use of decomposed granite fines, or another appropriate measure, to address site specific problems.
- Install water bars as needed on service roads. Ensure water bar design does not impede trail user access.
- Ensure maintenance of historic portions of Spring Trail and Rincon Trail does not adversely impact the historic fabric of the roadbed.
- Provide trail user access at service road entrances designated as trail entrances (refer to the Trails Element).

7.2 PARKING FACILITIES

Presently there is no public parking available within Pogonip. Three new parking areas are proposed as part of this Master Plan. The primary visitor parking is proposed for the lower and upper areas of the Main Meadow. The Upper Meadow parking will be reserved for clubhouse events only. Limited wheelchair accessible parking is also proposed at the terminus of the Spring Street cul-de-sac within the Pogonip property. Sycamore Grove will remain an unimproved parking area.



GOLF CLUB DRIVE WINDS UP THROUGH THE LOWER MAIN MEADOW.

To augment future on-site parking within Pogonip, off-site parking and alternative transportation will be encouraged. Off-site parking opportunities exist at some entrances, including on-street parking in the vicinity of Harvey West Park on Dubois Street and lower Golf Club Drive near the City's Corporation Yard. On-street parking for Pogonip visitors will not be encouraged on Spring Street, a residential cul-de-sac, in order to avoid potential neighborhood parking conflicts. UCSC campus parking should not be considered as a parking area for Pogonip visitors.

For larger special events at the clubhouse, a shuttle system will be utilized to transport attendees to the clubhouse site. A potential off-site parking area for weekend events is the existing on-street parking on Encinal Street in the area to the north of Harvey West Park. The off-site shuttle system parking site will likely vary depending upon the type of event. As part of the special event permit process, the specific proposed off-site parking area would be evaluated by the City.

Parking

DESIGN GUIDELINES

- Pave all parking areas in accordance with the City of Santa Cruz standard specifications.
- Ensure all parking areas and amenities comply with the American with Disabilities Act.
- Install secure bicycle storage facilities at the Lower and Upper Meadow parking areas.

Upper Meadow Parking

- Provide approximately 45 parking spaces area at the Upper Main Meadow, to the west of the clubhouse in the area of the existing tennis courts. Remove tennis court surfacing if needed to construct parking and planting beds. Limit the Upper Meadow parking to the previously disturbed area in order to minimize impacts to the coastal terrace prairie.
- Create a gently sloping berm along the west, southern and eastern perimeter of the parking area to screen the parked vehicles. The earthen berm should be a minimum of four feet in height. The parking area design may be depressed such that soils removed within the parking area could be used to create the berm.
- Plant a mix of oak and other native trees along the parking area perimeter to further screen the parking lot. Ensure planting minimizes fire hazards.
- Create a center planting strip between parking rows. Plant a mix of oak trees and other native species.
- Orient parking stalls to minimize windshield glare from Glen Coolidge Drive viewpoint, Lookout Trail and Spring Trail.
- Provide low-level lighting along pathways connecting the parking lot and the clubhouse and in the immediate vicinity of clubhouse grounds.
- Provide parking spaces for staff, loading and unloading, and wheelchair accessible spaces to the north of the clubhouse grounds along the service driveway. Screen the parking spaces from the adjacent clubhouse grounds.

Lower Meadow Parking

- Provide a parking area, maximum 30 spaces, in the Lower Main Meadow to the east of Golf Club Drive.
- Situate the parking as close as possible along Golf Club Drive to minimize visual impacts.
- Do not install lighting in the Lower Meadow parking area.

Spring Street Parking

- Provide a parking area with a maximum of five wheelchair-accessible spaces.
- Coordinate the design and location of the parking area to avoid impacts to existing and proposed utilities.

Parking Area

MANAGEMENT ACTIONS

- Utilize the Upper Meadow parking for clubhouse events only. Implement a parking pass system due to the limited parking spaces available.

- Undertake the following actions for high attendance special events at the clubhouse: screen all vehicles seeking access to the Upper Meadow parking area prior to the Lower Meadow gate to ensure that only vehicles with parking passes to the Upper Meadow parking are provided access to upper Golf Club Drive; place appropriate signs on Golf Club Drive prior to the railroad trestle indicating on-site parking for a special event is provided by pass only; and provide all attendees to a special event with information regarding Pogonip parking regulations and parking/shuttle procedures during a special event.
- Require users of the Outdoor Education Camp to carpool, use a bus or shuttle system, or utilize alternative modes to access the camp as part of the permit process for utilizing the camp area. Parking should be monitored by the Parks and Recreation Department to ensure these requirements are fulfilled.
- Include information on all Pogonip maps and other Pogonip-related materials describing off-site parking areas and alternative transportation modes.
- Coordinate with Caltrans regarding management and maintenance of the existing unimproved parking area at Sycamore Grove.
- Restrict Lower Meadow parking to daylight hours only.

7.3 UTILITIES AND SERVICES

Utility Improvements

The proposed new uses at Pogonip will require substantial utilities improvements. To meet the water demand for the clubhouse and Pogonip Garden, and to provide for adequate fire protection, the municipal water service will be extended to the Upper Main Meadow area. Water service will be phased as part of the clubhouse rehabilitation. Sanitary sewer service will also be extended to avoid environmental and maintenance impacts associated with improvements and expansion of the existing septic system. The electrical utilities and telephone service will require upgrades for service to the clubhouse and new Ranger facility. Drainage improvements will be addressed as part of the clubhouse rehabilitation, Golf Club Drive improvements, and garden development.

Existing Facilities and Services

There is no existing municipal water service to Pogonip. The closest municipal water line terminates just below the southeastern boundary of Pogonip. This six-inch line extends from Highway 9 along the Golf Club Drive alignment.

Historically, a gravity-fed water system consisting of three-inch galvanized pipe, approximately 2,000 feet in length, carried spring water to the clubhouse site. The pipe route parallels the south side of Brayshaw Trail. The water system continues to be utilized as a source of non-potable water for irrigation, equipment and livestock maintenance. In 1993, the private Pogonip Club drilled a well with the intent to serve the clubhouse. The well produces approximately 11 gallons per minute; however, it was never actually utilized to provide for potable water needs.

Thousands of feet of irrigation piping were also installed within Pogonip as part of the golf course and other operations in the early part of these century. In some places, it appears to be redwood piping. Also, a reservoir or pool was constructed several decades ago as part of the McCormick House site. This basin continues to exist, just to the south of Brayshaw Trail, but is fenced and no longer utilized.

There is also no municipal sanitary sewer service to Pogonip. A six-inch sanitary sewer line extends along Golf Club Drive from the intersection with Highway 9 to approximately 230 feet beyond the center line of the railroad trestle. There are no existing hook-ups beyond the railroad trestle.

The clubhouse and all residential properties on Golf Club Drive are on septic systems. The leachfield for the clubhouse is located in the low-lying area to the rear of the structure. This system is in need of improvements and could not be utilized to serve the clubhouse needs in its present condition. The existing Ranger Station at Pogonip utilizes portable toilet facilities.

Minimal storm drainage improvements currently exist within Pogonip. Runoff from portions of the Main Meadow collects in a drainage ditch along southeastern boundary of Pogonip. A culvert exists at the railroad crossing.

A Pacific Gas and Electric utility line extends to the clubhouse through Pogonip, to the west of the railroad alignment. The clubhouse and Ranger Station also have existing telephone service.

Solid waste services are currently provided by the Public Works Department and Parks and Recreation Department. Solid waste disposal includes one twenty-yard yard waste container near the clubhouse, served on an on-call basis and one two-yard container at the Ranger facility. Trash cans are also located at the clubhouse, Sycamore Grove, the Golf Club Drive entrance and the Spring Street entrance. There are currently no recycling services on site.

Utilities and Services

DESIGN GUIDELINES

- Extend the six-inch municipal water line to provide 300 gallons per minute with a 250-foot head. Extend the water line along the Golf Club Drive alignment.
- Install a 20,000-gallon steel tank in the Upper Main Meadow area in the vicinity of the Ranger facility to provide a back-up water supply system. Install a wharf valve at the water tank. Site the water tank to minimize visual impacts. Install a booster pump that is independently powered so that water supply would be supplied during a wildfire if power were to be cut off.
- Install six-inch steamer fire hydrants at 1000-foot intervals along Golf Club Drive within the Pogonip property. Install fire hydrants within 250 feet of structures as required by the City codes.
- Install a water system booster pump for fire protection needs.
- Retain the existing spring-fed water supply system to serve the Ranger maintenance facilities in the interim period and as a backup supply for non-potable water needs after the municipal line is extended.
- Extend a six-inch sanitary sewer line to serve the clubhouse. Extend the sewer line along the Golf Club Drive alignment at least five feet from the water line as required.
- Underground all extensions of electrical and telephone utilities.

Utilities and Services

MANAGEMENT ACTIONS

- Provide solid waste services at visitor facilities and parking areas to include at a minimum: two six-yard garbage containers at the clubhouse; two six-yard garbage containers and one twenty-yard waste container at the Ranger/maintenance facility (on-call); four trash cans at the Upper Main Meadow Parking; two trash cans at the lower meadow parking; two trash cans at the Outdoor Education Camp; two trash cans at the Sycamore Grove Nature Area; one trash can at the Spring Street entrance; and one trash can at the Golf Club Drive entrance. Solid waste services will be provided at a minimum of once weekly.
- Provide recycling services at visitor facilities and parking areas to include at a minimum: one six-yard cardboard/paper bin and ten recycling bins in the Clubhouse area; and three recycling bins at the Lower Meadow parking.
- Include in the *Pogonip Garden Operations and Management Plan* that the Pogonip Garden will provide for its own solid waste and recycling services.



OPERATIONS

As the types of uses and number of visitors increase at Pogonip, there will be a need for expanded support facilities and increased staffing levels. At present, the support facilities and staffing to serve the existing uses are relatively limited.

This Operations Element addresses support facilities and the management and maintenance staffing responsibilities for Pogonip. The first section describes the existing and proposed support facilities, including the Park Ranger Station, caretaker residence, and equestrian facilities. In the second section, the current and projected future staffing needs are presented.

8.1 MAINTENANCE AND SUPPORT FACILITIES

Park Ranger Facilities and Caretaker Residence Concept

Proposed Park Ranger facilities improvements includes replacement of the two existing smaller accessory structures which presently serve as the Park Ranger Station with one larger structure. Providing a larger, more functional work space is needed to better accommodate future increased management and maintenance needs. The equestrian facilities, used for training and quartering of horses for mounted Park Ranger patrols, will also be upgraded.

The caretaker residence program is intended to discourage and prevent vandalism and other illegal activities in the vicinity of the historic clubhouse. A permanent caretaker residence, compatible with the historic character of the clubhouse and rural setting, is proposed for the Upper Main Meadow in the vicinity of the Park Ranger facilities.

Existing Facilities

The existing Park Ranger facilities are located to the west of the clubhouse in the Upper Main Meadow. This site was selected because it had been disturbed by previous uses prior to the City's acquisition of Pogonip. The existing facilities include two small accessory structures, horse corrals and an equestrian training area. The accessory structures, installed in 1987, provide operational office space and equipment storage for maintenance and patrols at Pogonip. Access to the site is provided by Brayshaw Trail. Unimproved parking also exists along Brayshaw Trail.

Over the past several years, a trailer has been used as a temporary caretaker residence at Pogonip. The caretaker was initially permitted to reside on-site as part of the private Pogonip Club. When the Pogonip Club lease ended, the City continued to permit the caretaker to reside at Pogonip because of the caretaker's effectiveness in preventing damage to the clubhouse. With rehabilitation of the clubhouse, a 24-hour presence will continue to be warranted.

Equestrian facilities are also located in the Upper Main Meadow. Seven horses are presently quartered at Pogonip. The horses are used for conducting mounted ranger patrols. The

existing uncovered corral is located in the grassland to the south of the Park Ranger Station. The site just to the northwest of the corrals is used for equestrian training. Most of the Upper Main Meadow area is grazed by the horses.



HORSE CORRAL ADJACENT TO PARK RANGER STATION

MAINTENANCE AND SUPPORT FACILITIES

DESIGN GUIDELINES

- Construct a new accessory maintenance facility, maximum 1,800 square feet and not to exceed two stories in height, to provide space for a work area, storage, and an operational office space for Pogonip staff.
- Construct a new caretaker residence, maximum 1,600 square feet and not to exceed two stories in height, to provide housing for an on-site caretaker. In the interim period, provide a site for a temporary caretaker residence. Provide adequate visual screening of the site.
- Locate the maintenance facilities and caretaker residence along the edge of the meadow within the areas disturbed by existing or prior activities.
- Design the new facilities, including the residence and accessory maintenance structures, to be compatible with the historic nature of the clubhouse and the rural setting of the site. Any new structures should feature a roof design which is compatible with the future roofing of the rehabilitated clubhouse.
- Utilize fire-safe design and construction for the caretaker residence. Install double-paned windows and interior sprinklers.
- Ensure any new landscaping within 30 to 100 feet from the structures minimizes wildland fire hazards and provides for defensible space.
- Provide an access driveway along the existing Brayshaw Trail alignment to provide access to the caretaker residence and Ranger facilities. Provide approximately six parking spaces. Pave the service driveway and parking spaces to minimize erosion and maintenance problems.
- Install a gate at the entrance to the Park Ranger Station and caretaker residence. Continue to provide for public access on Brayshaw Trail.
- Provide an upgraded, 60-foot by 60-foot covered corral.
- Relocate the equestrian training area to the edge of the meadow to avoid impacts to the adjacent wetland.
- Provide an adequate storage area in the vicinity of the Park Ranger facilities for lumber and other supplies.
- Minimize outdoor lighting. Use low-level lighting as needed.
- Install wood rail fencing along the boundary of the caretaker residence and the Park Ranger facility, including the equestrian training area.

FACILITY OPERATIONS

MANAGEMENT ACTIONS

- Utilize the support facilities at Pogonip as the maintenance and operational office for Park Rangers assigned to Pogonip. The administrative office for the Park Rangers will remain at Harvey West Park.
- Maintain defensible space around the Ranger facilities and caretaker residence by routine maintenance of landscaping and natural vegetation within 30 to 100 feet of the structures. Conduct vegetation clearance (mow grass, limb trees, remove understory or cut shrubs) for a distance of 30 feet from the parking area.
- Comply with the uniform building code regarding clearance around outdoor facilities.
- Establish a permanent caretaker program for Pogonip. Continue the existing interim caretaker residence program until a new caretaker residence is constructed.
- Provide basic fire suppression training (initial attack) for the Ranger facilities and caretaker. Have in place at both sites basic initial attack firefighting equipment (shovel, MacCleod, backpack pump, or foam application equipment).
- Continue the equestrian training program as needed for Ranger patrol. Provide for a maximum of approximately twelve horses.

- Develop a formal agreement between the City of Santa Cruz and County Sheriff's Department Mounted Search and Rescue to provide immediate shelter for horses in the case of an emergency at either facility. The Sheriff's Department Mounted Search and Rescue facility is located immediately across the San Lorenzo River at Sycamore Grove.

8.2 OPERATIONS STAFFING

Management of Pogonip lies within the area of responsibility of the Parks Division within the City's Parks and Recreation Department. The Parks Division is under the operational supervision of the Superintendent of Parks, who reports directly to the Director of Parks and Recreation. Park Rangers perform patrols and conduct law enforcement duties for Pogonip.

As visitor use at Pogonip increases, there will be a need for additional Park Ranger staffing. There will also be a need to expand the type of personnel assigned to Pogonip to ensure maintenance and resource management tasks are fulfilled in the most cost effective manner. A detailed description of the various duties and responsibilities at Pogonip, and the current and projected staffing needs are presented in this section.

Management and Maintenance Responsibilities

Existing responsibilities for Pogonip can be organized under four general categories: facility maintenance; law enforcement and security; resource management; and interpretation and education. These responsibilities have been fulfilled by Park Ranger staff. In the future, Maintenance Workers should be assigned to Pogonip to assist with facility maintenance and resource management duties.

At present, Pogonip is not assigned a specific category under the Department of Parks and Recreation Parks Maintenance and Management Service (PMMS) system. In the future, maintenance impact reports should be completed for each new or expanded element as required by the Department of Parks and Recreation Parks Maintenance and Management Service (PMMS) requirements.

Facility Maintenance

Existing routine maintenance responsibilities include emptying trash containers and clean-up of refuse and illegal campsites. Routine repairs typically involve fences, gates, trail signs and markers, and trail maintenance. Often Park Ranger staff are assisted by contract labor, such as the California Conservation Corps or the Natural Resources Employment Program. In the past, the work release program has also been used. Park Rangers are also responsible for conducting routine inspections and safety checks.

Implementation of the Pogonip Master Plan will result in a significant increase in the facilities requiring daily service and regular maintenance. These new facilities will include new parking areas, an expanded trail system, and structures, and other amenities. These maintenance activities should be performed by Maintenance Workers so that Park Rangers could fulfill other non-maintenance responsibilities.

Law Enforcement and Security

The Park Rangers provide for security and law enforcement patrols at Pognip. In addition to the Park Ranger response, the Police Department responds to specific requests for assistance from Park Rangers or the public. Park Ranger patrols are conducted by motor vehicle, horse and foot during daylight and evening hours. One of the primary law enforcement problems is illegal camping and the related refuse and environmental damage.

As appropriate uses increase within Pogonip, some of the existing law enforcement problems such as illegal camping may decrease. This may occur due to an increased public presence and reporting of illegal activities. Other enforcement responsibilities, however, may increase due to an increase in the number and types of events which could occur at Pogonip. Increased trail use will also require expanding enforcement duties.



Natural Resource Management

Natural resource management responsibilities include: monitoring sensitive resource conditions; protecting wildlife; wildland fire management; invasive species removal; and revegeta-



PHOTOGRAPH: DON NIELSEN

BLACK-TAILED DEER
ODOCOILEUS HEMIONUS

tion and habitat enhancement projects. At present, funding for habitat enhancement projects is very limited; however, volunteers and other groups often assist with invasive species removal and revegetation projects. If increased funding is available, natural resource management activities may expand in the future.

INTERPRETATION AND EDUCATION

Park Rangers are a visible presence within Pogonip and serve as contacts for the public. Typical duties include responding to visitor inquiries, both while Rangers are on patrol and at the Park Ranger Station. As staff is available, Park Rangers accompany school group visits and provide interpretative services. Park Rangers also work with student interns and docents on various projects related to Pogonip.

Implementation of the Outdoor Education Camp, Sycamore Grove Nature Area, and rehabilitation of the clubhouse will significantly increase the educational and interpretive opportunities at Pogonip. There will likely be an increased demand for interpretive services to be provided by Park Rangers.

CURRENT AND PROJECTED FUTURE STAFFING

At present, total Park Ranger staffing city-wide includes one Supervising Park Ranger, two full-time Park Rangers, two Limited Term Park Rangers, and some seasonal hours. The administrative office for Park Ranger staff is located at Harvey West Regional Park.

One full-time Park Ranger is assigned to Pogonip, with typically less than 40 hours dedicated to Pogonip weekly due to duties at other park facilities. The Pogonip Park Ranger is assisted by temporary employees. Currently no maintenance staff are assigned to Pogonip. City of Santa Cruz Parks Support staff, including tree service crews and carpentry expertise, assist the Park Ranger staff with some of the maintenance tasks. Contract labor is also often utilized for repairs of facilities, such as fencing, and other improvements.

Management and maintenance demands for the new uses and facilities proposed in this Master Plan will exceed the abilities of current staffing. Parks Maintenance Management Service (PMMS) impact reports will be completed for each new and expanded element within Pogonip to determine the actual future staffing needs.

Although any future staff increases will be determined based upon the PMMS system, preliminary estimates of future staffing needs have been identified. Anticipated increases in staffing levels were based upon the number of increased maintenance and management hours for each new and expanded use at Pogonip. Much of the increased management and maintenance work will be seasonal and can be accomplished through the addition of limited term and temporary employees.

Increases in staffing should be phased as the various facilities and uses are implemented. Ideally, new staff should be on board prior to opening any new facilities to the public. Preliminary increased staffing needs are summarized in the table at the end of this element.

OTHER OPERATIONAL SUPPORT

Parks and Recreation Department staff may receive other operational support. This support may include assistance with the various management and maintenance responsibilities, including interpretation and education, facility maintenance, resource management, and security and public safety. Some of the types of assistance which occur presently, or may be available in the future, are described below. This assistance currently requires support from Park Ranger staff, including serving as volunteer coordinators, and providing tools and other support equipment as needed.

Several environmental organizations, including the Friends of Pogonip and the Sierra Club, provide interpretive and educational opportunities through guided walks within Pogonip. Invasive species removal and revegetation projects have been conducted in cooperation with the Natural Resources and Employment Program and the Master Gardeners. The California Native Plant Society has contributed to the knowledge of biotic resources at Pogonip. Volunteers from the Friends of Pogonip and the Sierra Club have also assisted with tree surveys within Pogonip.

PRELIMINARY INCREASED STAFFING NEEDS TO IMPLEMENT THE POGONIP MASTER PLAN

These are preliminary staffing estimates only. As projects are undertaken, maintenance impact reports will be completed for each new or expanded project as required by the Department of Parks and Recreation Parks Maintenance and Management Service (PMMS). Actual increases in staffing levels will be based upon PMMS requirements. The Phasing Plan on page 9-3 through 9-6 provides a more detailed breakdown of projected staffing needs for each improvement project.

POGONIP FACILITIES AND IMPROVEMENTS	PROJECTED ADDITIONAL HOURS (ANNUAL)	PROJECTED INCREASED MAINTENANCE STAFFING	PROJECTED INCREASED PARK RANGER STAFFING
EXISTING FACILITIES Pedestrian trail use No on-site parking /improved facilities	Not applicable	**None currently assigned**	**1 Park Ranger (FTE)**
PHASE I IMPROVEMENTS Outdoor Education Camp Sycamore Grove Restoration Program Lower Meadow Parking Trail Improvements	1,750 maintenance hours 700 patrol hours	**1 Maintenance Worker (FTE)**	**No additional staffing[1]**
PHASE II IMPROVEMENTS Clubhouse[2] Sycamore Grove Nature Area Upper Meadow Parking Trail Improvements	1,320 maintenance hours 690 patrol hours	**1 Maintenance Worker (Limited Term)** **1 Maintenance Worker (Temporary)**	**1 Park Ranger (Limited Term)**
TOTAL PROJECTED STAFFING NEEDS (Includes current staffing)	**3,070 maintenance hours** **1,390 patrol hours**	**1 Maintenance Worker (FTE)** **1 Maintenance Worker (Limited Term)** **1 Maintenance Worker (Temporary)**	**1 Park Ranger (FTE)** **1 Park Ranger (Limited Term)**

[1] Increased needs for patrols would be partially accommodated by transfer of current maintenance responsibilities to new maintenance staff.

[2] The Parks and Recreation Department anticipates that main tenance and management of the clubhouse and adjacent event grounds will be the responsibility of a concessionaire con tracted to operate the clubhouse.

The City has also received assistance from organizations and individuals for recording and researching cultural and historic resources. The Santa Cruz Archaeological Society has assisted with on-site reconnaissance surveys to identify potential historic and prehistoric resources. The *Limekilns of Pogonip* (Piwarzyk, 1994) has provided substantial information.

Support for facility maintenance, particularly, trail maintenance has been offered by various community organizations, including the Santa Cruz County Horsemen's Association and the Mountain Bikers of Santa Cruz. The community also contributes to trail maintenance by donating funds for trail signs.

Assistance with public safety and security includes the Sheriff's Department Mounted Search and Rescue, which provides invaluable search and rescue and emergency support. In the future, a Joint Volunteer Patrol may be established in cooperation with the California Department of Parks and Recreation. The existing horse patrol at Henry Cowell Redwoods State Park, and/or Wilder Ranch State Park could potentially be expanded to include Pogonip and provide an increased public safety presence. This would require coordination with State Parks and the volunteer patrol members.

This additional support is critical to accomplishing tasks which may not be fully funded as part of Pogonip's operating budget. The Parks and Recreation Department will continue to work cooperatively with various organizations and interested citizens to enhance the management and maintenance of Pogonip.



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HISTORIC CLUBHOUSE



PHASING & IMPLEMENTATION

This element presents a preliminary phasing plan for implementation of the uses proposed in this Master Plan. The phasing plan identifies specific projects, preliminary cost estimates, and projected staffing needs to maintain and manage the improvements. The Pogonip phasing plan is summarized briefly in the first section and outlined in detail in the table on page 1-7. Potential funding sources are presented in Section 9.2

9.1 PHASING

The Pogonip phasing plan provides general recommendations. It should be viewed only as a tool to guide implementation. The City Council may determine that specific projects should receive higher priority. Where improvements are identified as part of mitigation measures in the *Pogonip Master Plan Environmental Impact Report*, however, they must occur as required by the environmental document.

The phasing plan is organized into two three-year periods, based upon the City's existing program of identifying three-year Capital Improvement Programs. Phase I includes fiscal years 1998-99 through 2000-01. Phase II includes fiscal years 2001-02 through 2003-04. Fiscal years begin in July of each calendar year.

PHASE I

Phase I focuses on providing infrastructure to facilitate development of the Pogonip Garden, development of the day-use facilities at the Outdoor Education Camp and the Lower Meadow parking area, trail improvements, and restoration programs at Sycamore Grove and Haunted Meadow. The Clubhouse Rehabilitation Plan would also be completed as part of Phase I.

PHASE II

Rehabilitation of the clubhouse is the primary improvement targeted for Phase II. Development of the Sycamore Grove Nature Area and additional trail improvements would be made to improve existing alignments. Expansion of the ranger facilities and construction of a permanent caretaker residence would also occur during the second implementation phase.

For each of these phases, a preliminary estimate of increased staffing needs is identified in the Phasing Plan table. Actual increases in staffing would be based upon the Department of Parks and Recreation Parks Maintenance and Management Service (PMMS) requirements, which is discussed in more detail in the Operations Element of this Master Plan.

9.2 FUNDING SOURCES

Implementation is dependent upon the availability of funding to accomplish the various projects. Several funding sources may be available, including the City's General Fund and other local sources, grant programs, private donations and community fundraising. Local funding can be very useful as a leverage for grant funding or private donations. Most likely, a



PHOTO: DON NIELSEN

combination of these sources will be utilized. A brief discussion of these funding sources follows.

Local Funding

The General Fund will likely be one of the future sources of funding for many of the improvement projects. The City Council has determined that one-half of the revenue generated from the Parks and Recreation fees collected by the City should go toward greenbelt properties. Each fiscal year, the City prepares a proposed annual budget for expenditure of the City's General Fund.

In the future, the City may consider pursuing other local revenue sources. Some of the suggestions discussed previously include a parcel tax, which would require a voter approval. In other jurisdictions throughout the State, local bond measures and sales tax have been utilized to generate revenue for open space management, enhancement and restoration.

Grant Programs

Regional, state and federal grant programs are also important potential funding sources. Although park and open space grant programs may not be as significant as in previous years, it is possible higher levels of funding and new bond measures may be available in the future.

Several grant programs do currently exist which are worthwhile exploring, particularly for improvements related to protection and enhancement of natural resources, environmental education programs and facilities, and historic preservation. Funding levels and areas of focus for grant programs vary year to year, therefore it is important to carefully review the updated packets. Some of the grant programs which may be applicable to Pogonip include:

State of California

- Environmental Education Grants (Department of Education)
- Environmental Enhancement and Mitigation Program (Resources Agency)
- Habitat Conservation Fund (Dept. of Parks and Rec.)
- Riparian Habitat Conservation Program (Department of Fish and Game)
- Urban Streams Restoration Grants (Department of Water Resources)
- 319 Water Quality NPS Grants (State Water Resources Control Board/EPA)

Federal Government

- Community Development Block Grant (Department of Housing and Urban Development)
- Environmental Education Grants (Environmental Protection Agency)
- Land and Water Conservation Fund (National Park Service)
- Wetland Protection Program Development Grants (Environmental Protection Agency)

Private Donations and Community Fundraising

Donations from private organizations or individuals are another potential funding source, particularly if the particular project fulfills the primary goals of the donor. Education-related projects and rehabilitation of the clubhouse may be likely candidates for private donations. Letters of inquiry should be submitted to various private donors for various projects.

Smaller donations from community members can also aid implementation of various projects. Thus far at Pogonip, community members have contributed donations for trail signs and benches. These donations could possibly be extended to restoration projects, the Outdoor Education Camp, and the clubhouse.

Donations can presently be accepted for Pogonip through the non-profit Friends of Parks and Recreation. A Greenbelt fund has also been established under the Finance Department for donations pertaining to greenbelt properties.

Summary

In summary, this Phasing and Implementation Element provides a suggested outline for accomplishing the new and expanded uses at Pogonip. Implementation will likely require a creative mix of funding sources. The phasing plan should be flexible

to best respond to any new opportunities and funding sources which may arise. Fulfillment of the vision for Pogonip within six years is no doubt an ambitious plan, but with full community support and commitment from the City, it could be accomplished.

PRELIMINARY PHASING PLAN FOR IMPLEMENTATION OF THE POGONIP MASTER PLAN

This preliminary phasing plan identifies the primary capital improvement projects necessary to implement the Pogonip Master Plan. Preliminary cost estimates are provided. Projected increased maintenance and patrol staffing needs associated with each improvement project are also listed. This table does not include projected materials and equipment costs for maintenance. Staffing responsibilities are organized under maintenance and patrol duties. At present, no maintenance staff are assigned to Pogonip and Park Rangers are responsible for both duties. In the future, it is anticipated that maintenance staff would fulfill the maintenance duties and Park Rangers would perform patrol duties and other responsibilities related to management of greenbelt properties (refer to the Operations Element of this Master Plan).

PHASE I (FISCAL YEAR 1998-99 THROUGH 2000-01)

CAPITAL IMPROVEMENT PROJECT	PRELIMINARY COST ESTIMATE (1998 DOLLARS)	PROJECTED INCREASED MAINTENANCE STAFFING (ANNUAL HOURS)	PROJECTED INCREASED PATROL STAFFING (ANNUAL HOURS)	STAFFING NOTES
Clubhouse Rehabilitation Rehabilitation Plan	$100,000+	Not applicable	Not applicable	
Pogonip Garden	Not available[1]	Not applicable	Not applicable	
Outdoor Education Camp Day-use facilities including covered picnic table area, portable toilets, potable water hook-up, wooden fencing, acacia removal and native tree planting	$50,000	600 hours	40 hours	Ranger patrols Daily service Maintenance
Sycamore Grove Nature Area Restoration Program	$10,000	240 hours	40 hours	Ranger patrols Contract labor support



PHOTO: DON NIELSEN

PHASE I (FISCAL YEAR 1998-99 THROUGH 2000-01) CONTINUED

CAPITAL IMPROVEMENT PROJECT	PRELIMINARY COST ESTIMATE (1998 DOLLARS)	PROJECTED INCREASED MAINTENANCE STAFFING (ANNUAL HOURS)	PROJECTED INCREASED PATROL STAFFING (ANNUAL HOURS)	STAFFING NOTES
Trails[2]	$85,000	220 hours	580 hours	Ranger patrols
Trail signs				Maintenance
Construct new Harvey West Trail				Contract labor
Construct new UCSC Connector Trail				and volunteer
Pogonip Creek Nature Trail bridges				support
Realign Spring Box Trail				
Resource Management Areas	$25,000	80 hours	Not applicable	Contract labor
Sycamore Grove				support
Haunted Meadow				
Management Program				
Ohlone tiger beetle monitoring				
Stream and creek inventory				
Historic Sites			Not applicable	Maintenance
Limekiln site interpretive signs	$3,000	40 hours		
McCormick House site	$5,000	20 hours		
interpretive signs				
and new fencing at reservoir				
PHASE I TOTAL	**$278,000**	**1,200 annual hours**	**660 annual hours**	

PHASE II (FISCAL YEAR 2000-01 THROUGH 2003-04)

CAPITAL IMPROVEMENT PROJECT	PRELIMINARY COST ESTIMATE (1998 DOLLARS)	PROJECTED INCREASED MAINTENANCE STAFFING (ANNUAL HOURS)	PROJECTED INCREASED PATROL STAFFING (ANNUAL HOURS)	STAFFING NOTES
Clubhouse Rehabilitation	Not Available[3]	200 hours	Ranger patrols	
Sycamore Grove Nature Area	$20,000	400 hours	150 hours	Ranger patrols
Picnic tables, portable toilets, and kiosk				Daily service Maintenance
Trails	$22,000	300 hours	300 hours	Ranger Patrols
Trail Signs				Maintenance
Realign Fern Trail/bridge				Contract labor
Realign Sycamore Grove Trail				and volunteer
Build Lower Meadow Trail				support
Sycamore Grove Nature Loop Trail				
Resource Management Areas	$8,000	120 hours	Not applicable	Contract labor
Ohlone tiger beetle				support
Management Program				
Historic Sites	$10,000[4]	Not applicable	Not applicable	
Limekiln Preservation Plan				
Ranger Station and		100 hours	Not applicable	Maintenance
Caretaker Residence				
Ranger Station Expansion	$150,000			
Permanent Caretaker residence	$160,000			

PHASE II (FISCAL YEAR 2000-01 THROUGH 2003-04) CONTINUED

CAPITAL IMPROVEMENT PROJECT	PRELIMINARY COST ESTIMATE (1998 DOLLARS)	PROJECTED INCREASED MAINTENANCE STAFFING (ANNUAL HOURS)	PROJECTED INCREASED PATROL STAFFING (ANNUAL HOURS)	STAFFING NOTES
Infrastructure and Services	Not available[5]	400 hours	40 hours	Ranger patrols Daily service
Water service to Upper Main Meadow	$220,000	Not applicable	Not applicable	
Sewer service to Upper Main Meadow	$260,000	Not applicable	Not applicable	
Upper Main Meadow parking and turnaround				
Golf Club Drive improvements within Pogonip	$165,000	Not applicable	Not applicable	
Lower Main Meadow parking	$105,000	550 hours	40 hours	Ranger patrols Daily service
PHASE II TOTAL	**$ 1,135,000**	**1,870 annual hours**	**730 annual hours**	
PHASE I & II TOTAL	**$1,413,000**	**3,070 annual hours**	**1,390 annual hours**	

Does not include costs for the clubhouse rehabilitation, Pogonip Garden, or mitigation measures required by the Environmental Impact Report

[1] Pogonip Garden improvement costs and maintenance will be the responsibility of the Homeless Garden Project.

[2] A portion of sign costs and trail construction may be offset through donations and volunteer labor.

[3] Clubhouse rehabilitation, management and maintenance costs will be determined as part of a future rehabilitation plan.

[4] Cost estimate includes cost of plan only; cost of platform removal and any other improvements would be determined in plan.

[5] To be determined as part of Clubhouse rehabilitation plan.



APPENDIX

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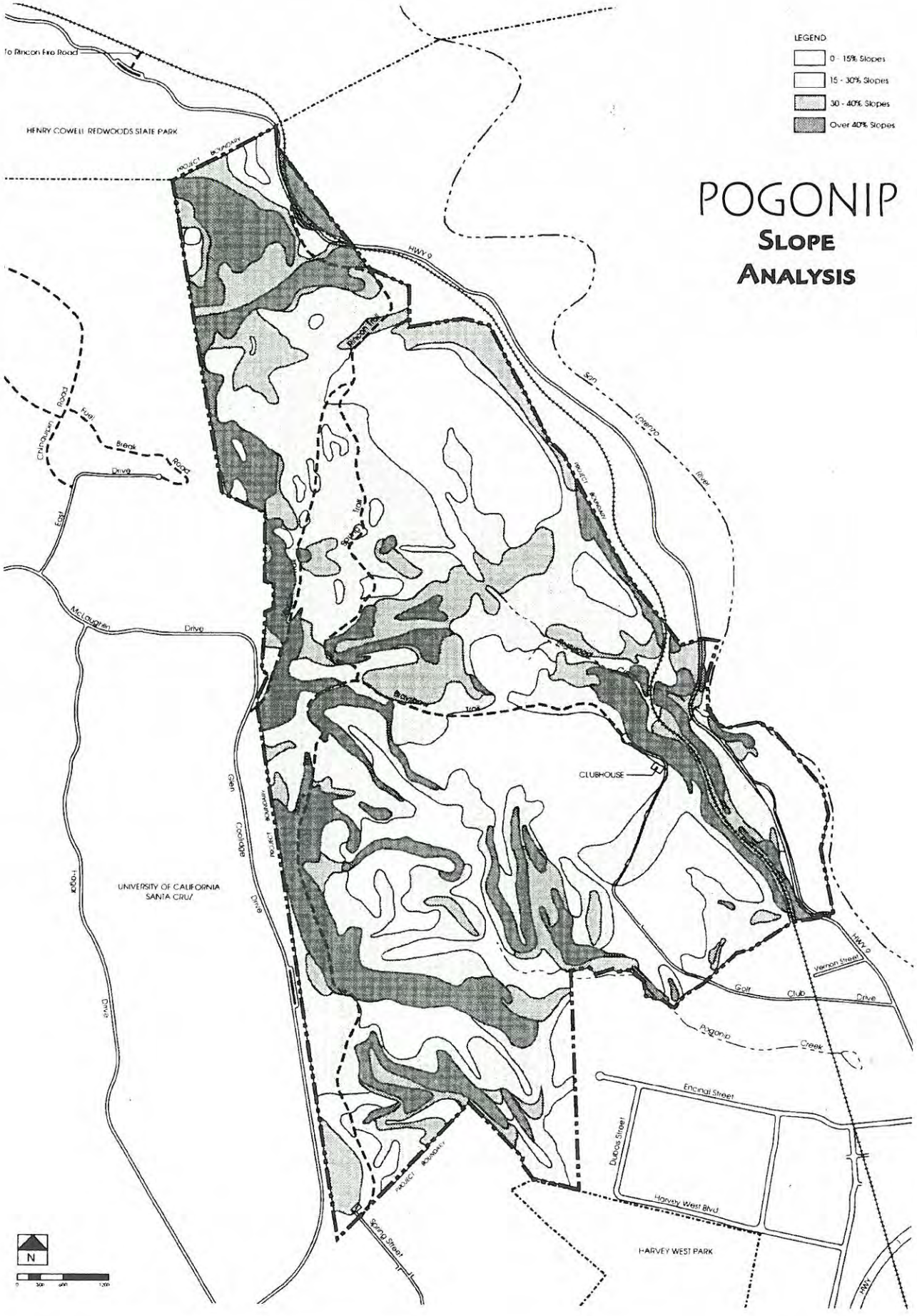
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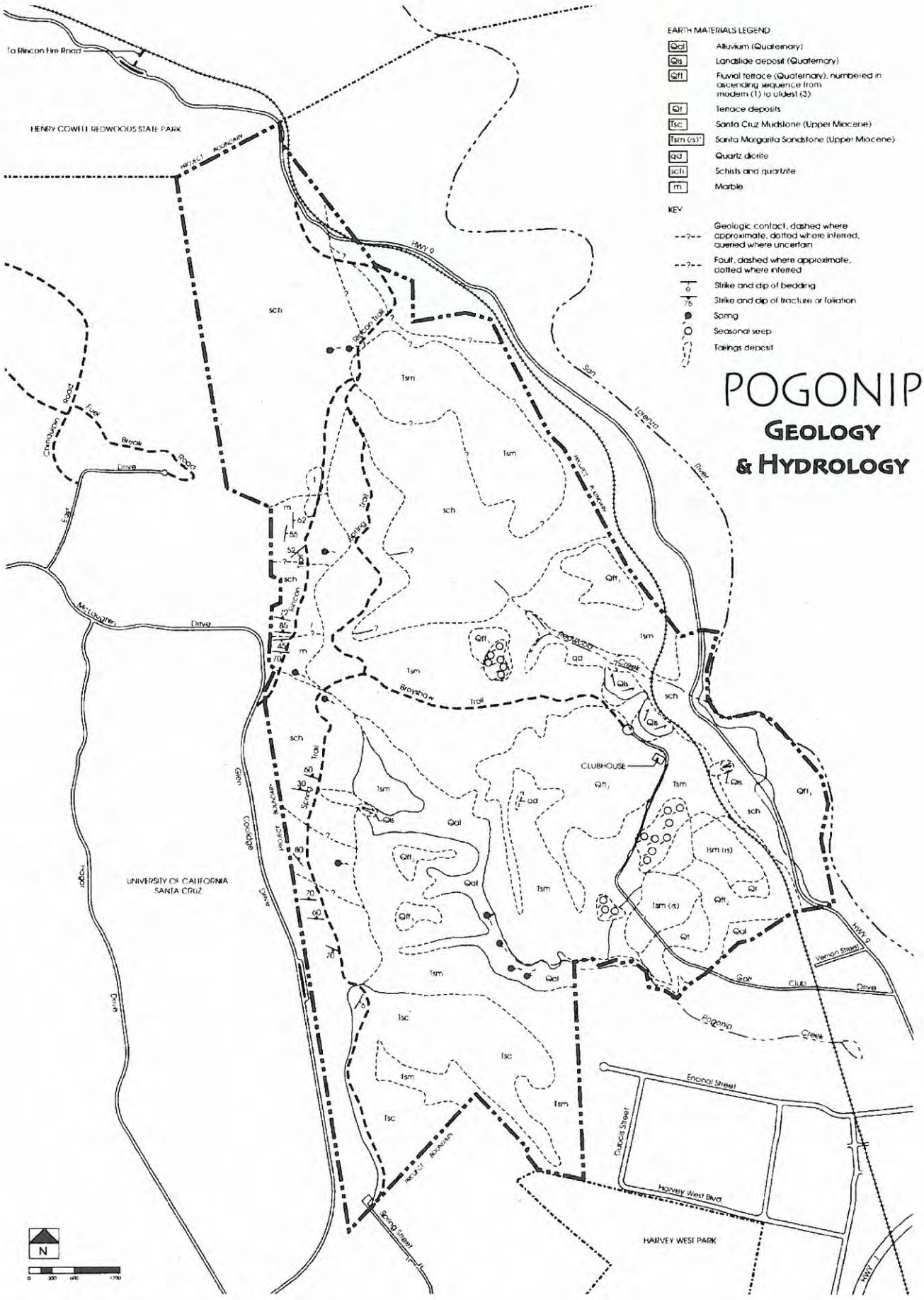
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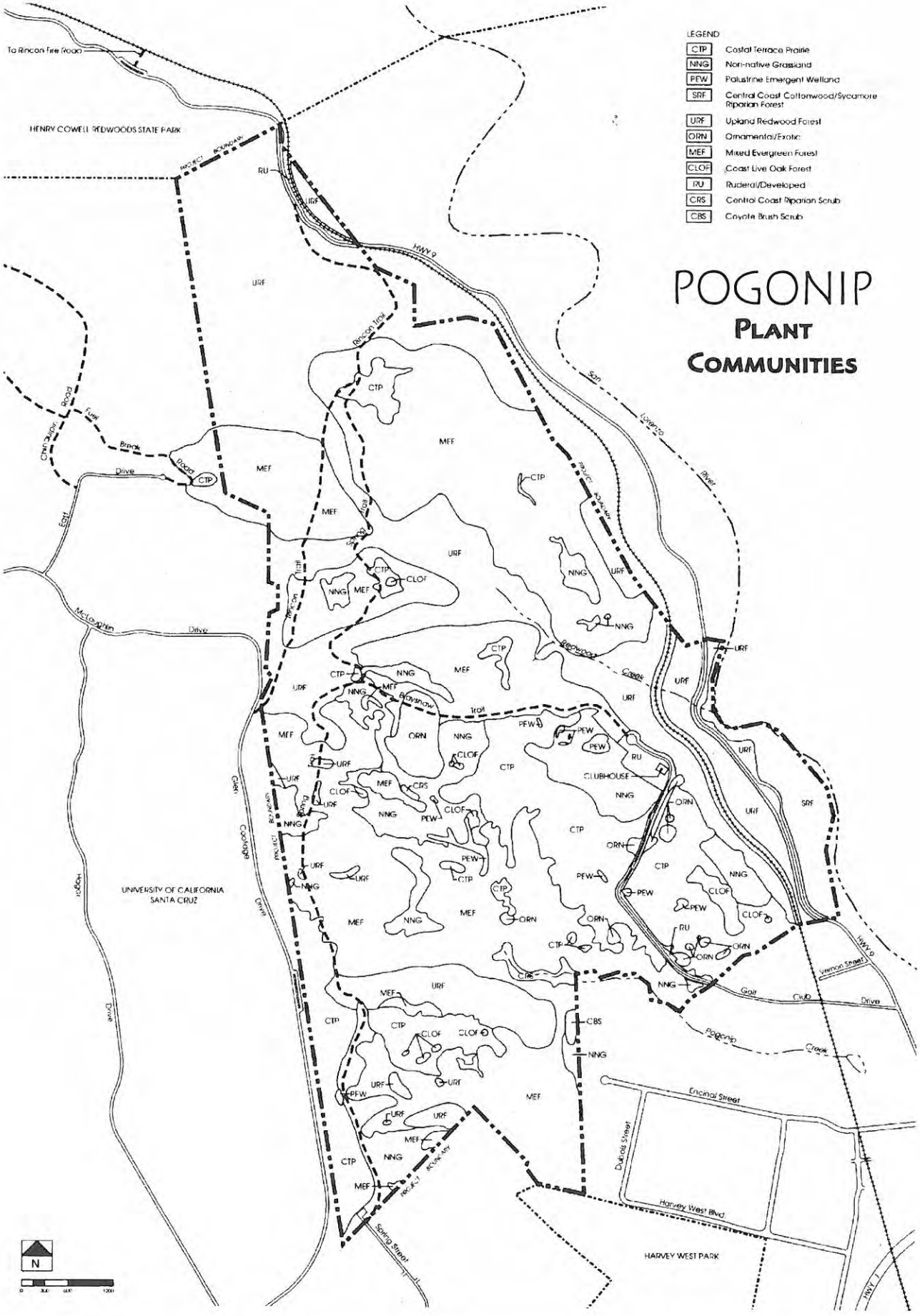
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APPENDIX


LEGEND
0 - 15% Slopes
15 - 30% Slopes
30 - 40% Slopes
Over 40% Slopes
POGONIP
SLOPE
ANALYSIS
To Rincon Fire Road
HENRY COWELL REDWOODS STATE PARK
PROJECT BOUNDARY
HWY 9
Johnson Rd.
San Lorenzo River
Quail Hollow Road
Eagle Rock Drive
Eagle
McLaughlin Drive
Spring Trail
Redwood Trail
Blackberry Trail
CLUBHOUSE
Glen Coolidge Drive
UNIVERSITY OF CALIFORNIA SANTA CRUZ
Golf Club Drive
Vernon Street
Pogonip Creek
Encinal Street
Dubois Street
Harvey West Blvd
Spring Street
HARVEY WEST PARK
N


EARTH MATERIALS LEGEND
Qal Alluvium (Quaternary)
Qls Landslide deposit (Quaternary)
Qft Fluvial terrace (Quaternary), numbered in ascending sequence from modern (1) to oldest (3)
Qt Terrace deposits
Tsc Santa Cruz Mudstone (Upper Miocene)
Tsm (ss)* Santa Margarita Sandstone (Upper Miocene)
qd Quartz diorite
sch Schists and quartzite
m Marble
KEY
Geologic contact, dashed where approximate, dotted where inferred, queried where uncertain
Fault, dashed where approximate, dotted where inferred
Strike and dip of bedding
Strike and dip of fracture or foliation
Spring
Seasonal seep
Tailings deposit
POGONIP
GEOLOGY & HYDROLOGY
To Rincon Fire Road
HENRY COWELL REDWOODS STATE PARK
PROJECT BOUNDARY
HWY 9
San Lorenzo River
Rincon Trail
Spring Trail
Fuel Break Road
Chinquapin Road
East Drive
McLaughlin Drive
Meadow Creek
Braytshaw Trail
CLUBHOUSE
Golf Club Drive
Vernon Street
Pogonip Creek
Encinal Street
Dubois Street
Harvey West Blvd
HARVEY WEST PARK
Spring Street
HWY 1
Glen Coolidge Drive
Hagar Drive
UNIVERSITY OF CALIFORNIA SANTA CRUZ
N


LEGEND
CTP Coastal Terrace Prairie
NNG Non-native Grassland
PEW Palustrine Emergent Wetland
SRF Central Coast Cottonwood/Sycamore Riparian Forest
URF Upland Redwood Forest
ORN Ornamental/Exotic
MEF Mixed Evergreen Forest
CLOF Coast Live Oak Forest
RU Ruderal/Developed
CRS Central Coast Riparian Scrub
CBS Coyote Brush Scrub
POGONIP
PLANT COMMUNITIES
To Rincon Fire Road
HENRY COWELL REDWOODS STATE PARK
HWY 9
Rincon Trail
Fuel Break Road
Fuel Break Drive
East
McLaughlin Drive
Clark Kerr Project Boundary
Hagar Drive
UNIVERSITY OF CALIFORNIA SANTA CRUZ
Spring Street
Spring Trail
Redwood Creek
Redwood Trail
Bonnyview Trail
CLUBHOUSE
Golf Club Drive
Vernon Street
Pogonip Creek
Encinal Street
Dubois Street
Harvey West Blvd.
HARVEY WEST PARK
HWY 1
N

APPENDIX

WILDLIFE SPECIES

OBSERVED OR PREDICTED TO OCCUR AT POGONIP

This list was is based upon the wildlife species list prepared by the Habitat Restoration Group for the *Pogonip Biotic Assessment*, prepared for the City of Santa Cruz in 1996.

KEY

- 0 Wildlife species or their signs observed at Pogonip.
- P Wildlife species expected to occur at Pogonip.
- P? Wildlife species which may occur at Pogonip, but information on this species occurrence in the Pogonip region is incomplete or lacking.
- n Bird species known to nest within Pogonip.

AMPHIBIANS

CODE	COMMON NAME
SALMANDERS	
P	Pacific Giant Salamander
P	Rough-skinned Newt
P	California Newt
P	California Slender Salamander
P	Black Salamander
P	Arboreal Salamander
FROGS AND TOADS	
P	Western Toad
O	Pacific Treefrog
P	California Red-legged Frog

REPTILES

TURTLES	
P	Southwestern Pond Turtle
LIZARDS AND SNAKES	
O	Western Fence Lizard
P	Western Skink
O	Southern Alligator Lizard
O	Northern Alligator Lizard
P	California Legless Lizard
P	Rubber Boa
P	Ringneck Snake
P	Gopher Snake
P	Common Kingsnake
P	Common Garter Snake
P	Western Terrestrial Garter Snake

BIRDS

CODE	COMMON NAME
HERONS AND RELATIVES	
O	Great Blue Heron
P	Great Egret
P	Snowy Egret
P	Green-backed Heron
P	Black-crowned Night Heron
DUCKS AND RELATIVES	
P	Wood Duck
P	Mallard
P	Northern Pintail
P	Cinnamon Teal
P	Black Scoter
P	Common Merganser
VULTURES, HAWKS AND FALCONS	
O	Turkey Vulture
P?	Osprey
O, n	White-tailed Kite
P	Northern Harrier
P	Sharp-shinned Hawk
P	Cooper's Hawk
O, n	Red-shouldered Hawk
O, n	Red-tailed Hawk
O	Rough-legged Hawk
O	Golden Eagle
O, n	American Kestrel
P?	Merlin
P?	Peregrin Falcon
PHEASANTS AND RELATIVES	
O	California Quail
CRANES, RAILS AND RELATIVES	
P	American Coot

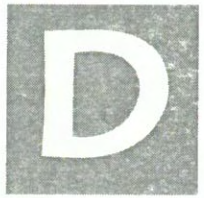
CODE	COMMON NAME
PIGEONS AND DOVES	
P	Rock Dove
P	Band-tailed Pigeon
O	Mourning Dove
OWLS	
P	Barn Owl
P	Western Screech Owl
P	Great Horned Owl
P	Northern Pygmy Owl
P?	Burrowing Owl
P?	Long-eared Owl
P?	Short-eared Owl
P	Northern Saw-whet Owl
SWIFTS AND HUMMINGBIRDS	
P?	White-throated Swift
P	Black-chinned Hummingbird
O	Anna's Hummingbird
P	Costa's Hummingbird
P?	Rufous Hummingbird
P	Allen's Hummingbird
KINGFISHERS AND RELATIVES	
P	Belted Kingfisher
WOODPECKERS AND RELATIVES	
O	Acorn Woodpecker
P	Yellow-bellied Sapsucker
P	Red-naped Sapsucker
P	Red-breasted Sapsucker
P	Nutall's Woodpecker
P	Downy Woodpecker
P	Hairy Woodpecker
P	Northern Flicker

CODE	COMMON NAME
PERCHING BIRDS	
P	Olive-sided Flycatcher
P	Western Wood-Pewee
P	Dusky Flycatcher
O	Black Phoebe
P	Say's Phoebe
P	Ash-throated Flycatcher
P	Western Kingbird
P?	Horned Lark
O	Tree Swallow
O	Violet-green Swallow
P	Northern Rough-winged Swallow
O	Barn Swallow
O	Stellar's Jay
O	Scrub Jay
O	American Crow
P	Common Raven
O	Chestnut-backed Chickadee
O	Plain Titmouse
O	Bushtit
P	Red-breasted Nuthatch
P	White-breasted Nuthatch
P	Pygmy Nuthatch
P	Brown Creeper
O	Bewick's Wren
P	House Wren
P	Winter Wren
P	Marsh Wren
P	American Dipper
P	Golden-crowned Kinglet
P	Ruby-crowned Kinglet
P	Blue-gray Gnatcatcher
O	Western Bluebird
P	Townsend's Solitaire
P	Swainson's Thrush
P	Hermit Thrush
O	American Robin
O	Varied Thrush
O	Wrentit
O	Northern Mockingbird
P	California Thrasher
P	Cedar Waxwing
P	European Starling
P	Solitary Vireo
P	Hutton's Vireo
P	Warbling Vireo
P	Red-eyed Vireo
P	Yellow Warbler
P	Wilson's Warbler
P	Western Tanager
P	Rose-breasted Grosbeak
O	Black-headed Grosbeak
P	Lazuli Bunting
O	Rufous-sided Towhee
O	California Towhee
O	American Tree Sparrow
P	Savannah Sparrow
P?	Grasshopper Sparrow
O	Song Sparrow
P	Golden-crowned Sparrow
P	White-crowned Sparrow
O	Dark-eyed Junco
P	Red-winged Blackbird
O	Western Meadowlark
P	Brewer's Blackbird
O	Purple Finch
O	House Finch
P	Red Crossbill
P	Pine Siskin
P	Lesser Goldfinch
O	American Goldfinch
P	House Sparrow

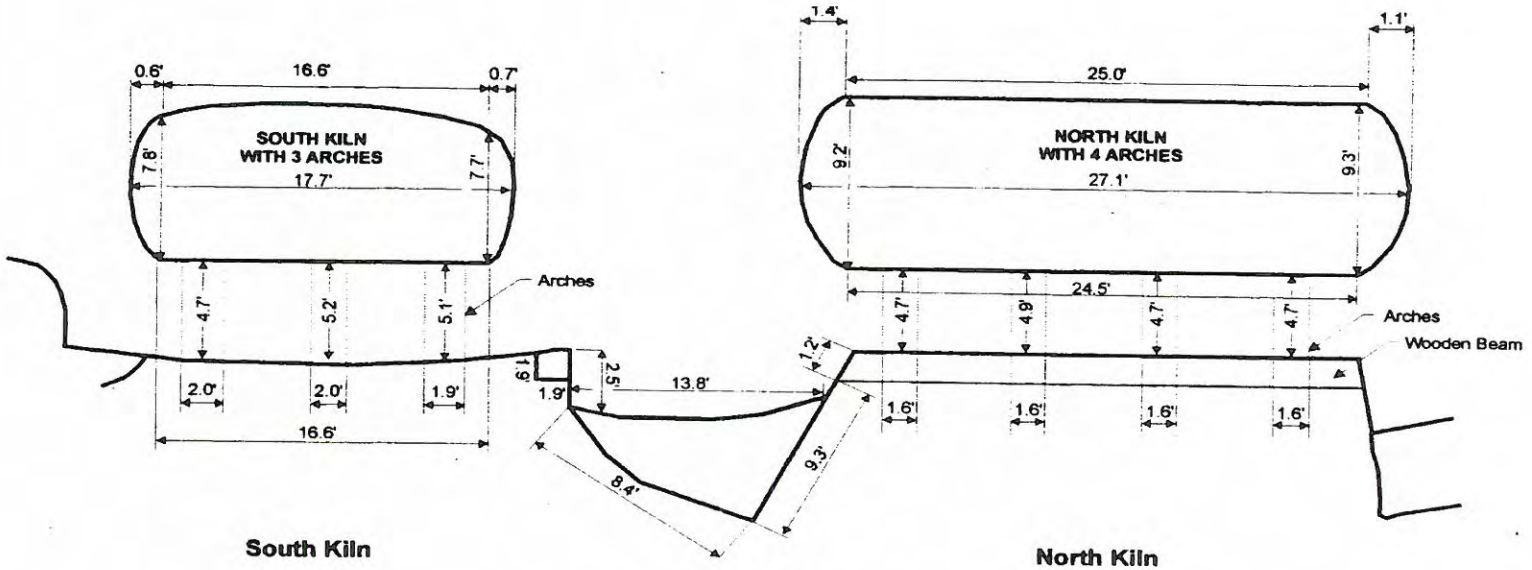
MAMMALS

CODE	COMMON NAME
OPPOSUMS AND RELATIVES	
O	Virginia Opossum
SHREWS AND MOLES	
P	Ornate Shrew
P	Trowbridge's Shrew
P	Shrew-mole
P	Broad-footed Mole
BATS	
P	Little Brown Myotis
P	California Myotis
P	Big Brown Bat
P?	Pallid Bat
RABBITS AND HARES	
P	Brush Rabbit
P	Audubon's Cottontail
P	Black-tailed Hare
SQUIRRELS, RATS, MICE AND RELATIVES	
P	Merriam's Chipmunk
O	California Ground Squirrel
O	Western Gray Squirrel
P	Fox Squirrel
O	Botta's Pocket Gopher
P	California Pocket Mouse
P	Western Harvest Mouse
P	California Mouse
P	Deer Mouse
P	Brush Mouse
O	Dusky-footed Woodrat
P	California Vole
P	Black Rat
P	House Mouse

CODE	COMMON NAME
FOXES AND RELATIVES	
O	Coyote
P?	Red Fox
P	Gray Fox
CODE	**COMMON NAME**
RACOONS AND RELATIVES	
P	Ringtail
O	Raccoon
WEASELS, BADGERS AND RELATIVES	
P	Long-tailed Weasel
P?	Badger
P?	Western Spotted Skunk
O	Striped Skunk
CATS	
P	Mountain Lion
O	Bobcat
DEER AND RELATIVES	
O	Black-tailed Deer



APPENDIX



N

NOT TO SCALE

NOTES:

1. Field measurements of the inside walls of the kilns and arches were taken as shown.
2. Field measurements of the center buttress were taken as shown.

12/19/96 SB ...\01730-007\fa1plan.cdr

PLAN VIEW OF NORTH AND SOUTH KILN

City of Santa Cruz, Parks and Recreation Department

December 1996
01730-007-109

Historic Lime Kilns, Pogonip
Santa Cruz, California

DAMES & MOORE

FIGURE 1

POGONIP
LIME KILN DOCUMENTATION

APPENDIX

HISTORIC ROADWAYS MAINTENANCE GUIDELINES

Prepared by Tom Jackson, Pacific Legacy, and Steve Singer, Environmental and Ecological Services, with revisions by the Parks and Recreation Department

Consistent with the City's policies for the protection and preservation of historic resources, these Guidelines have been prepared to ensure preservation of the historic roadways within Pogonip. These Guidelines will assist Parks and Recreation Department staff in conducting maintenance in a manner which minimizes or prevent the deterioration and loss of historic roadways.

The historic roadways at Pogonip are incorporated into the existing trail system as portions of the Rincon and Spring Trails. These roadways were originally developed in the mid-nineteenth century as part of the transportation system associated with the lime industry. They facilitated the transport of the limestone raw material to the kilns and the export of the processed lime to the shipping facilities.

For the purposes of these Guidelines, the historic roadways are considered to include the entire lengths of the Rincon and Spring trails within the boundaries of Pogonip. Although some segments of these trails may lack historic roadway fabric, there is no detailed map of the roadways and trails that designates accurately those areas that may not warrant the historic roadway maintenance considerations. Until more information is collected, the Guidelines must assume that all of the roadways manifest historic structural remains.

The Guidelines that follow provide general recommendations concerning maintenance and long-term protection of Spring and Rincon Trails. These recommendations also provide for the continued use of the roadways as service roads and public trails. These guidelines do not address remediation of on-going erosion damage to historic roadways. Such technical guidance should be prepared by a certified professional in erosion and sediment control, or by other qualified professionals, in concert with a historic preservation specialist, and with reference to these Guidelines.

HISTORIC SIGNIFICANCE

In 1996, the historic roadways at Pogonip were formally determined by the California State Historic Preservation Officer (SHPO) as qualifying for listing in the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR). The historic roadways are considered important because they are features associated with a significant aspect of local history (mid-nineteenth century to early twentieth century lime industry) and because they are associated with an important historical figure (Henry Cowell).

Rincon Trail was determined by the SHPO to be eligible for NRHP/CRHR listing on its own merits as a historic property

displaying significant attributes of road engineering associated with lime production. Spring Trail is determined to be a historic property as a contributing element of a potential historic district associated with the complex of kilns, quarries and other features associated with lime production. Rincon Trail would also be regarded as a contributing feature of such a historic district.

Should the City of Santa Cruz seek federal funds or permits for projects affecting the roadways, the federal agency supplying the funds or permit(s) must determine if that action constitutes an "undertaking" (36 CFR 800.2(o)) with the potential to affect historic properties. Preservation of any affected roadways would have to be considered by the federal agency, in consultation with the State Historic Preservation Officer and/or the Advisory Council on Historic Preservation, prior to approval and award of the funding or permit(s) to the City of Santa Cruz. As applicable the City of Santa Cruz must consider the preservation of the historic roadways in Pogonip consistent with the California Environmental Quality Act.

Neither historical research nor detailed field examination of the historic roadways have been conducted in order to determine how the roads were originally constructed and to detail the nature and condition of surviving portions of the historical roadways. There has also been no comprehensive survey to determine specifically what processes or actions have consequential effects on the roadways. These Guidelines should be revised and updated as more information is gathered regarding the historic roadways and their original construction.

Effects on the Historic Roadways

This discussion of the effects of natural processes, visitor activities and maintenance on the historic roadways is based on a cursory field examination of the roadways by a historic preservation specialist and erosion control specialist, and input from Park Ranger staff. A more definitive and comprehensive discussion of effects on the historic roadways would require a better understanding of the exact nature of the original and extant road structure and more detailed field examination.

The historic roadways are affected by a number of natural processes, the most conspicuous of which are related to weathering and erosion processes that result in the deterioration of the roadways. Increased runoff in the upper watershed and the erodibility of the soil at Pogonip are key factors in the gully erosion visible on the historic roadways, especially Spring Trail. Pogonip is especially susceptible to a type of gully erosion which is difficult to control- soil piping. Soil piping is the formation of small tunnels below the surface by the eroding action of subsurface flows. As these tunnels increase in size, the tunnel roof may collapse and they will appear as normal surface gullies. One portion of Spring Trail is being damaged by soil piping erosion and other areas are threatened. Several other drainage crossings of Spring Trail and Rincon Trail are being undermined and are experiencing severe road collapse due to gully erosion.

Inadequate management of water drainage may be the most significant factor contributing to the deterioration of the roadways. Visitor and staff use also contribute to deterioration and loss of roadways that are not regularly maintained. The combined adverse effects of natural processes and user activities are significantly exacerbated when water surface drainage and cross drainage are not properly managed.

Inadequate management of surface drainage and cross drainage results in undercutting the roadway margins; gully erosion of roadside ditches and bordering road fabric materials; collapse and washout of roadways at unprotected or inadequately protected drainage crossings; sheet and rill erosion of the historic road surface; and development of wet spots that weaken the road structure and divert trail users to fragile road margins. Proper management of surface water entails construction of water bars, ditches, culverts and other devices to effectively direct surface and cross drainage in a manner that minimizes erosion of the roadways. Wet spots in the roadways require, for example, installation of proper drainage devices and/or capping the roadway to increase the elevation of the road surface.

In some cases it is difficult to ascertain how a historic road surface is being affected because vegetation debris and soil

may accumulate on the road surface to a sufficient depth that the historic fabric is completely covered. Vehicle and even pedestrian traffic across such areas can result in tire ruts, footprints and footpaths that may be unsightly but which may have no significant impact on the historic roadway itself. Accumulations of organic debris and soil could have the effect of preserving the buried roadway surface, although a more deliberate analysis of the roadway would have to be conducted to ascertain if this were true.

The effects of pedestrian visitor use of the roadways should generally be regarded as having a nominal adverse effect. Loose gravel on exposed roadway surfaces may be displaced by foot traffic but the effects of pedestrian traffic are minimized when that traffic can be distributed over the maximum width of the roadway. Pedestrian traffic effects are exaggerated when that traffic is confined or directed into narrow pathways, especially when such paths develop along the fragile edges of the historic roadways. Over time, however, any traffic on the roadways will eventually have the effect of wearing them down. The greater the volume of traffic, the more rapid the deterioration of the road surface. Pedestrian and other types of trail use over wet and weakened road surfaces will enhance the rate at which the roadway deteriorates.

It has been observed that trees adjacent the roadways have been toppled by storms. In some cases, the upturned root mass of the trees has dislocated roadway material, loosened the soil below and adjacent to the roadway and rendered this weakened area more susceptible to erosion.

Management activities can contribute directly and indirectly to the loss of the historic roadways. Improper management actions that do not correctly address erosion problems can increase the effects of erosion on the roadways. Maintenance, repair or construction actions that result in the dislocation or destruction of portions of the historic roadways contribute to the loss of the historic resources.

Operation of vehicles over unstable roadway surfaces can also result in the deterioration and destruction of those surfaces. The dislocation of roadway material by tires can be seen along the historic roadways. In areas with excellent or very good road condition the displacement of roadway surfacing gravel can be apparent and detracts from the integrity of the roadway.

Since the City's acquisition of Pogonip, the historic roadways have been maintained to the extent required to ensure access for emergency vehicles, patrol and maintenance vehicles. Necessary road repair has been accomplished on an "as needed/funds available" basis. Typically, the City Public Works Department has provided personnel, equipment and materials for essential repairs. The intent of these guidelines is to ensure future maintenance actions, whether conducted by the City or contracted services, provide improved management of these unique historic resources.

Historic Road Maintenance Guidelines

The following Guidelines for historic roadways in Pogonip are intended to provide general guidance at a level consistent with the present understanding of the nature of the roadways and the factors that are affecting their preservation. The effectiveness of these guidelines can be enhanced by: 1) gaining more information regarding the nature and condition of the roadways; 2) developing more precise knowledge of the effects of natural processes and use of the roadways; 3) incorporating information from other erosion projects and status reports at Pogonip; and 4) implementing a regular maintenance program.

Historic Roadway Monitoring and Education Guideline

Park Rangers should be alert while on patrol to circumstances that can lead to the deterioration or loss of portions of the historic roadways. This information should be recorded and forwarded to the Supervising Park Ranger in a timely manner. Photo-documentation is also recommended.

Prior to any maintenance activities within the roadway corridors, Parks and Recreation Department staff, work crews, and any volunteers should be fully informed of the significance of the historic roadways.

Erosion Control Feature Maintenance and Construction Guidelines

Drainage and erosion problems damaging the historic roadways should be treated as soon as possible to minimize future damage. Treatment measures should be identified in consultation with an erosion control specialist and historic resource specialist. Necessary treatment measures may include:

Installation of low impact waterbars to prevent erosion of the roadway surface.

- Construction of water bars across the historic roadways at appropriate locations can be a very effective erosion control measure. Improperly placed and constructed waterbar may directly or indirectly exacerbate erosion problems. Properly constructed and effective water bars can be placed on top of the historic roadway surface without adversely affecting the roadway. Care should be taken to make the new construction as unobtrusive as possible while still accomplishing its purpose.
- Amoring of roadside ditches with non-native rock to prevent undermining of the historic road fabric
- Installation of measures to drain wet spots and prevent the resultant concentration of trail use on fragile historic road edges. Such measures may include: 1) installation of a capping layer of decomposed granite or non-native base rock to restore positive drainage; 2) removal of sediment accumulations sitting on top of the historic road surface; and 3) other measures as approved by a certified professional in erosion and sediment control and a historic resource specialist.
- Installation of drainage and erosion prevention measures to the adjacent hill slopes that contribute water or sediment onto the historic roadbed. Such measures might include mulching, construction of diversions, and closure or removal of cut-through pathways.
- Installation of culverts and other cross-drains in road drainage crossings where significant damage to the roadbed is occurring or anticipated. Each site should have a specific treatment plan prepared by a certified professional in erosion and sediment control with assistance from a historic resource specialist.

Actions Involving Displacement of Historic Roadway Material

No excavation should occur in a historic roadway and no historic roadway material should be displaced for any reason without prior consultation with a qualified historic preservation specialist. Examples of such actions include but are not limited to:

- excavation to install/replace culverts under roadways
- excavation to create/repair ditches for water runoff
- excavation to remove and replace weakened roadway
- excavation and stabilization of undercut or damaged roadway
- excavation to install drainage in wet spots in roadways

This Guideline applies to any location where historic roadway material is present. Lacking detailed maps showing the exact location of surviving road elements and their condition, maintenance personnel should assume that the entire length of the Rincon and Spring trails are historic roadways.

In some places along the historic roadways, erosion has created ditches that may need to be filled or deepened and/or armored for drainage control. Other drainage ditches may have been previously constructed without considering the historic roadway. Filling, excavating or enhancing drainage ditches should be done only with the advice of a historic preservation specialist and erosion control specialist.

If an existing ditch is to be filled or armored, only foreign material that is not similar to the material originally used to create the historic roadway should be used, such as granite rather than the native limestone-marble used for the original construction.

Actions Involving Placement of Material Over a Historic Roadway Surface

In order to maintain a trail surface in a condition that is safe and effective for visitor trail use and to ensure service vehicle access, it may be necessary to cover some of the historic road material. This could be the case where the original surface

gravel of the historic roadway has been lost and larger gravel making up the historic roadway base is exposed, creating a rough and uneven surface for pedestrians. In such cases it may be appropriate to cover the historic road material with foreign gravel to create a more even trail surface. In other cases, it may be appropriate to apply a new gravel surface treatment in order to mitigate erosion damage and to preserve the remaining historic original road material.

No placement of material or creation of features should occur on a historic roadway surface for any reason without prior consultation from a qualified historic preservation specialist. If the purpose of the action is to create an erosion/water control device, consultation should be made with both an erosion control specialist and historic preservation specialist.

The historic roadways surface should not be covered with material similar to the material used in the original roadway construction. Use appropriate foreign material, such as granite, rather than the native limestone-marble used for the original construction.

Avoid covering any historic roadway surface that is determined to be in excellent or very good condition.

Service Vehicle and Visitor Use Guidelines

Historic roadways will be maintained for necessary operations, for emergency vehicle access and to facilitate visitor trail use in a manner consistent with the long term preservation of the historic roadways.

Vehicles should be operated on historic roadways only to the extent necessary. Vehicle operations on historic roadways should be curtailed to the maximum extent feasible during months when the roadways are wet from precipitation and runoff in order to avoid damaging the roads. Vehicle traffic on wet as well as dry road surfaces has the effect of displacing gravel from the roadway.

Pedestrian traffic across roadway areas that have been weakened by vehicular traffic (or by other means) exacerbates the deterioration of the roadway. For example, vehicles have a greater probability of loosening and displacing gravel from the exposed roadway surface. Gravel loosened or displaced by vehicles can be displaced and further removed by pedestrians kicking, scuffing or treading on the roadway. Loosened roadway gravels tends, as a matter of course, to eventually be entirely removed from the roadway and onto slopes below the roadway.

The effects of equestrian or bicycle use on Pogonip historic roadways are not currently known. It is likely that allowing such use will result in effects that are at least comparable to that of pedestrian traffic. All of the cautions related to pedestrian trail use would be applicable to equestrian and bicycle use on trails. Monitoring of equestrian and bicycle use would be appropriate in order to ascertain whether such use has potential adverse effects on trails that vary significantly from pedestrian use.

Pedestrian traffic typically has a nominal effect on relatively stable road surfaces. Pedestrian traffic should be restricted from road margins on the downslope sides of roads in settings where the pedestrian traffic could contribute to the weakening or removal of historic road materials. Pedestrian traffic across persistent wet areas should be avoided. These same precautions should be applied to equestrian and bicycle use, should it be permitted in Pogonip.

Any situation in which an area of a historic roadway has been weakened should be evaluated for its ability to accommodate visitor use. If there is the perceived potential that visitor use can exacerbate a deteriorating road condition appropriate measures should be taken to restrict any type of traffic on the roadway until the roadway condition can be rehabilitated in order to arrest the deterioration.

Historic Roadway Assessment and Documentation

In addition to implementation of the Historic Maintenance Guidelines, it is also recommended the historic roadways be clearly identified and mapped. A cursory examination of the road surfaces along Spring and Rincon trails indicates that the condition of the historic road fabric varies widely. It is not known whether some or all of the components of the roadway structure exist in all roadway segments and how the

roadways may have been modified over time. At some locations it would appear that the road fabric is entirely removed; at other spots the surface gravel has been removed but road base material remains; and at other places there are fragments of the entire road structure that appear to have survived in good condition.

Those portions of the historic roadways that are in the best condition should be identified and efforts made to maintain them in order to preserve their current condition. The City may decide that roadway segments that are in poor condition do not warrant efforts to preserve them. In order to make these types of management decisions, however, the entire length of the roadways would need to be examined and their condition over measured intervals determined.

A simple recording system could be adopted and marked on base maps. Road segments would be evaluated as to condition of the road structure. For example,

Excellent - all parts of the road structure are preserved over a continuous length of roadway; original roadway margins can be discerned or are substantially preserved;

Very Good - all parts of the road structure are present but may be discontinuous over a length of roadway; some original roadway margin can be discerned;

Good - most of the surfacing gravel of the roadway is removed, base rock is exposed but the roadway is clearly recognizable;

Fair/Poor - all of the surface gravel is missing and the base rock is substantially displaced or missing; the road material may be distributed discontinuously;

Missing - all of the road structure is missing;

Unknown - it cannot be determined from surface inspection that historic road material is present at a specific location.

In addition to the physical assessment, historical research should also be conducted to determine the actual dates of construction of the roadways, method of construction, and historic maintenance procedures.

Information regarding how the roads were historically maintained or reconstructed in the past is useful for today's maintenance Guidelines.

Comprehensive Historic Road Maintenance Program

A comprehensive approach to road maintenance is recommended. Ideally, this would involve a complete examination of Spring and Rincon Trails by an erosion control specialist with all erosion and drainage problems identified on a map. This should build upon the status report and erosion control projects previously initiated or completed. Once the erosion and drainage problem inventory is completed, it could be utilized in conjunction with the historic roadway condition inventory to prior areas for management and maintenance.

Repairing a road segment that has been seriously damaged due to erosion is usually far more costly than paying to build a simple drainage control feature to prevent erosion in the first place. A proactive program of preventative maintenance is the most cost-effective way to ensure the preservation of the historic roadways at Pogonip.