An Advocate Plan for **Claremont Canyon**

By the **Claremont Canyon Conservancy**

Table of Contents

Photo by Joe Engbeck

President's Letter

This plan celebrates a ten-year effort of many people both within and outside of the Conservancy's membership. It combines the knowledge and experience of people who know Claremont Canyon like their backyards with the technical skills of those who spend their lives actually working in laboratories and the field. Now it is yours to read and discuss.

This dynamic plan describes what the Conservancy would like to see accomplished in the Canyon. It was drafted after years of discussions with agency people responsible for managing land in the Canyon. As a result, there is broad agreement on the goals and work proposed. We know it will be revised as research continues, new information surfaces and scientific ecological knowledge and understanding increases. We encourage that to happen.

Our goals include reducing the hazard of wildfire in the Canyon, removing invasive exotic trees and brush, and letting the Canyon seek its own evolutionary eco-balance. We propose a limited set of trails to facilitate removal of invasives and to allow hikers and others to enjoy fully being enclosed in a truly unique area of wild-lands near a dense urban area. To increase general awareness of the canyon's treasures, we offer educational nature walk events several times a year, led by authorities on its geology, flora and fauna.

The Conservancy is a community-based volunteer organization, funded by grants, membership dues and donations for specific projects. More than 400 families are now members, and we are still growing. Come join with us in helping restore and maintain what Nature has given us. Ways to contact us are included at the back of this publication. We would like very much to hear from you, or, better yet, for you to become a member and receive our newsletters and event notices. Participation in field projects is always welcome, whether you are a member or not.

Thanks in advance for your help and understanding in keeping the Claremont Canyon the natural gem that it is.

Sincerely,

L. Tim Wallace, *President*
Claremont Canyon Conservancy

An Advocate Plan for **Claremont Canyon**

By the **Claremont Canyon Conservancy**

Introduction

Claremont Canyon is the last relatively undeveloped canyon on the western side of the Oakland-Berkeley Hills. Located directly east of the Claremont Hotel, it includes about 500 acres of land, and features north coastal scrub, oak/laurel woodland, eucalyptus groves, grassland, and a riparian zone alongside Claremont Creek. A paved road, Claremont Avenue, passes through the canyon to its intersection with Grizzly Peak Boulevard and Fish Ranch Road, but most of the canyon is still in relatively natural condition and accessible only by trail. Three public agencies own most of the canyon, although residential subdivisions take up about 125 acres along Alvarado Road and a handful of other streets in the southwesterly part of the canyon.

Privately owned homes in Claremont Canyon and in Temescal Canyon, directly to the south, were destroyed by fire in 1970 and again in 1991. In fact, twenty-five people lost their lives during the 1991 fire and more than 3,000 homes were destroyed or severely damaged. Though not the most extensive wildfire in California history, it was the most destructive in economic terms. As a result of this experience, residents of the area are extremely sensitive to the threat of such fire.

The Claremont Canyon Conservancy was formed in 2001 to deal in a balanced way with the ongoing threat of wildfire and the related desire to preserve long-term natural landscape values throughout the canyon. In this endeavor, the Conservancy has chosen to pursue a science-based approach to vegetation management as the key to both wildland preservation and wildfire hazard reduction. As part of that effort, the Conservancy has made an effort to become familiar with the vegetation management strategies of various public agencies, including the U.S. Forest Service, Calfire, the National Park Service, the California State Park System, the East Bay Regional Park District, the East Bay Municipal Utility District, and the University of California, Berkeley. The last three of those public agencies are the principal owners of land in the canyon.

In addition, we have studied the literature on vegetation management produced by independent experts who have published their findings in peer-reviewed academic

and professional journals. After reviewing this literature and after conferring directly with leading experts in the field of vegetation management, the board of directors reached the conclusion that in some areas, especially those in which anthropogenic disturbance has been severe, the long term preservation of natural landscape values in the canyon must sometimes include restoration work, including removal of eucalyptus, pine, acacia, broom, yellow starthistle and other highly invasive, non-native trees and shrubs.

In addition to becoming familiar with the available literature and conferring with experts, we also shared bibliographical information with our membership, conducted field trips, and organized guest lectures in an effort to build an intelligent constituency for Conservancy policies.

Practical, hands-on vegetation management work has been limited to actions that the Conservancy's board of directors has approved in advance on a consensus basis. In those situations, and always in close cooperation with the affected landowners, the Conservancy has used volunteer workers to carry out vegetation management projects. In other cases, Conservancy involvement has taken the form of financial support to the landowning public agency for specific and well defined vegetation management projects.

This document does not pretend to create new policy. It is simply an attempt to gather the Conservancy's established vegetation management policies into one relatively concise document. We recognize that not everyone will agree with every detail of our management plan, but we hope this document will make it easier for people to understand and support our approach to managing the canyon. We believe this is especially important in Claremont Canyon since no one—no landowning public agency or non-profit organization—is responsible for managing the canyon as a whole.

Since this plan is not an official governmental plan or even a statement of intent by a landowner, its purpose is mainly to inform and perhaps persuade others that our stated policies make sense. For this reason we refer to this document as an advocate plan for Claremont Canyon.

The Canyon's Natural History

As a topographic feature, Claremont Canyon is a very recent phenomenon. It has been carved down into the sedimentary rock—much of it Franciscan chert—that has been transported to its present location and then folded and uplifted as the East Bay Hills were formed. This sedimentary rock was laid down layer by layer on the floor of the ocean between nine- and sixteen-million years ago. Generally referred to as Franciscan or radiolarian chert, it has provided clues that have enabled geologists to decipher important chapters in the evolution of the San Francisco Bay Area landscape. It is now understood, for example, that the oldest rock of this kind was deposited on the floor of the ocean in deep water and that it consists largely

of the skeletal residue of untold millions of radiolaria, diatoms, foraminifers, and other microscopic, single-celled plants and animals.

Movement of the earth's crust, especially along the San Andreas and Hayward faults, gradually changed the position of the California coastline and caused the old chert layers on the seafloor to become part of an uplifted continental landmass. Evidence of this ongoing process can be seen in the fact that the chert in upper Claremont Canyon—part of the Orinda Formation—is younger and more continental in character than the deep ocean radiolarian chert that is found in the lower more westerly part of the canyon. A dramatic exposure of this chert can be seen about a mile and a quarter east of the Claremont Hotel where an old quarry operation stripped away the surface soil and left vertical layers of radiolarian chert exposed to the sunlight of the passing years.

The fact that this chert exposure consists of layers that have been tipped up into vertical position is a dramatic reminder that the East Bay Hills are in a seismically active area. The biggest and most active fault in the East Bay is the Hayward Fault, which runs north-south along the foot of the hills, passing directly under the Claremont Hotel and the University of California's Memorial Stadium. To the west—between the hills and the bay—a wide, flat plain slopes gradually down to the bayshore. It is made of alluvium that has washed down out of the hills. East of the Hayward Fault, the land rises sharply up to a 1,500-foot-high ridge that marks the crest of the Oakland/Berkeley Hills. These hills have been uplifted by folding, faulting, and compression associated with the collision of the oceanic plate with the western edge of the continent of North America. That process, including uplift of the hill area, is continuing. In addition to the Hayward Fault on the western side of the hills and the Moraga Fault (running through Orinda and Moraga) east of the

Oakland/Berkeley Hills, many small faults run through the hill area, some more active than others. Movement along those faults, combined with the effects of rapid erosion has produced a jumble of soil types that includes marine, alluvial, and volcanic material. Grizzly Peak and other high points along the crest of the Oakland/Berkeley Hills are composed of erosion-resistant volcanic materials, including lava, volcanic ash, and breccia, that were probably deposited some nine or ten million years ago during the eruption of Round Top (elevation 1,673 feet) in what is now Sibley Volcanic Regional Preserve.

For further reading:

Edwards, Stephen W. "A Self-guiding Tour of Round Top Volcanoes," East Bay Regional Park District, 2004

Howard, Arthur D. *Geologic History of Middle California*, U.C. Press, Berkeley, 1979

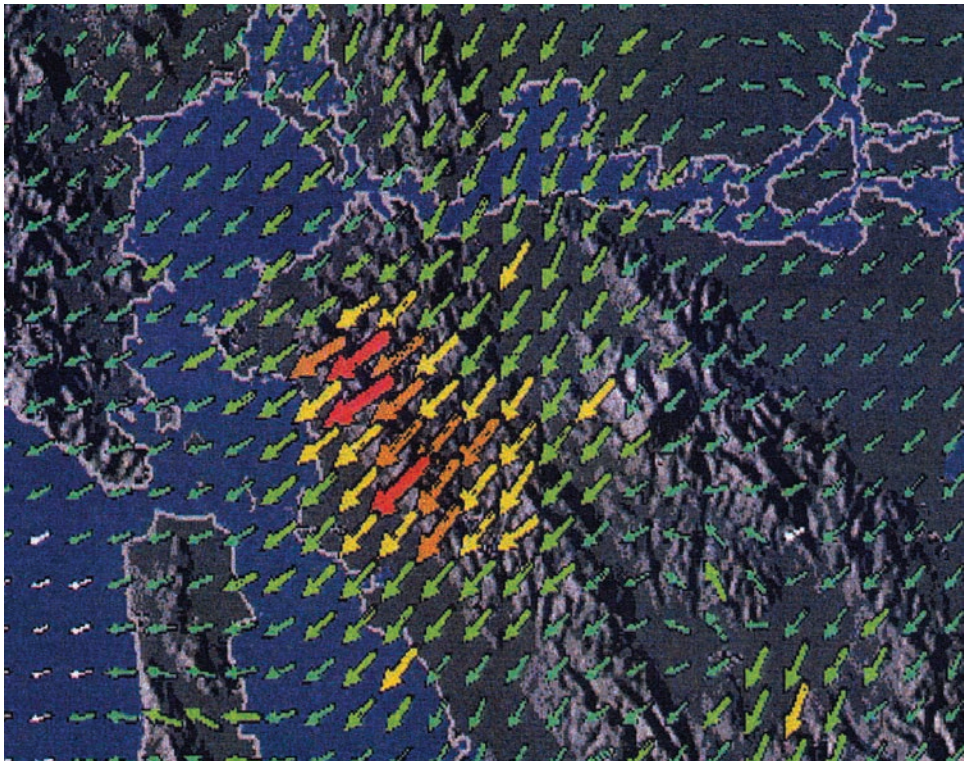
Howard, Arthur. *Evolution of the Landscape of the San Francisco Bay Region*, U. C. Press, Berkeley, 1962

McPhee, John. *Assembling California*, The Noonday Press, Farrar, Straus and Giroux, New York, 1993

Sloan, Doris. *Geology of the San Francisco Bay Region*, U.C. Press, Berkeley, 2006.

Climate

Meteorologists classify the climate of the San Francisco Bay Region as a Mediterranean west coast climate. That is, it features mild, wet winters and warm, dry summers. Warm dry conditions prevail from May to October, with high temperatures ranging from 64° to 71°F and low temperatures ranging from 51° to 55°F. The rainy season from November to April is slightly cooler with high



temperatures of 58° to 64°F and lows of 46° to 51°F. In a typical year, rainfall occurs on about 67 days. Annual precipitation averages 20.4 inches. The mediating influence of the bay and ocean makes snow extremely rare. Only ten instances of snowfall heavy enough to cover the ground have been recorded since 1852. The most recent snowfall occurred in 1976.

Summer temperatures are moderated by the fog and low clouds that typically move in over the coast as a result of the offshore Pacific high-pressure pattern and lower atmospheric pressure in California's inland valleys. This almost daily onshore movement of moist air carries a significant amount of moisture to the vegetation in Claremont Canyon even during the dry season. The process begins with cold-water upwelling offshore mixing with the warmer air and water associated with the Pacific Current. Fog and low stratus tend to form all along the coast of northern California and then move inland through gaps in the coastal mountains. Claremont Canyon experiences more of this fog and low-cloud activity than other East Bay areas immediately to the north or south because the canyon is directly inland from the Golden Gate, the only sea-level gap in northern California's Coast Range hills and mountains.

The risk of wildfire in Claremont Canyon is most severe in October and November—near the end of the long dry season. The risk is especially severe on those occasions when the Pacific High has moved inland over the continent, reversing the normal weather pattern. Under those conditions, warm, dry air moves from the northeast to the southwest— from interior California to the coast—before continuing out to sea. As long as such "Diablo Wind" conditions persist, temperatures rise, humidity decreases, vegetation dries out, and the ignition point becomes easier to reach. Over the years, all of the canyon's major wildfires have occurred under those conditions.

For Further Reading

Byers, Horace., 1930: "Summer Sea Fog of the Central California Coast." *University of California Publications in Geography*, Vol. 3, No. 5, pg 291-331

Edinger, James G. *Watching for the Wind, The Seen and Unseen Influences on local Weather*, Doubleday & Company, Garden City, 1967

Gilliam, Harold, *Weather of the San Francisco Bay Region*, U. C. Press, Berkeley, 2002

Stewart, George R. *Storm*, Random House, New York, 1941

Vegetation

Steep terrain, complex topography, and diverse soil types have combined to create a welter of microclimates within the canyon. Temperature and wind conditions are also more variable than in the flatlands to the west. As a result, vegetation types are more diverse than in the flatlands immediately to the west. Anthropogenic factors have also added to the diversity of the canyon's native vegetation. The combined result of these factors makes it difficult to be sure what the canyon's native vegetation was like before human influence became significant. In 1974, Joe McBride, a forester at U.C. Berkeley with special interest in forest ecology and urban forestry, reported on vegetative trends and conditions in the East Bay Hills after most hill-area livestock grazing ended in the 1930s. According to L. T. Burcham, a grasslands specialist with the California Division of Forestry, domestic livestock grazing began in the hill area in 1776 and increased until it reached its peak in the 1920s and 1930s. For the purposes of his report, McBride identified eleven vegetation types in the East Bay Hills, including the five most important types in terms of their extent of distribution:

Grassland (43%)
Baccharis brushland (21%)
Oak (*Quercus agrifolia*) woodland (17%)
Bay (*Umbellularia Californica*) woodland (7.4%)
Redwood (*Sequoia sempervirens*) forest (2.3%)

On the other hand, soil-phytolith-based research by Peter John M. Hopkinson, a U.C.B. research scientist, suggested that a basic revision of this view is warranted. Hopkinson's paleoecological research casts serious doubt on the premise that grassland was the dominant vegetation type in the hill area. As he himself warned, "Alert researchers and other ecological workers [should] be wary of history-based assumptions about past ecosystem conditions or dynamics."

In his Ph.D. dissertation, (completed in 2003) Hopkinson points out that most observers have assumed that grasslands in the East Bay Hills "were continuous bunchgrass-dominated grasslands before the Spanish settled in the area." Hopkinson's research revealed, however, that prior to the coming of Europeans, Baccharis-dominated northern coastal scrub and oak-, bay- and redwood-dominated woodlands were the primary vegetation types."

"Native bunchgrasses may always "have been present as an understory component of the shrubland and woodland types. . . or they may have invaded the area along with the non-native species" that Spanish soldiers, settlers, and missionaries brought to California in the 18th Century.

Hopkinson's phytolith research raises a basic question: If grassland was not continuous in the Oakland/Berkeley Hills prior to European settlement, then what vegetation type did cover those hills? Hopkinson's tentative conclusion is that the grasslands that are so clearly visible in early photos of the East Bay Hills were "perhaps not representative of the pre-European vegetation but were, rather, an artifact of the activities of Europeans and their associate species over the previous

century. The obvious candidates for what may have occupied the sites instead are shrubs and/or trees."

In his conclusion, Hopkinson reports that "several lines of evidence . . . support the proposition that Baccharis-dominated northern coastal scrub may have been the primary vegetation type in the East Bay Hills prior to settlement by the Spanish, although tree-dominated types were likely also important.

Jon Keeley, a research ecologist with the U.S. Geological Survey, concurs with most of Hopkinson's conclusions, but gives greater importance to the long term, cumulative impact of Native American vegetation management—particularly Native American use of fire—as the reason why grassland was so widespread when Spanish soldiers, settlers, and missionaries arrived in California. In a professional paper entitled "Fire History of the San Francisco East Bay Region and Implications for Landscape Patterns," Keeley describes the landscape of the East Bay as a "rich mosaic of grasslands, shrubland and woodlands that is experiencing losses of grassland due to colonization by shrubs and succession towards woodland associations. The instability of these grasslands is apparently due to their disturbance-dependent nature coupled with Twentieth Century changes in fire and grazing activity." Keeley used fire history records to determine the potential for fire in the East Bay region and to explain changes in the distribution of vegetative types during the second half of the Twentieth Century when shrubland increased and grassland shrank.

Keeley notes that the region has "a largely anthropogenic fire regime with no lightning-ignited fires in most years." He also notes that wildfires have occurred more frequently as the area's human population has increased. Fire suppression policy has not eliminated wildfire from the area, but has reduced the extent of most fires and kept the overall acreage burned from increasing. Keeley believes that fire has not been a major factor in the colonization of grassland by shrubs, and that cessation of grazing during the Twentieth Century is a more likely immediate cause. He hypothesizes that "before the entrance of people into the region, grasslands were of limited extent and that Native Americans played a major role in creation of grasslands through repeated burning. These disturbance-dependent grasslands were maintained by early European settlers through overstocking of these rangelands with cattle and sheep." More recently, the cessation of grazing, coupled with a lack of naturally occurring wildfire and effective suppression of anthropogenic fires, have acted in concert to favor shrubland expansion.

Many factors—from geology and soil type to weather and climate, topography, livestock grazing, and fire—have combined to produce the vegetation patterns that exist today in Claremont Canyon. As a result of all these factors, an oak/laurel forest covers much of the canyon, particularly on north- and northeast-facing slopes, and open grassland still thrives in a few places although over the last fifty years, baccharis-dominated chaparral has gradually taken over much of what used to be grassland especially on the canyon's warm, dry, south-facing slopes.

In the eastern-most part of the canyon, about 5,000 coast redwood seedlings have been planted alongside the upper canyon's main watercourses by Conservancy volunteers. This project was carried out in close cooperation with the University of California, which holds title to that part of the canyon. The redwood seedlings were

grown from seed collected from naturally occurring redwoods two or three miles to the south. They are intended to replace the 8,000 or more eucalyptus trees that were removed during the last few years by the University. It is expected that the redwoods will shade out some of the brush that now exists in the upper canyon and create a cool, moist, relatively fire-safe redwood forest.

Plants of special interest that can be found in the canyon include western leatherwood (*dirca occidentalis*) and oracle oak, which is thought to be a hybrid of black oak and interior live oak. Neither black oak nor interior live oak are now present in the canyon.

The Role of Fire in the Canyon

Over the centuries, fire has played an important role in the evolution of Claremont Canyon's natural ecosystems. As in other parts of the Coast Range, vegetation patterns in the canyon include grassland, Baccharis-dominated shrub land, and oak/bay woodland. Those vegetation types are adapted, each in their own way, to recurrent wildfire. If should be kept in mind, however, that the frequency of fire has probably changed quite dramatically over the centuries in response to both natural and anthropogenic factors. Wildfire was probably uncommon, for example, during the Pleistocene ice age and during the wet period that followed the end of the most recent ice advance.

During the most recent major ice advance—the Wisconsin Ice Episode—great sheets of ice formed over parts of North America, and though they remained far to the north of California's Coast Range, cool temperatures are thought to have prevailed throughout much of the northern hemisphere for as much as 30,000 years. Paleontologists and other experts believe the ice advance reached its maximum extent some 21,000 years before the present and then receded rapidly about 10,000 to 12,000 years ago. The Pluvial or Post Pluvial Period that followed the last ice advance was characterized by heavy precipitation, widespread erosion, and the formation of large, inland freshwater lakes. Then, during the 4,000-year-long Altithermal Period (8,000 to about 4,000 years before the present) drought and wildfire probably occurred more frequently throughout California's Coast Range, including Claremont Canyon.

Archeological evidence indicates that human beings began to colonize the west coast of North America 15,000 to 20,000 years ago. As the number of human residents increased, the frequency of wildfire increased, and, as Keeley and others have noted, the "human disruption of natural fire regimes has contributed to widespread invasion by nonnative species."

Keeley points out that in the Coast Ranges and in the foothills of the Sierra Nevada and Cascades, human activity has radically increased the frequency of fire, thereby helping to "convert shrubland and closed-canopy woodlands into annual grasslands dominated by grasses and forbs that originated in the Mediterranean Basin." As Keeley concludes, returning these landscapes to their former closed-canopy condition is the only way likely to reduce the presence of non-natives.

This is an important consideration for those who would preserve and/or restore the natural landscape of Claremont Canyon. Fortunately, the Conservancy's preservation and restoration goals are largely compatible with the Conservancy's commitment to reducing the risk of future wildfires in the canyon. The Management Plan, which is presented next in this document, describes how these two separate but interrelated goals—natural landscape preservation and wildfire hazard mitigation—can be pursued in a coordinated and cost-effective way.

For Further Reading

Anderson, R. Scott. "Contrasting Vegetation and Fire Histories on the Point Reyes Peninsula During the Pre-Settlement and Settlement Periods: 15,000 Years of Change." Final Report to the Center for Environmental Sciences & Education & Quaternary Sciences Program, June 2005

Burcham, L. T. *California Range Land: An Historico-Ecological Study of the Range Resources of California*, California Division of Forestry, Sacramento, 1957

Hopkinson, Peter John M. "Native Bunchgrass Diversity Patterns and Phytolith Deposits as Indicators of Fragmentation and Change in a California Coast Range Grassland," Ph.D. dissertation, Department of Environmental Science, Policy and Management, University of California, Berkeley, December 2003

Keeley, Jon E. "Fire History of the San Francisco East Bay Region and Implications for Landscape Patterns," U.S. Geological Survey Research Center, Three Rivers, 2006

Keeley, Jon E. "Lessons From the October 2003 Wildfires in Southern California, A Close Look at Recent Wildfires Reveals Ways that Mansgement Policy and Planning Could be Improved," *Journal of Forestry*, 102, no.7, 2004 , Society of American Foresters, 2004

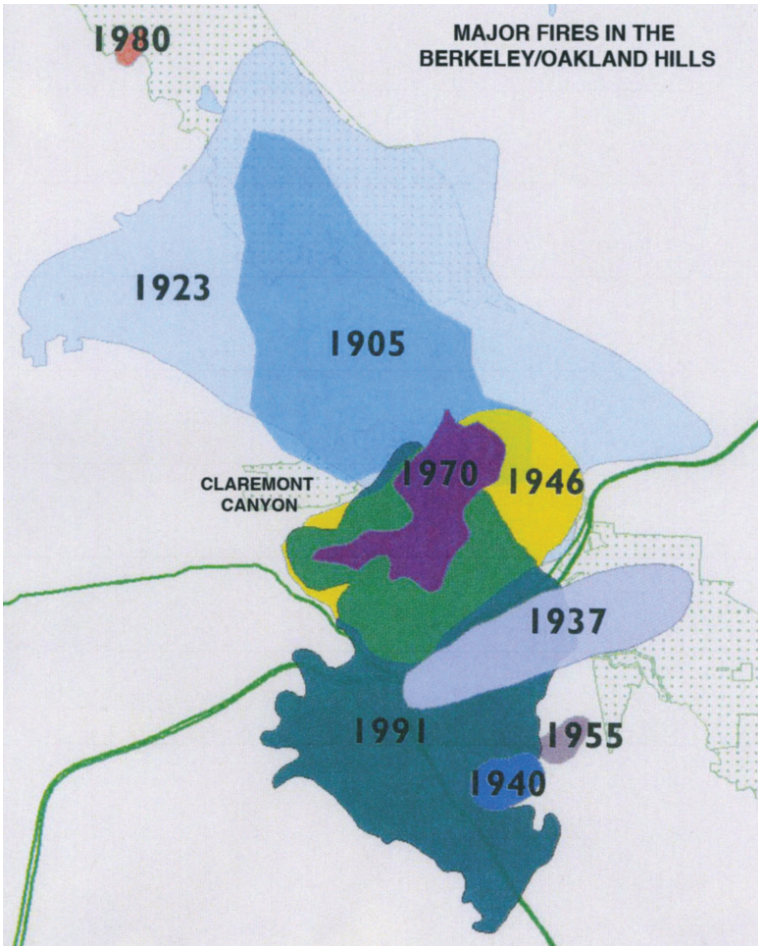
Keeley, Jon E. "Fire and Invasive Plants in California Ecosystems," *Fire Management Today*, Vol. 63, No. 2, Spring 2003

McBride, Joe R. "Plant Succession in the Berkeley Hills, California." *Madroño*, Vol. 22, No. 7, pp317-280, University of California, Berkeley, 1974

Coping with Wildfire in the Canyon

The historical record makes it clear that wildfire is certain to occur again in Claremont Canyon. During the past century, five of the largest fires in the East Bay Hills and numerous smaller fires either spread into or actually ignited in Claremont Canyon. The three most destructive of those wildfires destroyed homes, resulted in death and injury, and caused significant financial loss. Following the 1991 fire, public agencies and canyon residents began searching for ways to reduce their individual and collective exposure to wildfire. This objective is already seen as a matter of great urgency, but there are indications that the threat of wildfire can be expected to get worse. The Union of Concerned Scientists has reported that recent climate change models for California predict at least a 50 percent increase in the number of wildfires is likely to occur in this century, and that the presently expected 12 days of extreme weather in the San Francisco Bay Area each year will increase to 90 days per year by 2100. If this dire prediction proves accurate, it will be more important than ever that homes be made more fire resistant, and that neighborhoods develop and maintain adequate buffer zones.

Mitigation of the wildfire hazard including home protection strategies have been called for in all of the most relevant fire hazard reduction plans that have been adopted by public agencies in recent years. (1982, 1995, and 2010.) All three of these plans call for creation of defensible space around structures and for retrofitting



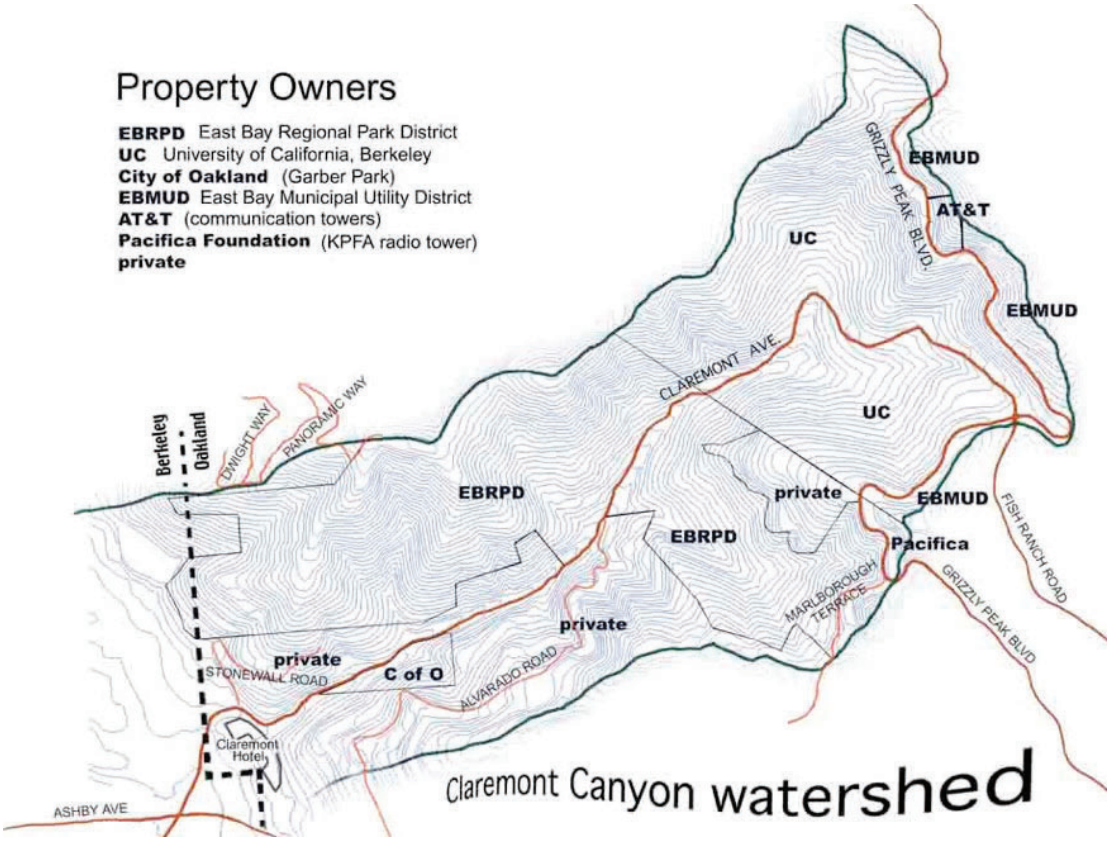
homes so that they will resist wind-driven firebrands and other means of wildfire-related ignitions. These plans also call for the creation of fuelbreaks on ridge tops and along the edge of residential areas. Those fuelbreaks should be created and maintained by public agencies with the assistance and support of homeowners and other volunteers who can be expected to step forward to assist in firefighting at strategic locations. Removal or management of high-risk eucalyptus and pine groves is necessary to reduce the potential for crown fires and spotting in residential areas. All three plans envision fuelbreaks bordered by well-prepared homes in fire-adapted residential areas where firefighters can hope to control wildfire at the urban edge or within neighborhoods.

Those who are fortunate enough to live in or near Claremont Canyon know that this is a spectacular location for a residence and a wonderful place to raise a family. Benefits include spectacular views of the bay or of unspoiled natural landscapes within the canyon, plus easy access to nearby parkland, and the convenience of a wide range of urban amenities not far away. Fortunately, all this can be protected through advance planning, home preparation, and the maintenance of defensible space.

The Claremont Canyon Conservancy

The Conservancy was formed in 2001 and incorporated as a non-profit, public benefit 501(c)3 corporation under federal law. The intention was to reduce the risk of wildfire, improve public access by way of a carefully limited system of walking trails, while protecting, maintaining, and restoring the natural beauty of Claremont Canyon.

To accomplish these objectives the Conservancy works with the canyon's primary landowners—the University of California (UC), the East Bay Regional Park District (EBRPD), the East Bay Municipal Utility District (EBMUD), and the City of Oakland. Since none of these organizations is responsible for the canyon as a whole, the Conservancy tries to keep the watershed-wide perspective in mind at all times and to remind others—especially the canyon's primary landowners—that the land they own is part of an entire watershed.



The Vegetation Management and Fire Risk Reduction Plan

The following fire safety policies and their site-by-site practical applications have been reviewed and approved by the Claremont Canyon Conservancy as representing the Conservancy's best judgment about how to reduce the threat of wildfire and improve access to the canyon by trail while protecting and restoring the canyon's natural landscape.

We recognize that these objectives conflict with each other to some extent, and that judgments must therefore be made about the relative importance of various factors, including the original cost of implementation and the ongoing cost of maintenance. We also recognize that the Conservancy does not own any land in the canyon and therefore does not have the last word on any of these questions. All we can do, therefore, is to work with the canyon's landowners and to advocate—that is, to advise and try to persuade land owners to do what we think best—given what we have learned about the issues and in light of our vision of the canyon as a whole.

In addition to its role in the public policy arena, the Conservancy also supports a variety of educational programs designed to increase public awareness and appreciation of the canyon while building an informed constituency for intelligent management of the canyon. Educational programs include guided walks and tours, lectures by experts on a wide variety of topics, and information about the most effective measures that private property owners can use to protect their properties from wildfire.

The clearing of defensible space around individual homes is central to the protection of individual homes and of whole neighborhoods all around the canyon. Fuel reduction zones, also known as buffer zones, are a crucial part of our wildfire protection plan. In addition, strategic management of vegetation on public lands adjacent to the urban/wildland interface is important if wildfires are to be fought effectively by firefighters and residents. Access corridors and staging areas for firefighting equipment also need to be protected by buffer zones in which vegetation has been reduced in volume. Knowledgeable experts should be involved in the development of site-specific plans that can take into account such factors as slope, wind exposure, and vegetation type. While the main emphasis is on reducing invasive vegetation such as eucalyptus, broom, and acacia, native vegetation may also be removed if necessary to meet the needs of an overall, canyon-wide pre-disaster mitigation effort.

The Polygons

The Park District's 2010 Fire Hazard/Resource Management Plan and EIR calls for fire hazard reduction work to be done in 11 polygons within Claremont Canyon. In February 2011, the Fire Safety Committee of the Claremont Canyon Conservancy began discussing potential fire hazard reduction projects with U.C., EBMUD, and EBRPD representatives. A draft report was then produced which identified 27 polygons and made other more general recommendations for fire hazard reduction work. The Conservancy's 27 polygons include all of the polygons identified in the Park District's 2010 report, but is more specific geographically and more detailed in its prescriptions.

The Conservancy's advocate plan follows the format and numbering system developed by the Conservancy's Fire Safety Committee, and accepts all of that committee's recommendations except for a few that conflict with (1) broad policy guidelines established by the Park District for the management of natural preserves or (2) the Conservancy's public access goals and natural landscape preservation objectives.

This advocate plan recommends that work proceed in all 27 polygons because they are located at the wildland urban interface and will support firefighting efforts near residences, along evacuation corridors, and along ridgelines. The 11 polygons on Park District land in Claremont Canyon are consistent with work proposed in the 2010 Park District Plan with the exception of the shrubland conversion proposals in Polygons CC009, CC010, and CC011. The Conservancy believes that converting biologically rich shrublands in Gwin Canyon and along the canyon's south facing slope above Claremont Avenue to 70 percent grassland and 30 percent shrubland is both unrealistic and unmanageable.

The shrubland to grassland conversion idea began as a proposal in the Environmental Impact Assessment report for the Park District's FEMA project in 2003. It was intended to combine prescribed fire research and whipsnake research in which the Park District would use a track-propelled "All Terrain Brushing Machine" or ATBM—also known as a "Brontosaurus"—to mow an area of shrubland down to about two feet in height. Prescribed fire would then be used to maintain the area as grassland. The main objective of this program was to reduce flammable fuel loads while creating new whipsnake habitat on Panoramic Ridge and its south-facing slopes. It has since been determined, however, that shrubland—not grassland—is the preferred habitat of whipsnakes. Moreover, mowing shrubland tends to accelerate the invasion of French broom, mayten, and other highly invasive and flammable non-native shrubs. (See also page 22.)

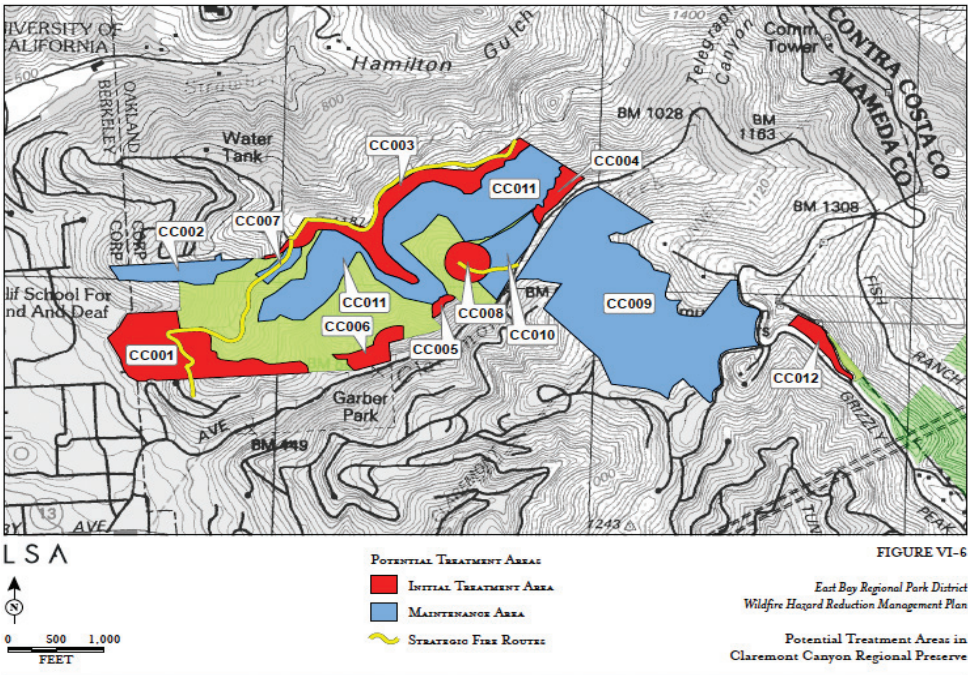
The Conservancy also believes that using prescribed fire to manage vegetation in Claremont Canyon is inadvisable due to the steepness of the terrain, air quality concerns, and the possibility that prescribed fires could escape into nearby residential areas as a result of sudden changes in weather conditions—especially wind speed and direction in this little canyon which is, after all, directly across San Francisco Bay from the Golden Gate. Moreover, to be effective, such a management regime would have to involve repeated treatments—say, every three to five years

or at least every ten years—which would tend to make the program prohibitively expensive.

The Park District is currently waiting for a biological opinion to be issued by the U.S. Fish and Wildlife Service and the other federal agencies that are participating in the development of FEMA's Programmatic Hazard Reduction Plan and its companion environmental impact statement.

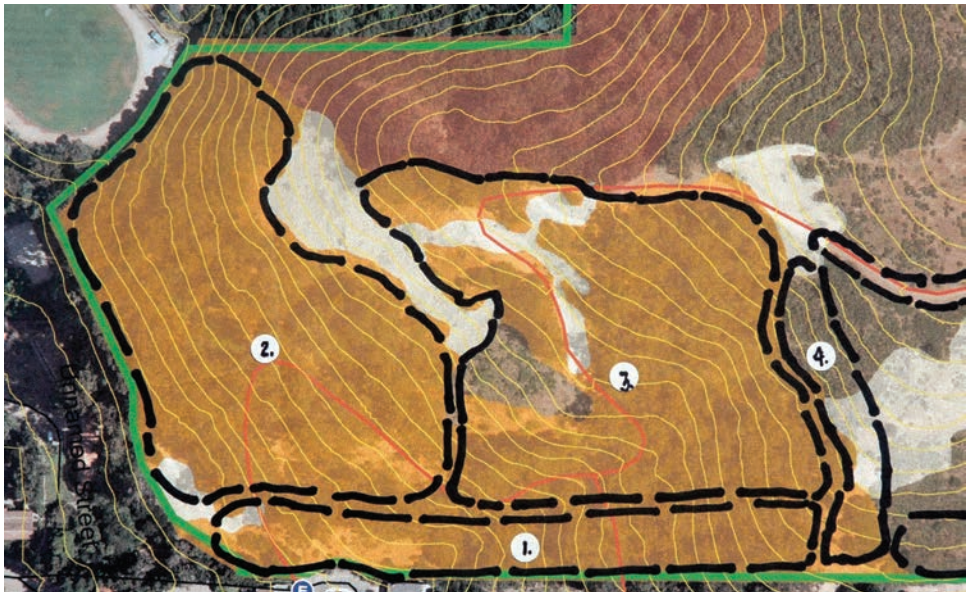
The following descriptions of resource management proposals for each of 27 polygons have been compiled after discussion with representatives from the University of California, the East Bay Municipal Utility District, A.T.&T., the East Bay Regional Park District and the City of Oakland.

Polygons in the Park District Fire Hazard Reduction Plan



Parkland Polygons Overlaid on an Aerial Photo

Stonewall Buffer Zone: Polygons 1 to 4



The advocate plan divides the Stonewall Eucalyptus Grove (CC001) into five distinct areas with suggested work described for each one. The first is a 200-foot-wide buffer between the grove and homes along Stonewall Road. The second is the lower grove that has been thinned and periodically maintained by the Park District. The fourth is the 200-foot-wide buffer zone between the hillside shrublands and the upper eucalyptus grove. The fifth is the fuelbreak between homes and the hillside vegetation along Stonewall Road and Claremont Avenue.

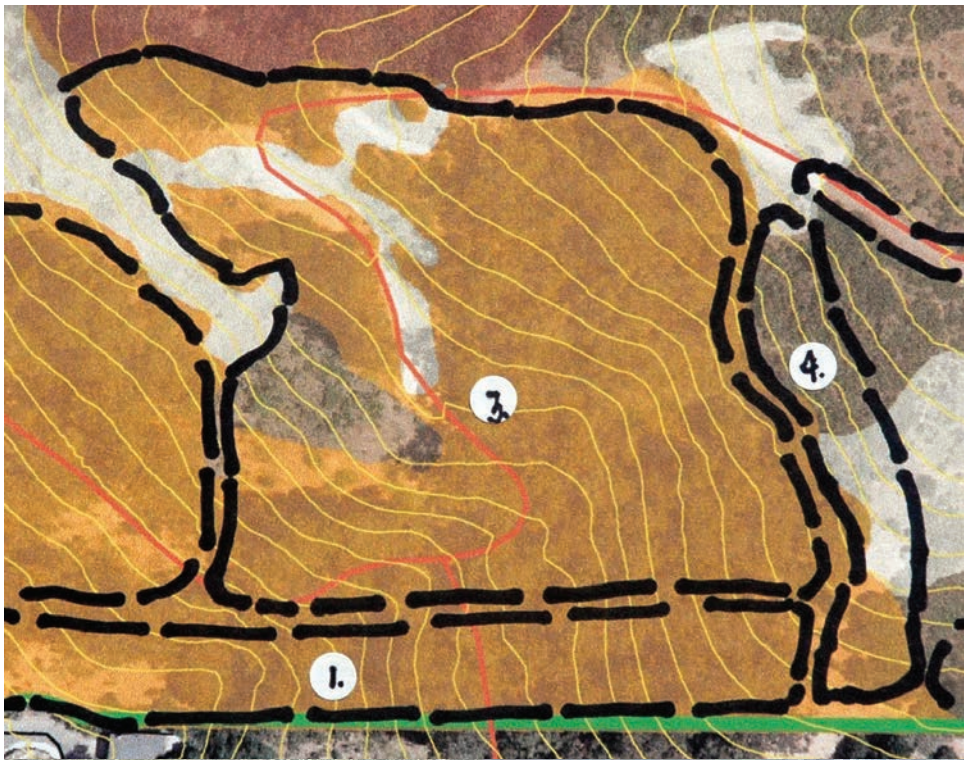
Polygon 1: Upper Stonewall Buffer Zone

This polygon is located on the south-facing slope of the canyon above the EBMUD water tank and private homes that overlook Claremont Avenue. The Conservancy agrees with and has actively supported the Park District's Wildfire Hazard Reduction Plan for the Stonewall Buffer Zone. The District's plan calls for the removal of eucalyptus trees within 200 feet of the homes in this area. In 2006, working in close cooperation with the Park District, the Conservancy removed eucalyptus trees in this area using a grant from the U.S. Fish and Wildlife Service supplemented by funds provided by local homeowners. Two years later, the EBRPD removed another cluster of eucalyptus trees from a nearby area. This buffer zone should be restored and maintained as a mixed grassland, shrubland, and native oak/laurel forest.

Polygon 2:
Lower Stonewall Buffer Zone

About half of the eucalyptus trees in this west-facing lower portion of the Stonewall Eucalyptus Grove were removed in the mid-1970s to create a more open forest. About 30 large trees were retained per acre. Since then, pile burning has been carried out periodically to remove branch, bark, and ground fuel. The goal is to keep all fires on the ground and out of the eucalyptus tree canopy. It should be noted, however, that this approach has not yet been tested by an actual wildfire, and so area residents are advised to prepare their structures to resist embers and firebrands that might blow into residential areas if a crown fire were to occur in the grove.

Polygon 3:
Upper Stonewall
Eucalyptus Grove



Small fires have repeatedly occurred in or just above this area as a result of homeless encampments. To minimize this hazard we recommend that the forest be thinned in such a way as to open up the eucalyptus grove, minimize the understory which includes patches of north coastal scrub and oak-bay woodland. All pine trees in and near the grove should be removed, though large, dead pines could be left in place for wildlife habitat. Unlike the lower portion of this eucalyptus grove, this upper portion was not thinned in 1970 because of difficult access and high costs. As a result, this upper grove is relatively dense and flammable. Thinning and regular pile burning should be used to minimize ground fuel with care taken to retain oaks and bays in the understory. Dense groves of eucalyptus tend to drop four to as much as nine tons of branch, bark, and leaf litter per acre per year. Regular ground cleanup and weed abatement is therefore essential.

Polygon 4:
Buffer Between the Eucalyptus Grove and adjacent shrublands

This 200-foot wide zone of grassland and scattered shrubs above the upper eucalyptus grove is currently being maintained by the Park District. This zone is intended to help firefighters keep a wildfire from coming down the ridge and entering the eucalyptus grove. This zone is a logical place for helicopters and other CalFire aircraft to drop retardant to keep fire from entering the eucalyptus grove where the presence of a very heavy fuel load might increase the intensity of the fire front so much as to make firefighting impossible.

Polygon 5:
Dwight Way Grassland (CC002)

In response to requests by the residents of Panoramic Hill, the Park District has maintained this residential-edge fuel break for the past 28 years. Residents of the area currently have only one narrow evacuation route to use in the event of a major fire. Continued goat grazing seems advisable due to the steep terrain, the absence of diverse native flora, and the presence of residential structures directly above a steep, mostly grass-covered slope. Panoramic Hill was identified in the 1995 Hills Emergency Forum Hazard Mitigation Plan as having "extreme fire hazard potential" and few measures provided to reduce wildfire exposure.

Polygon 6:
Stonewall Road–Claremont Avenue Residential Edge Fuelbreak (CC001 & CC006)

This polygon is located above the homes on Stonewall Road and Claremont Avenue. Native shrubs and oak woodland cover the upper slopes; Trees and shrubs have been planted on the adjacent private property. A 200-foot-wide fuelbreak along the park boundary above the homes should be created by converting the present shrubland to a mowed grassland with scattered patches of native shrubs and some oak trees. Oak/bay woodland in this zone should have lower branches trimmed up with understory shrubs kept low and dead branches, bark, and forest litter periodically removed. Residential areas should be managed by homeowners to establish defensible space around homes and other structures.

Polygon 7:
Stonewall Road to
Panoramic Ridge Trail

This trail corridor is the most heavily used pedestrian trail in the canyon. It starts at the Stonewall Road entrance to Claremont Canyon Regional Preserve, climbs up to the top of Panoramic Ridge and then follows the east-west-trending ridge all the way east to its connection with Grizzly Peak Boulevard near the crest of the Oakland/Berkeley Hills. Portions of the trail are exceptionally steep, rocky, unsafe, and difficult to maintain. Nevertheless, this is the only fire-trail that provides access to the westernmost slopes of Claremont Canyon for four-wheel drive fire trucks. It is intended to serve as a strategic zone where a fire might be stopped under some conditions.

French broom and other invasive non-native shrubs alongside the trail are a major concern. The Park District's Fire Hazard Reduction Plan recommends that a 30-foot wide fuel reduction zone be maintained on each side of strategic fire trails (60-foot total width). Broom and other invasive shrubs should be eliminated by (1) cutting and mowing each spring before seeds are set, and (2) cutting and mowing again in the autumn before the beginning of the fire season to encourage annual and perennial grasses to re-establish themselves alongside the trail. Measure CC, which was approved by the voters in 2004, included funding for trails in Claremont Canyon. Since trail improvements are needed here for the safety of hikers, this trail should be first in line for use of those funds.

Polygon 8:
Panoramic Ridge Grassland Management Area (CC003)

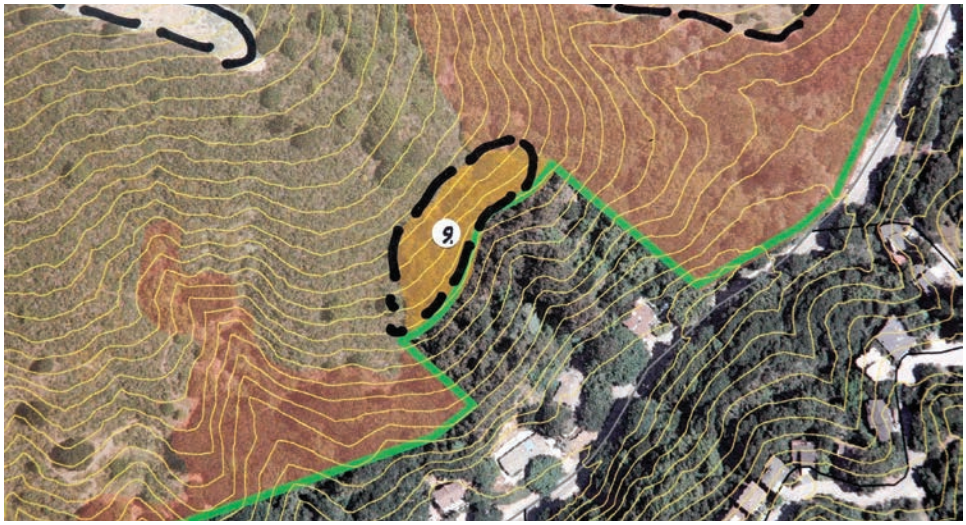
For many years, this 14-acre ridgetop area has been managed as grassland in order to create a fire-safe access corridor along the ridge for emergency vehicles. In order to broaden this ridgetop grassland area, some adjacent shrublands were mowed in 2004 using an "All Terrain Brushing Machine" or ATBM. The equipment is essentially a large, track-propelled mowing machine popularly known as a "Brontosaurus." In the years after the ATBM work was completed in 2004, largely as an unintended consequence of this brush removal work, but just as predicted by the Conservancy in 2003 and 2004, French broom has invaded the ridge-top corridor. It has been especially aggressive in the area that was cleared by the ATBM. To avoid this kind of set-back in the future, the ATBM should not be used to remove Bacharris-dominated north coastal scrub. In addition, soil disturbance associated with road maintenance and other soil disturbing activity in the area should be minimized. If further mowing of grassland is undertaken, no less than six inches

of grass should be left. If other options do not prove feasible or successful, IPM-approved use of winter flaming of broom seedlings and/or herbicide treatment of broom should be tried.

Aging pine and cypress trees on University land on the north side of the ridge have been limbed up and should eventually be removed to eliminate the possibility of the road being blocked by fallen trees, and to reduce the widespread distribution of burning firebrands and embers associated with an advancing wildfire coming from either the Strawberry or Claremont Canyon side of the ridge.

Under most conditions a properly maintained grassland area on the ridgetop is the logical place to establish and defend a ground-level fireline. Such a ridgetop grassland would also be a prime target for retardant drops by helicopters and other CalFire aircraft attempting to stop a wildfire heading toward Panoramic Hill and other Claremont Canyon residential areas, or heading toward University facililities in Strawberry Canyon.

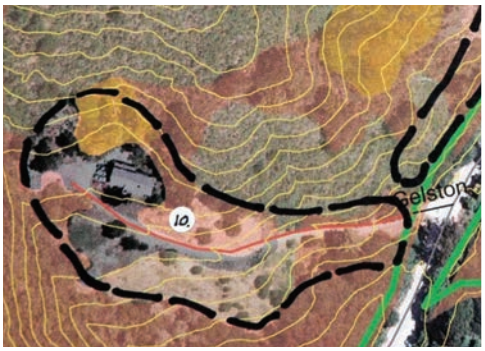
Polygon 9:
Claremont Avenue Oak Woodland and Eucalyptus Grove (CC005)



Oak woodland dominates most of the south-facing slope on the north side of Claremont Avenue. One eucalyptus grove and a scattering of both native and non-native trees can also be found in the area along with a handful of private homes. The eucalyptus grove is mostly on private land and will require a joint plan for management or conversion. The vegetation that should be managed varies in width with Park District land on the upper slopes and privately owned land and homes next to Claremont Avenue.

Surface fuels in the Park District portion of this polygon should be reduced by trimming up the oak and eucalyptus trees, removal of understory shrubs, dead branches, bark, and forest litter. Residential areas should be managed by homeowners to meet defensible space standards near homes.

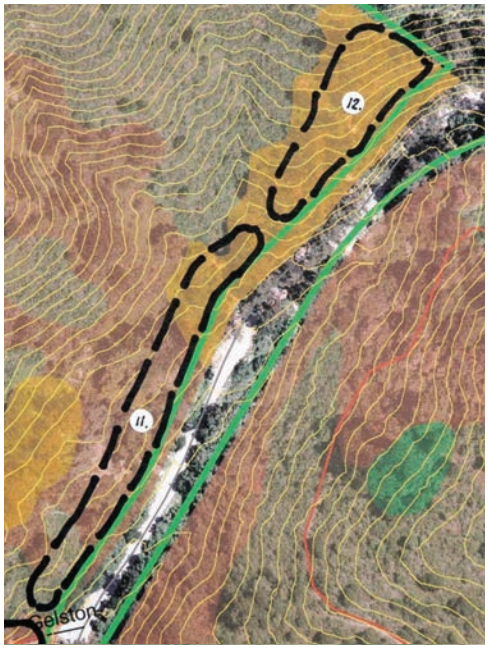
Polygon 10:
Marron Center/Gelston Road Area (CC008)



The Park District has created and will maintain defensible space around the Marron Center. In the vicinity of structures, ongoing treatments will keep grassland low, shrubs widely spaced, and trees pruned up to meet defensible space standards. A staging area in the vicinity of the Marron Center is called for in the Park District's land use plan for Claremont Canyon Regional Preserve and would be especially useful to hikers on the proposed cross-canyon trail who want to reach either the Panoramic Ridge Trail or the Gwin Canyon Trail that connects with Norfolk Road on Alvarado Ridge. The Conservancy supports development of a pedestrian trail between the Marron Center and the top of Panoramic Ridge. A fire road suitable for 4-wheel-drive vehicles is not necessary and would do too much environmental damage.

Polygon 11:
Claremont Avenue Roadside Buffer (CC0010)

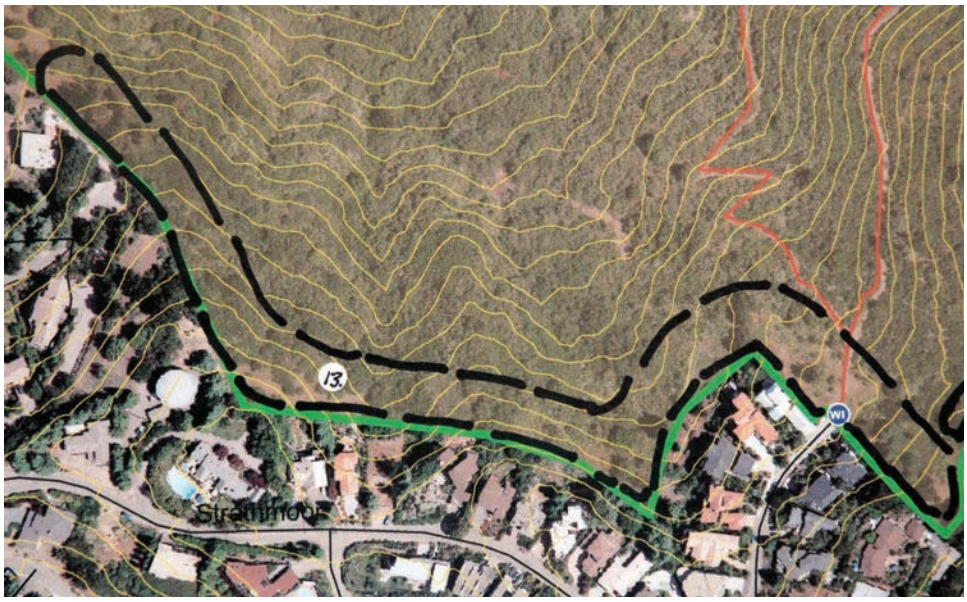
The Park District completed the first phase of a connected roadside buffer in 2008 when Fire Department crews removed shrubs under eucalyptus trees and reduced scrub density between and under the oaks. Trees were limbed up and two-thirds of the small bay trees and one third of medium sized (four to eight inches diameter) bay trees were removed. The remaining eucalyptus along the buffer will also be thinned and eventually removed. The Conservancy supports this plan.



Polygon 12:
Mid-Canyon Eucalyptus Conversion Project (CC004)

The Park District's stated goal for this polygon has been to thin and eventually remove all eucalyptus trees. The District has proposed to begin this process by first removing about 50 percent of the eucalyptus trees. The District would then return over time to gradually remove the remaining eucalyptus. The Conservancy estimates that that approach will double or triple the cost of removal and that multiple re-entries of the area by tractors and other heavy-duty logging equipment will have a much more severe adverse impact on wildlife than would a one-time entry. A single-stage removal process will save money, reduce adverse impacts on wildlife, minimize traffic interruption on Claremont Avenue, and facilitate recovery of the grove's native understory vegetation.

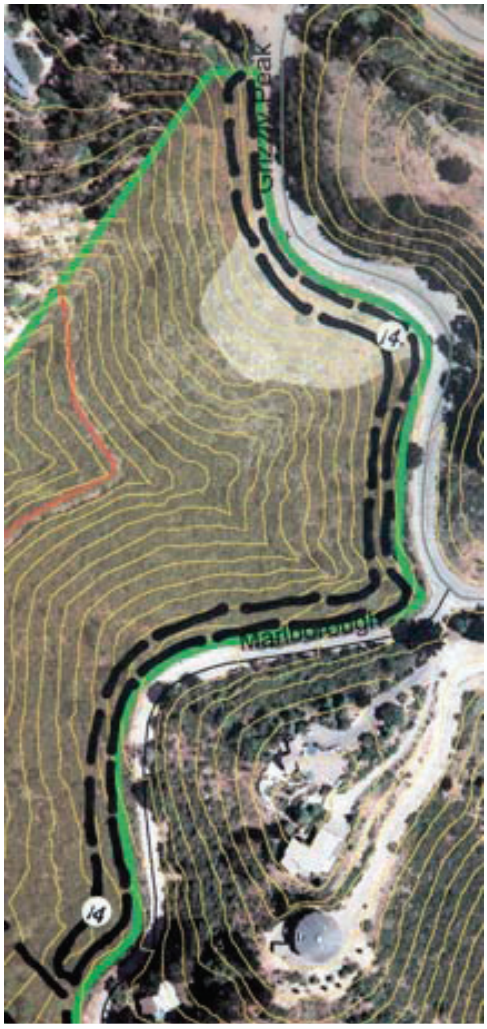
Polygon 13:
Gwin Canyon Residential
Edge Fuelbreak (CC009)



Private homes along the western edge of Gwin Canyon were lost in the wildfires of 1970 and 1991. Wildland vegetation in the upper part of Gwin Canyon also burned as firebrands from pine and eucalyptus blew into the area from the east, causing spot fires in advance of the main fire front. Defensible space around structures and maintenance of the existing fuel break are therefore considered essential. It should be noted that the fuel break was originally created by the Conservancy in 2006 using grant funds from the federal government.

Broom invaded the south-facing slopes of Gwin Canyon after the 1991 fire, steadily increasing both the weed problem and the fire hazard that the District must manage. The Conservancy does not believe that prescribed fire is advisable in Gwin Canyon or anywhere else in Claremont Canyon. We recommend that hand crews and a qualified herbicide contractor be retained periodically to reduce or eliminate broom and other exotic invasive vegetation. The Park District should provide for annual maintenance and improvement of the existing fuelbreak.

Polygon 14:
Marlborough and Grizzly Peak Boulevard Roadside Vegetation Management (CC009)



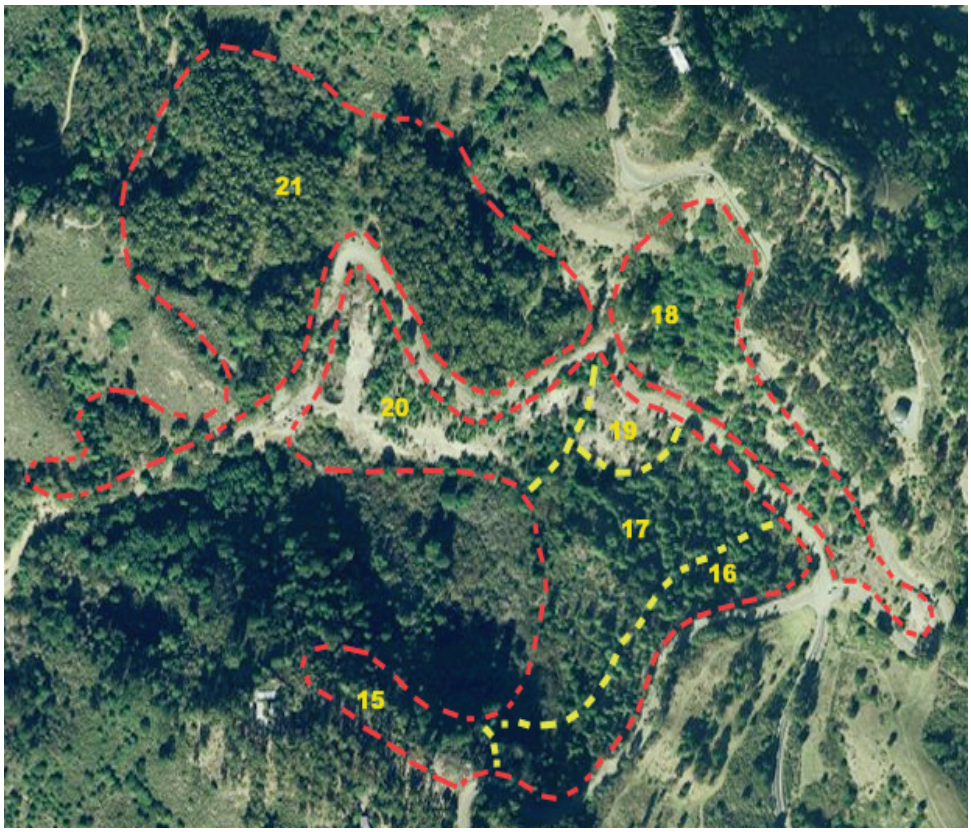
The Park District's Fire Hazard Reduction Plan recommends that the District consider "conducting broadcast prescribed burns" from the trail up to Marlborough Terrace and Grizzly Peak Boulevard at regular intervals and to continue mowing at pullouts on Grizzly Peak Boulevard. The plan also recommends that the District consider planting "landscaping with low-growing plants that do not cure and can be easily managed at regular intervals with removal of dead material" at turnouts and alongside the roads.

The Conservancy recognizes the utility of pile burning as an integral part of vegetation reduction, but does not favor the use of prescribed fire in the canyon at this time. The Conservancy does support the District's continued management of flammable vegetation for the first 30 feet below both Grizzly Peak Boulevard and Marlborough Terrace.

Polygons 15 through 21: University Projects in Mid- and Upper Canyon

(A new caption for all U.C. projects in one overlay as requested by Tom Klatt)

Polygons 15, 16, 17. Projects on University land in Upper Claremont Canyon.



Polygons 15, 16, and 17 cover the same areas as phases one, two and three of the University's project areas. All three phases involved removal of re-sprouted eucalyptus trees that froze in 1972. All three polygons are on University land near "Four Corners"—the intersection of Grizzly Peak Boulevard, Claremont Avenue, and Fish Ranch Road. These projects were located at the headslope of a heavily vegetated canyon immediately adjacent to the cities of Oakland and Berkeley.

After the overstory of tall, fast-growing eucalyptus re-sprouts was removed, the remaining vegetation quickly evolved into a rich assemblage of native trees and shrubs that is far safer in terms of fuel load and fire hazard than the eucalyptus grove that still stands on the north side of Claremont Avenue.

In April 1975, working under the supervision of the campus landscape architect, volunteers planted hundreds of redwood seedlings in polygon 17. In 2003, the Conservancy planted more redwoods in polygons 15, 16, and 17.

This whole area has now been converted to a relatively fire-safe native woodland that features oak, bay, big-leaf maple, coast redwood, buckeye, madrone, elderberry trees, and other native flora.

Polygons 18, 19, and 20: University Projects in Upper Claremont Canyon

Polygon 18 (also known as phase four of the University's fire hazard reduction work in the canyon) is located directly north of Four Corners. It resulted in the removal of 950 eucalyptus trees that had re-sprouted after the logging work of 1974. To prevent another round of re-sprouting, the eucalyptus stumps were treated by a licensed chemical applicator using Garlon 4. A conscientious follow up effort involving volunteers as well as University staff then made sure that any re-sprouts were also removed and the stumps treated to prevent resprouting. After eucalyptus removal was complete, the remaining understory of young oaks, bays, and other native trees recovered quickly. A similar effort is continuing in this area and elsewhere in the upper canyon with regard to the elimination of French broom, which is both highly invasive and highly flammable if allowed to spread.

Polygon 19 (also known as phase five of the University's fire hazard reduction program) is a nine-acre parcel of University land adjacent to Claremont Avenue where a very dense stand of Monterey pine seedlings was planted in 1975 by volunteers associated with the Piedmont Rotary Club. Most of the pine seedlings survived, but the site was so dry and they were planted so close to each other that they did not prosper and instead became very tall and spindly. They also came to be a serious fire hazard due to the thick layer of fire-dangerous pine needles that accumulated in the area.

Polygon 20 (also known as phase six of the University's fire hazard reduction program) is a 14-acre parcel of University land on the south side of Claremont Avenue where a dense stand of eucalyptus, pine, and acacia trees was removed in order to convert the area to a more fire-resistant native woodland consisting of oak, bay, maple, and redwood. Eucalyptus trees were felled and chipped on site in 2006. In most places, the chips have now decomposed and blended into the soil. The work was successfully completed on slopes up to a 45 percent grade under varying ground conditions and soil types.

Ongoing protection of native species and periodic maintenance will significantly reduce fire hazards in the canyon. Polygon 20 currently provides an excellent opportunity to compare "before and after" conditions in the canyon. Eucalyptus removal and other fire hazard reduction work has now been completed in Polygon 20 on the south side of Claremont Avenue, but just across the road in Polygon 21, the dense eucalyptus stand is still intact.

The Conservancy is aware that eucalyptus removal projects are apt to look rough after logging work is completed. However, most converted areas heal quickly enough that within three to five years most sites are once again attractive and natural enough in appearance to blend in with adjacent undisturbed areas.

Polygon 21 (the steep south-facing slope in Telegraph Canyon on the north side of Claremont Avenue) Like the eucalyptus groves in Polygon 20, most of the eucalyptus stems in this area were killed by the severe frost that occurred during the winter of 1972. Much of this frost-damaged grove was subsequently logged by the University of California. An exception was made for the very large "heritage" trees, which were not killed by the frost in 1972. Those trees are still standing in the southern part of Polygon 21.

If a wildfire, driven by a strong Diablo wind, were to enter this very dense eucalyptus grove, a lot of real estate would quickly be on fire and would probably burn for a long time because of grove density and the inordinate amount of flammable material that has accumulated in the grove. This would be likely to create a convection column strong enough to lift everything including eucalyptus bark and branches high up into the tree tops where a massive crown fire could spread firebrands throughout the canyon.

The Conservancy therefore supports the University's plan to convert this hazardous eucalyptus grove to oaks, bays, and other native trees and shrubs, many of which already exist in stunted form within this dense grove. These stunted trees and shrubs will begin to grow rapidly once the eucalyptus overstory is removed. The conservancy recognizes that there will be an awkward period during and just after the eucalyptus trees are removed, but experience has shown that areas such as this heal quickly and within one to three years regain the appearance of a safe and healthy native woodland.

Virtually every professional involved with fire suppression, wildland management or the study of fire science and fire ecology who has studied Claremont Canyon has cited the high fuel load that dense groves of eucalyptus and pine trees contribute to the canyon and the surrounding area. At this point there is agreement that something needs to be done. Retaining the eucalyptus trees while removing the native vegetation in the grove, as some have suggested, is neither financially prudent, environmentally sound, nor desirable as a long-term fire hazard reduction strategy.

Polygon 22: This area is located east of the ridge between Fish Ranch Road and Grizzly Peak Boulevard. Most of this polygon is outside the watershed of Claremont Canyon, but the Conservancy has nevertheless worked with U.C. to minimize fire hazard issues in this area. EBMUD has done an exceptional job in creating and maintaining a fuelbreak in this polygon. Mowing will continue to reduce the fuel load and maintain a pleasing mosaic of shrub and grassland.

Polygon 23: This area is located along Grizzly Peak Boulevard east of the ridge and outside the watershed of Claremont Canyon. Water District staff intends to continue goat grazing and hand removal of grass and woody shrubs to maintain low level of fuel. The Conservancy believes that this polygon should be treated in much the same way as polygon 22, although goat grazing is not recommended for this polygon because it tends to result in the introduction of invasive, non-native plant species. The Conservancy also believes that the large eucalyptus trees on the ridge should be removed because they are likely to torch during a Diablo wind episode and spread embers throughout Claremont Canyon.

Polygon 24:
Vollmer Ridge Polygons

EBMUD plans to continue thinning trees and woody shrubs to maintain fuel break characteristics on its ridgetop land overlooking Claremont Canyon. The Conservancy believes, however, that the eucalyptus trees on the crest of the ridge represent a serious and continuing fire threat because their location exposes them to the full force of the hot, dry Diablo winds that blow from the east and north during the autumn. Such wind events are more severe in the vicinity of Claremont Canyon than in other places to the north or south in the Oakland/Berkeley Hills. Under Diablo wind conditions, a fire in the crown of this ridgetop forest would be likely to throw firebrands and embers throughout Claremont Canyon, thereby threatening both the canyon itself, the University's facilities, and the many homes that have been built on Alvarado Ridge and across the canyon on Panoramic Hill.

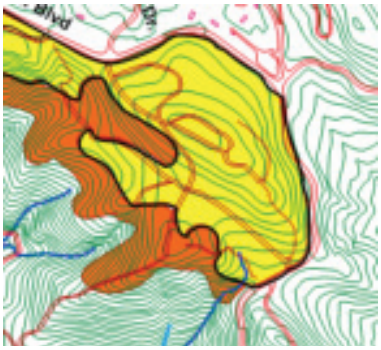
There is also another problem with eucalyptus trees on the steep hillside above the P.G.& E. power transmission line. A falling tree—or even a windblown branch—hitting that transmission line in the autumn during a Diablo wind event could easily ignite a major wildfire in Claremont Canyon.

In addition, eucalyptus seeds coming from this ridgetop forest are a continual maintenance problem. Eucalyptus seed pods continually fall or are blown down into Polygon 18 where they sprout and must be removed by hand on the very steep slopes below Grizzly Peak Boulevard.

Polygon 25:
A.T.&T. Polygon
on Vollmer Ridge

A.T.& T. is responsible for a portion of the Vollmer Ridge area but has not actively managed this area since 1973 when frozen eucalyptus trees were removed. Almost all of the eucalyptus stumps left behind by that removal process have re-sprouted and have now been growing steadily for the last 38 years. Local fire chiefs and other firefighting experts agree that the eucalyptus forest on Vollmer Ridge now constitutes the most serious fire hazard in Claremont Canyon.

Polygon 26:
University Ridgetop Project



This polygon includes Chaparral Hill and Frowning Ridge though only a portion of the area is actually in the watershed of Claremont Canyon. The whole polygon is nevertheless included here because, especially during hot, dry Diablo wind events in late summer or autumn, this ridgetop area has a direct influence on conditions throughout Claremont Canyon. For that reason, fuel reduction work in Polygon 26 has special strategic importance and should be designed to prevent firebrands and embers from spreading into Strawberry and Claremont canyons.

The Fire Hazard Mitigation Plan and Program produced and distributed by the Hills Emergency Forum in 1995 identified the need to reduce the potential for extreme fire behavior on high ridges as a key element of its pre-disaster wildfire hazard mitigation plan. The 2010 East Bay Regional Park District Wildfire Hazard Reduction and Resource Management Plan reached the same conclusion and made the same recommendation.

Polygon 27:
John Garber Park and the City of Oakland

Supervision of all trail building and vegetation management work in John Garber Park is provided by the city's Recreation and Parks Department and is coordinated with the Oakland Wildfire Prevention District on the premise that fire hazard mitigation and native plant restoration can and should go hand-in-hand.

The cleanup and restoration work done by volunteers in Beaconsfield Canyon has provided an excellent model for the active and ongoing stewardship work that is now underway in Garber Park within Polygon 27. In each case, restoration work is planned by a trained botanist who decides which plants should be planted and where. The botanist also identifies and flags existing plants that fire mitigation crews and stewards should not disturb. Stewards also conduct wildfire prevention education workshops for the park and its neighbors.

At present, twelve very tall eucalyptus trees (120 feet or more in height) are located on steep slopes within 100 feet of private homes. Three large eucalyptus trees were recently removed by a professional tree service using funds provided by the residents of Evergreen Lane. The Conservancy believes that other large eucalyptus trees should also be removed because they are so close as to almost touch the adjacent houses.

Garber Park is bounded for about a quarter of a mile by Claremont Avenue. The City of Oakland mows the roadside vegetation each year just before the beginning of fire season. With the approval and support of the Wildfire Prevention District, Garber Park's volunteer stewards plan to pull or otherwise remove roadside broom and other invasive plants in order to keep those species from spreading into the canyon.

The Eucalyptus and Pine Fire Hazard

Newspaper clips and old fire studies document an active and dangerous fire history in the Oakland/Berkeley Hills, often describing dramatic fire behavior in eucalyptus and pine groves. Most of the bluegum eucalyptus and Monterey pine groves in Claremont Canyon were planted in the early 1900s in what was then rather heavily grazed, grass-covered pastureland. Those early hill area eucalyptus plantings were very dense. Trees were planted nine feet apart in order to suppress or eliminate native understory vegetation. Since then, many pines have died or been killed by fire and many eucalyptus trees have been killed or seriously damaged by frost. Weather records show that coldsnaps featuring persistent sub-freezing temperatures occurred in 1922, 1932, 1949, 1972, and 1990. After the 1972 freeze, thousands of eucalyptus trees were left standing, but apparently dead. In response, Governor Ronald Reagan declared a state of emergency in April 1973 that made funds available for fire hazard reduction work.

Expenditures by local public agencies dealing with this emergency exceeded $7 million. A federal grant provided $1.3 million to create a 25-mile-long fuel break on public land between Anthony Chabot Regional Park and Tilden Regional Park. The University contracted with a professional logger to remove dead or damaged trees along with the branches, bark, leaves, and other flammable debris that fell to the ground on about 400 acres in Strawberry and Claremont Canyons. In 1974, the Park

Crown fire in a tall eucalyptus grove.

District hired a logging contractor to remove eucalyptus from about 400 acres of its land in Tilden and Sibley regional parks.

No effort was made, however, to prohibit regeneration by means of root sprouting or seedling establishment. As a result, seedlings did get established and the stumps of those eucalyptus trees that were left by the loggers began to sprout vigorously, sending up new, fast-growing main stems. Within a few years those new stems—typically eight or ten per stump—grew into trees that formed very tall, very dense coppices. Today, many of the individual trees in these coppices are more than 100 feet tall. And since these groves are full of debris (leaves, branches, and long strands of bark,) they are now a more dangerous fire hazard than ever before.

Moreover, fast-growing eucalyptus trees have come to dominate the slower growing understory of native shrubs and oak, bay, buckeye, elderberry and big-leaf maple trees that would provide a more diverse and fire-safe environment if allowed to mature without being overtopped by eucalyptus.

Expert firefighters agree that bluegum eucalyptus and Monterey pine forests constitute extreme fire hazards —especially in light of the fact that here in the East Bay they are growing in a relatively dry setting that is subject to seasonal foehn-type winds. Moreover, local fire fighters cannot be expected to control a wind-driven fire on steep terrain where most of the canyon's eucalyptus and pine trees were planted, and where there are few safe staging areas for fire fighters to use while trying to stop a fast-moving wildfire.

In the autumn, especially late autumn, when hot dry conditions tend to prevail throughout the hill area, a 30 to 50-mile-an-hour Diablo wind can easily enable a wildfire to enter a dense eucalyptus or pine grove where it would be likely to spread quickly, involve many acres, and continue to burn for a long time. Such a situation is apt to create a monster convection column that has the ability to elevate leaves, twigs, and even whole branches into the fire column. Under such conditions, flame length can reach 60 to 100 feet above the treetops. Long ribbons of eucalyptus bark ignite and continue to burn as they soar high up in the convection column. Shaped like a box kite in cross section, these ribbons of eucalyptus bark can travel long distances and continue to burn until they fall to earth and cause new ignitions.

Blue gum eucalyptus and Monterey pine trees typically reach 100 feet or more in height and are characteristically found in the hills as un-maintained, debris-filled, highly flammable groves. Fire hazard reduction plans recommend that these two kinds of tree be removed from ridgetops and slopes above homes. Diablo winds are likely to fan ground fires into the tree crowns, even in thinned groves, thereby creating the type of wildfire that can be impossible to control and that throw burning fire brands and embers into vegetation on lower slopes and into unprepared residential areas, igniting homes and significantly reducing evacuation time for residents.

It has been claimed that thinning and grove cleanup is the best way to reduce the fire hazard presented by the canyon's debris-filled eucalyptus groves. However, expecting eucalyptus leaves, twigs, branches, and ribbon bark and other forms of ground litter to be removed on a regular basis from hundreds of acres of eucalyptus

forest on steep terrain is not even a remotely conceivable possibility. Today, some eucalyptus groves in the canyon contain as much as 50 tons of flammable vegetation and ground litter per acre with an annual renewal rate of up to nine tons per year. Moreover, to be effective, this pine removal and eucalyptus thinning and cleanup strategy also requires that large residual eucalyptus trees be trimmed up to eliminate ladder fuels, and that seedling trees, woody shrubs, and other vegetation be removed. It is simply unrealistic to expect Berkeley, Oakland, U.C., or the East Bay Regional Park District to fund annual cleanup for the next 100 years or longer. The Conservancy therefore advocates conversion of eucalyptus and pine forests in Claremont and Strawberry canyons to more fire-safe native woodlands or other native vegetation.

In Australia, where eucalyptus occurs naturally, the only significant and widely-used fire hazard reduction program involves the application of prescribed fire—usually on a five or ten year cycle. This is a controversial program in suburban areas and even in relatively remote parks. It has not been used successfully near urban areas. Australia has been burning its forests for the past 80 years, but major fires still occur with devastating results in eucalyptus bushland areas.

The Conservancy therefore advocates conversion of eucalyptus and pine forests in Claremont and Strawberry canyons to native oak and bay woodlands or other native vegetation that will not require extensive, costly, and ongoing management in perpetuity.

French Broom

French broom is the most common of the three non-native broom species that occur in large stands in disturbed areas following fire or alongside roads, trails, and in areas that have been previously managed for fuel reduction in the East Bay Hills.

Because of its rapid growth and high rate of reproduction, French broom tends to form a monoculture that out-competes other species—both native and non-native—including poison hemlock, Italian thistle, wild radish, and black mustard.

The photo on the left was taken in Gwyn Canyon and the photo on the right was taken on U.C. land west of Grizzly Peak Boulevard.

Dense stands of broom are rated as highly hazardous since they can produce flame lengths of 15 to 18 feet depending on vegetation type, fuel volume, and slope. Ignition potential is greatly increased by the presence of other exotic species. While broom and other exotic fuel types are only moderately easy to ignite, fire can spread rapidly if these fuels are dry. Pampas grass and yellow starthistle should also be removed because they increase the fineness or surface area of fuels, which makes them easier to ignite.

The Homeowner's Role

People who live in or near Claremont Canyon are well aware of the canyon's natural beauty. Hundreds of acres of unspoiled natural landscape are close by and easily accessible to a large human population, which also enjoys easy access to the conveniences of a fully developed urban area.

While it is important to mitigate fire danger in the nearby wildlands, it is also important to make residential areas at both the home and neighborhood levels as fire-safe as possible. Studies have repeatedly shown that homes in the urban/wildland interface tend to burn as a result of ignitions caused by air-born embers and firebrands from fires in nearby vegetation or adjacent homes.

Homeowners can reduce the risk of damage to their homes by scrupulously following city building codes and by creating defensible space around their homes that firefighters can use to defend their property. We strongly urge homeowners to familiarize themselves with the excellent new fire codes crafted in 2010 by the State of California and adopted by most cities. For your convenience, a number of fire safety articles can be found on the website of the Claremont Canyon Conservancy.

Trails

The Conservancy supports construction and maintenance of a carefully limited trail system designed to make the canyon more accessible for hikers and for wildland management tasks, including removal of invasive species and other kinds of stewardship. The Conservancy also believes that broad areas be left in their natural condition as refugia for native wildlife.

The basic network of trails should include:

1. **A Creekside Trail** through the cool, riparian corridor parallel to Claremont Creek in the bottom of the canyon. This trail route begins at the vehicular entrance to the Claremont Hotel (Russell and Domingo streets in Berkeley) and continues to Four Corners at the top of the canyon and then just east to a connection with the National Skyline Ridge Trail.
2. **A Panoramic Ridge** Trail with magnificent vistas of the entire San Francisco Bay Area. This trail climbs steeply up from about 400 feet elevation at the Stonewall Road entrance to Claremont Canyon Regional Preserve to about 1,200 feet elevation. It then continues along the ridge top with nice views of Claremont Canyon, climbing more gently to its intersection with Grizzly Peak Boulevard at about 1,400 feet of elevation.
3. **A Cross-canyon** Trail from Norfolk Road on the south side of the canyon down through Gwin Canyon to Claremont Avenue and back up to the top of Panoramic Ridge on the north side of Claremont Canyon. It might be possible to develop a small staging area on Claremont Avenue in the vicinity the Gelston Center.
4. **A Garber Park Trail** connecting Claremont Avenue (just east of the Claremont Hotel) with the upper and lower loop trails within Garber Park. Such a trail would facilitate public use of Garber Park, which is officially an Oakland City Park, and could serve as part of the main east/west Creekside Trail in the bottom of Claremont Canyon.
5. **The Summit House Trail** that angles away from Claremont Avenue in the upper canyon. It begins at the University of California's Gate 29 across Claremont Avenue from an inactive, century-old, roadside quarry that features dramatically uplifted, vertical layers of radiolarian chert. The trail starts out as a fire road but after about a quarter of a mile it narrows to a hiking trail that climbs gently up some 300 feet to Four Corners at the top of the canyon.
6. **A Willow Trail** with many steps starts near Gate 29, crosses Claremont Creek on a culvert that was built around 1900 or 1910 by a private water company, and then passes through an extensive area of willows before reaching Four Corners.

Restoration

A great deal of thought has been given to the idea of ecological restoration, but questions remain unanswered about the overall character and exact limits of the field. Some years ago, the Society for Ecological Restoration, perhaps the nation's leading organization in the field of ecological restoration, defined ecological restoration as "the process of repairing damage caused by humans to the diversity and dynamics of indigenous ecosystems." In 2004, after prolonged and continuing debate, the Society revised its definition to read: "Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed."

Presumably the current statement still refers to degradation, damage, or destruction caused by human activity. But if by some chance the same or similar degradation, damage, or destruction was brought about by natural causes it might be difficult or impossible to decide exactly what kind of restoration effort was appropriate. That philosophical question is, however, just one of many that underlie the whole idea of science-based ecological restoration. Taken together, these questions make it clear that such restoration inevitably involves far more than just physical repair work or the removal of non-native invasive plants and the planting or transplanting or general encouragement of "more appropriate" plant materials. In fact, science-based ecological restoration inevitably involves an infinitely complex set of moral, ethical, historical, and cultural questions. What do we mean by "native?" What is "natural?" How can we ever be sure that we have succeeded in restoring the ongoing operation of a healthy, self-sufficient ecological system?

With these complexities in mind, the Claremont Canyon Conservancy has chosen to take a conservative approach to restoration of the canyon's natural landscape. This approach seems especially appropriate in that most native vegetation in the canyon has shown itself to be quite resilient and fully capable of self-renewal in the wake of disturbance. Almost all of the Conservancy's field restoration work has therefore been limited to controlling or eliminating invasive vegetation such as eucalyptus, Monterey pine, acacia, pampas grass, French broom, cape ivy, and yellow starthistle. These plant species are native to other continents around the world. Once established here in North America they have tended to dominate and replace native vegetation. This is certainly the case in Claremont Canyon and elsewhere in the Oakland/Berkeley Hills. And yet, in addition to removing invasive plants, the Conservancy recognizes that some situations clearly require ongoing intervention or maintenance such as periodic "weeding" or regular irrigation to complete the re-establishment of a native ecosystem. In such situations, the Conservancy believes that the watchword should always be "restraint." Intervention should be minimized as much as possible and terminated as soon as possible.

The Claremont Chert
Photo by Joe Engbeck

Conclusion

Since its creation in 2001 the Claremont Canyon Conservancy has learned a great deal about the history and natural history of Claremont Canyon and about the public agencies that are most directly concerned with the canyon. Over these last ten years, Conservancy representatives have gotten to know many of the government officials who are responsible for various parts of the canyon. We are pleased that it has been possible to work closely and cooperatively with them on behalf of the twin goals of restoration and fire safety. We are pleased, moreover, that it has been possible to maintain good working relationships with those officials even when we disagreed with some of the policies that governed their work. Having developed good relations with these individuals and organizations, we now look forward to maintaining good partnerships over the long term. This advocate plan is a contribution to that objective. We have spelled out some of our basic policies with regard to fire safety, trails, and landscape preservation and restoration not as a way of issuing any ultimatums or making specific demands; we are simply trying to further improve communication in the ways that we believe will lead to greater accomplishment in the years to come.

About the Advocate Plan

This document was written, compiled, and edited by Joe Engbeck and Jerry Kent. Much of the specific information and recommendations for individual polygons was gathered and written up by Jerry Kent for a report of the Fire Safety Committee of the Claremont Canyon Conservancy in 2010. The more general introductory information was written and edited by Joe Engbeck. Unless otherwise noted, the polygon maps and photographs were produced by Jerry Kent. The plan was designed by Jon Kaufman of Solem & Associates and Kristi Koistinen of Grafiikka and printed by Butterfly Direct.

It was produced by and for the Claremont Canyon Conservancy, accepted and officially approved by the board in August 2011. This document may be viewed online at www.ClaremontCanyon.org.

Claremont Canyon Conservancy
P.O. Box 5551
Berkeley, CA 94705
(510) 843-2226