

6.13 KITE HILL

GENERAL DESCRIPTION AND LOCATION

Kite Hill is 2.5-acre grassy knoll located in the central portion of San Francisco, near the intersection of 19th and Yukon Streets (Figure 1-1). Elevations within the Natural Area range between 300 and 350 feet above sea level. Most of the Natural Area at Kite Hill is covered in grasslands (Figure 6.13-1). An ornamental garden exists on the north side of the corner of Yukon and 19th Streets. Like many of the Natural Areas, Kite Hill has high recreational and natural resources values that include: high level of recreational use; grassland habitat; suitable habitat for a variety of bird species, including foraging habitat for raptors; and scenic views of the City.

GEOLOGY, HYDROLOGY, AND TRAILS

This Natural Area is almost entirely underlain by Franciscan chert and greenstone bedrock. Both units are mapped as “thin rocky soil over bedrock” (Figure 6.13-2). Around the base of the hill near Yukon Street, the Franciscan bedrock is an altered volcanic rock called “greenstone.” The top of the hill and the ancient terraces facing 19th and Seward Streets are underlain by chert. The bedrock slopes of Kite Hill are very steep, and ancient landslide scarps can be seen on most of the hillsides. Shallow soil slips are common, as can be seen from the debris deposits at the base of the terraces. Chert knobs crop out at the top of the hill and along the main trail from Yukon Street.

There is no surface water at the site. Drainage of the area is by overland flow. Some rainfall percolates into fissures in the rock, but runoff generally is rapid. Natural runoff-formed furrows on the slopes are not eroded extensively where there is ground cover, but gullies have developed on the slopes denuded of vegetation where numerous social trails have been made.

Two designated and numerous social earth trails have developed throughout the park. Extensive foot traffic has worn most of the trails through the thin soil to the underlying bedrock. Runoff channeled along some of these trails increases erosion.

VEGETATION

Based on aerial photo interpretation and ground-truthing, the vegetation of Kite Hill was classified into eight series (Table 6.13-1; Figure 6.13-3). These series are within four sub-formations: approximately 76 percent of the area is grassland; 16 percent is forest; 4 percent is scrub; and 3 percent is classified as “other” (ornamental vegetation and rock outcroppings). Only one of these series, poison oak scrub, is dominated by native species.

Forest

Unlike many other Natural Areas, only a small portion of Kite Hill is covered in invasive blue gum forest (0.35 acres). The only other forest series mapped at Kite Hill is a single cypress tree located in the center of the Natural Area and a small group of pine trees on the northwestern edge.

Grassland and Scrub

One series, wild oat grassland (1.86 acres), accounted for the largest area at Kite Hill. The only two scrub series mapped consisted of small patches of native poison oak scrub (0.03 acres) and invasive Himalayan blackberry (0.07 acres). Native grassland species accounted for 30 of the 54 species observed during point sampling, but natives accounted for only 11 percent of the grassland cover.

Other

Two series were mapped as “other” habitats at Kite Hill: ornamental vegetation and rock outcrops. The ornamental series (0.05 acres) are areas of landscaping at the northern end of the open space at the corner of 19th and Yukon Streets. The rock outcrop (0.03 acres) is mostly exposed bedrock in the northern portion of Kite Hill.

Sensitive Plant Species

None of the species designated as sensitive for this management plan have been recently observed within Kite Hill. The California Natural Diversity Data Base (CNDDDB) does not report the occurrence of any sensitive plant species at Kite Hill (CNDDDB 2005).

Invasive Plant Species

Five vegetation series, dominated by invasive species, account for approximately 97 percent of the land cover at Kite Hill. Wild oat grassland (1.86 acres) is the most frequent series dominated by invasive species and covers the majority of land at Kite Hill. A relatively small area is covered with blue gum forest. The other invasive series cover less than 0.1 acre each.

WILDLIFE

Birds

The small amount of multi-storied complex habitat of Kite Hill may provide some foraging, nesting, and roosting habitat for common bird species such as white-crowned sparrows (*Zonotrichia leucophrys*), western meadowlark (*Sturnella neglecta*), and red-winged blackbirds (*Agelaius phoeniceus*). However, it is unlikely that the forest habitat of Kite Hill is large enough to provide nesting habitat for any sensitive species. The grassland and scrub habitats of Kite Hill

provide foraging habitat for raptors; for example, the American kestrel (*Falco sparverius*) has been commonly observed in the area. Some habitat for smaller birds (passerines) is available in the scrub habitats of the northern section of the open space. However, three species considered locally sensitive occur at Kite Hill. These include pygmy nuthatch (*Sitta pygmaea*), violet-green swallow (*Tachycineta thalassina*), and white-throated swift (*Aeronautes saxatalis*). None of them breed within the Natural Area and no important bird habitat has been delineated for this Natural Area. The CNDDDB does not report the occurrence of any special-status species of birds from Kite Hill (CNDDDB 2005).

Mammals, Reptiles, and Amphibians

To date, no small mammal surveys have been conducted at Kite Hill and a survey of the area by EIP biologists on May 10, 1999, did not locate any reptiles or amphibians. This area is dominated by grasslands, which is the preferred habitat of the California meadow vole (*Microtus Californicus*). Likewise, the house mouse (*Mus Musculus*) and pocket gopher (*Thomomys Bottae*) are likely to occur in the grasslands and mixed scrub found in this Natural Area. Larger mammals such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginiana*) are typical of urbanized parks in general and are expected to occur within Kite Hill. The CNDDDB does not report the occurrence of any sensitive species within the area (CNDDDB 2005).

MANAGEMENT AREAS

Three Management Areas (MAs) have been designated at Kite Hill. The first (MA-1a) encompasses the native scrub series, rock outcrops, and annual grasslands that are high in native species diversity in the northwestern portion of the Natural Area. This area is surrounded by an MA-2 area that provides a buffer between sensitive habitats and the MA-3 areas and includes the frontage on Yukon Street with native landscaping. The MA-3 areas at Kite Hill include the grasslands in the eastern two-thirds of the Natural Area (Figure 6.13-4).

ISSUES AND RECOMMENDATIONS

Several conservation and recreation-related issues have been identified for Kite Hill. Recommendations developed for each of these issues will guide restoration, enhancement, and maintenance work. In the following discussion, system-wide issues and recommendations (GR-1 for example; see Chapter 5) that apply to the entire Natural Area at Kite Hill are presented first within each topical area, followed by site-specific issues and recommendations. Site-specific recommendations are keyed to the Management Area in which they should occur.

Site Improvements – Implementation of management recommendations at Kite Hill would not change significantly the overall look of the park and would result in:

- gradual increase in native grassland species;

- delineation of a formal boundary for the ornamental garden;
- enhanced habitat for small ground-dwelling birds and other wildlife;
- improved access on an improved designated trails system; and
- beautification of some park entry points and the road frontage with designed native plant gardens.

Active management and restoration on Kite Hill will result in the preservation and enhancement of the existing grassland habitat. As habitat complexity increases with the installation of native shrub and grassland species, populations of small mammals and birds will increase in size and diversity. Eventually, these areas may resemble the rich native grasslands on Mount Davidson or San Bruno Mountain.

Vegetation

Issues relating to vegetation management at Kite Hill revolve around the protection of existing habitats, typically through the control of invasive plants (GR-1) and management of sensitive species and vegetation series of limited distribution (GR-2). Specific actions to take in managing grasslands such as those present at Kite Hill should be implemented (GR-3). No trees are to be removed at Kite Hill. Issues relating to the general safety of visitors and surrounding homes, fire hazards posed by vegetation and trees, and illicit activities must be considered during management of the Natural Areas (GR-13). In addition to these general recommendations, the following site-specific issue should be addressed.

Issue KH-1: The highly diverse grasslands that support a variety of native grassland species at Kite Hill are being lost and degraded. Invasive vegetation is reducing diversity and native species.

Recommendation KH-1a: To preserve the existing grasslands, within all Management Areas, contain and reduce herbaceous and woody invasive vegetation such as radish (*Raphanus sativus*), sweet fennel (*Foeniculum vulgare*), Bermuda buttercup (*Oxalis pes-caprae*), and annual grasses. Within MA-1a and MA-2a prevent invasive trees from becoming established. Some invasive vegetation (e.g., mallow, radish, plantain, and fennel that are important nectar, seed and larval habitat for wildlife) may remain within the MA-3a areas, but it shall be carefully monitored to ensure that it does not encroach into the MA-1a or MA-2a areas. The approximately 10 blue gum eucalyptus trees will remain in MA-3a.

Recommendation KH-1b: To protect existing grasslands, grasslands within MA-1a and MA-2a shall be maintained and diversified. This effort shall first focus on areas where native species are still dominant and work out from those core areas. Within the MA-2a area, create a scrub-grassland mosaic that includes the occasional tree to provide shade and habitat diversity. Any plantings to be done shall use diversity, cover, and density

targets generated from reference sites within scrub and grassland habitats around San Francisco (see Appendix B).

Recommendation KH-1c: Consider installation of showy native vegetation near the road and at access points to the Natural Area (MA-2a). Such a garden, with appropriate signage, could help educate Natural Area users about gardening with native plants.

Recommendation KH-1d: In order to reduce the potential for local extinction of sensitive species in San Francisco, consider reintroduction of rare plants such as (e.g., California lilac) in all MA-1 and MA-2 areas.

Recommendation KH-1e: In order to increase habitat diversity and value to wildlife, San Francisco Recreation and Park Department (SFRPD) shall maintain and enhance the grassland-scrub-oak woodland ecotone within MA-3a. As existing eucalyptus trees mature and die they shall be replaced with native oak trees and interspersed with plantings of toyon. A few large trees (such as eucalyptus or cypress) shall remain at periphery.

Wildlife

Wildlife issues at Kite Hill revolve around habitat. Vegetation management during the breeding season can impact nesting birds (GR-4); however, vegetation management also can provide materials to create artificial habitat for ground-dwelling birds, small mammals, and reptiles (GR-9) and increase habitat for insects (GR-10). Implementation of the preceding recommendations (KH-1a-e) will help improve bird habitat at Kite Hill. Finally, reduction in predation pressures will benefit all animals within the Natural Area (GR-7). Implementation of these general recommendations will address all the wildlife issues at Kite Hill and therefore, no site-specific recommendations are provided.

Soils, Erosion, and Public Use

The erosion and public use issues at Kite Hill generally relate to the trail system and public use. A network of designated and social trails totaling 1,957 feet winds through all Management Areas at Kite Hill (Figure 6.13-4). Trails to be maintained and improved account for 620 feet, trails that are unimproved but are to remain in use total 939 feet, and social trails subject to closure make up 398 feet of the trail system. The issue of erosion and habitat impacts related to social trails is addressed through implementation of GR-11 and GR-12. Interpretive signs regarding the ecosystem of Kite Hill should also be considered (GR-14). The following site-specific issue should also be addressed.

Issue KH-2: A small group of apple trees has been planted on the northern edge of MA-2a. While the trees themselves do not pose a problem, all the vegetation has been removed from a relatively large area surrounding these trees, resulting in a large area of exposed soil.

Recommendation KH-2a: Natural Areas Program staff shall revegetate this area by hand-broadcasting the appropriate seed mixture and applying mulch to keep the seeds in place. Additionally, signs shall be installed informing visitors about the benefits of vegetated ground versus bare soil.

Table 6.13-1. Vegetation series mapped at Kite Hill.

	Vegetation Series	Total Acreage
Forest	blue gum forest	0.35
	cypress forest	0.03
	pine forest	0.00
	Subtotal	0.39
Scrub	poison oak scrub*	0.03
	Himalayan blackberry scrub	0.07
	Subtotal	0.10
Grassland	wild oat grassland	1.86
Other	ornamental	0.05
	rock outcrop	0.03
	Subtotal	0.08
Grand Total		2.43

* Indicates vegetation type is dominated by native species.
 Shaded entries indicate coverage of less than 0.005 acres.

Table 6.13-2. Sensitive species presently and historically known to occur at Kite Hill.

Species	Common Name	Status Federal, State, CNPS	Occurrence Status
ANIMALS			
<i>Sitta pygmaea</i>	Pygmy Nuthatch	SLC	Presently occurs
<i>Tachycineta thalassina</i>	Violet-green Swallow	SLC	Presently occurs
<i>Aeronautes saxatalis</i>	White-throated Swift	SLC	Presently occurs
PLANTS			
<i>No sensitive plants are known to occur at Kite Hill.</i>			

Status Key:

Federal Status

- FE* Endangered. Species in danger of extinction throughout all or significant portion of its range.
- FT* Threatened. Species likely to become endangered within foreseeable future throughout all or a significant portion of its range.
- FPE* Proposed for listing as endangered.
- FC* Candidate for listing as endangered. Candidate information now available indicates that listing may be appropriate with supporting data currently on file.
- FSC* Species of Concern. Former Category 2 Candidate for listing as endangered.
- FPD* Proposed de-listing.

California State Status

- SE* Endangered. Species whose continued existence in California is jeopardized.
- ST* Threatened. Species, although not presently threatened with extinction, that is likely to become endangered in the foreseeable future.
- SSC* Species of Concern.
- SFP* State Fully Protected under Sections 3511 and 4700 of the Fish and Game Code.
- Sens* Considered a sensitive species by the California Department of Forestry.

California Native Plant Society

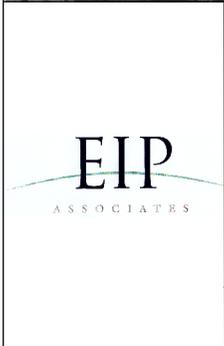
- 1A* Plants presumed extinct in California
- 1B* Plants that are rare or endangered in California and elsewhere.
- 2* Plants that are endangered in California, but more common elsewhere.
- 3* Plants about which more information is needed.
- 4* Plants of limited distribution (a watch list).
- LS* Locally Significant.

Golden Gate Audubon Society

- SLC* Species of Local Concern



- - - Natural Area Boundary
- SFRPD Jurisdiction (SF City Property)
- - - Natural Area Boundary and SFRPD Jurisdiction (SF City Property)
- - - Natural Area Boundary and Other SF Jurisdiction (SF City Property)
- - - Shared property boundary between SFRPD and Other City Jurisdiction (SF City Property)
- 10-Foot contour line



Source: Aerial photography San Francisco Department of Public Works, 2002, Orthophoto - San Francisco - 1-foot resolution, 2001; property boundary data derived by San Francisco Recreation and Park Department (RPD) 2005 from data provided by San Francisco Department of Telecommunications and Information Services, 2002; natural area boundary data created by San Francisco State University Institute for GISc from information provided by RPD's Natural Areas Program (NAP), 2005; contour lines provided by San Francisco Department of Conservation; all data are California State Plane Zone III, NAD 83.

Created by Debra Dwyer, San Francisco State University Institute for GISc, May 5, 2002, revised June 10, 2005.

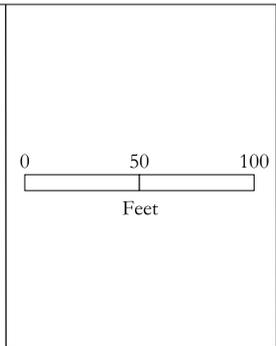
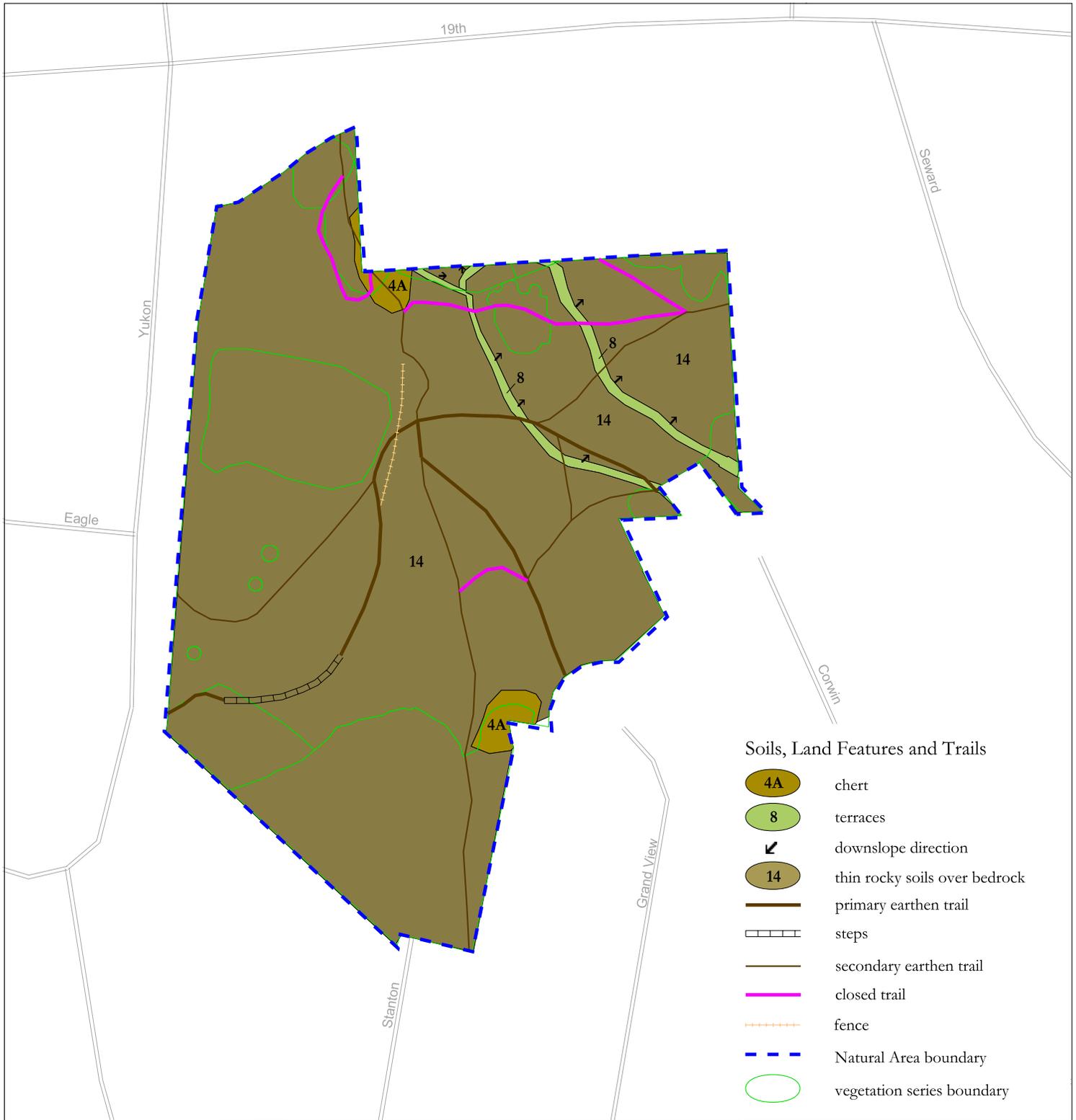


FIGURE 6.13-1
**AERIAL PHOTOGRAPH,
 PROPERTY BOUNDARIES,
 AND NATURAL AREAS**
Kite Hill
 Significant Natural Resource Areas
 Management Plan
 San Francisco, California



Source: Vegetation data collected by San Francisco Department of Recreation and Parks Significant Natural Areas Program (NAP), San Francisco State University Biology Department, and EIP Associates, 1999-2000; soil and land features data collected by EIP Associates, 1999 - 2002; trails data collected by NAP, 2005; data layers digitized by Geotopo, Inc., 1999 - 2000; edited and corrected by San Francisco State University Institute for GISc (SFSU IGIS), 2000, 2005; trails data digitized by SFSU IGIS, 2005; natural area boundary created by SFSU IGIS from data determined by NAP, 2005; streets data excerpted from ArcView StreetMap 2000 Data, copyright 1998-2000, Environmental Systems Research Institute, Inc. (ESRI).

Created by D. Dwyer, San Francisco State University Institute for GISc, October 16, 2001, revised December 10, 2005.

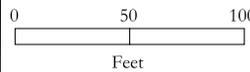


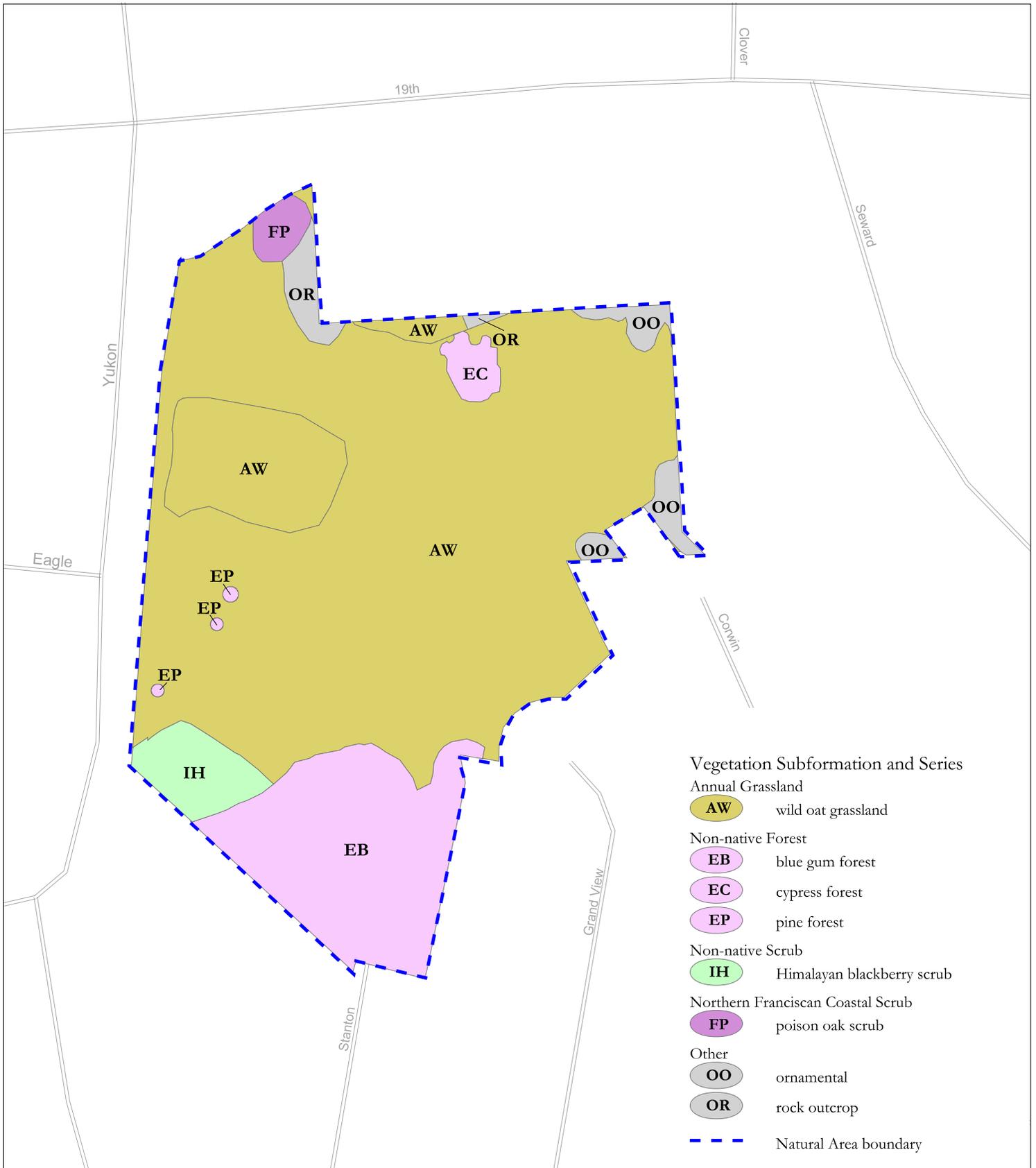
FIGURE 6.13 - 2
SOILS, LAND FEATURES,
AND TRAILS

Kite Hill

Significant Natural Resource Areas
Management Plan

San Francisco, California





Source: Vegetation data collected by San Francisco Department of Recreation and Parks Significant Natural Areas Program (NAP), San Francisco State University Biology Department and EIP Associates, 1999-2000; data layers digitized by Geotopo, Inc., 2000; edited and corrected by San Francisco State Institute for GISc (SFSUGIS), 2000 - 2002; natural area boundary created by SFSUGIS from data provided by NAP, 2005; streets data excerpted from ArcView StreetMap 2000 data from Environmental Systems Research Institute, Inc., copyright 1998-2001.

Created by D. Dwyer, San Francisco State University Institute for GISc August 16, 2001, revised August 21, 2005.

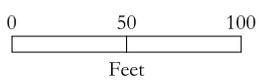
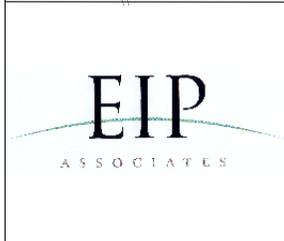
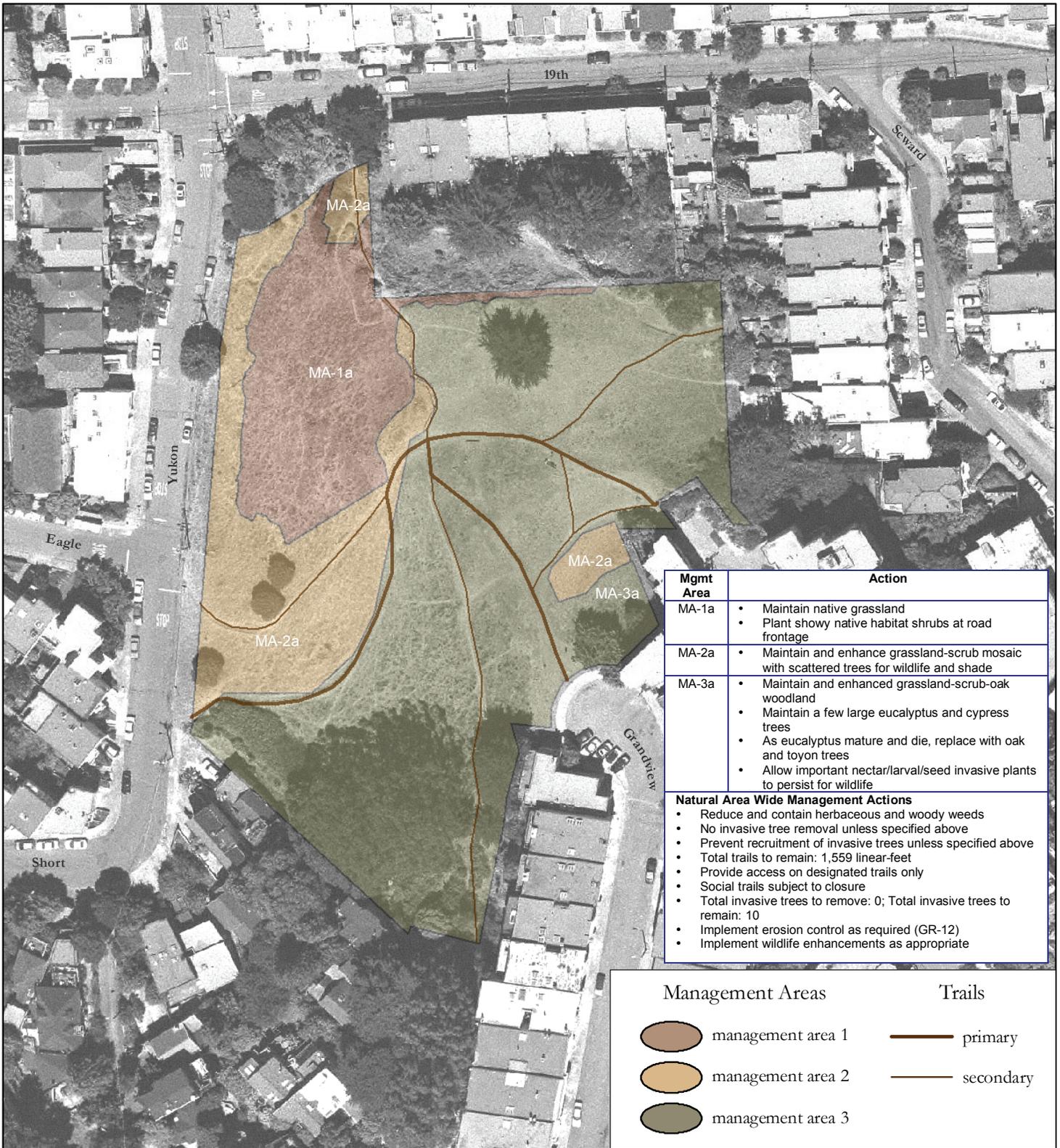


FIGURE 6.13 - 3
VEGETATION
Kite Hill
 Significant Natural Resource Areas
 Management Plan
 San Francisco, California





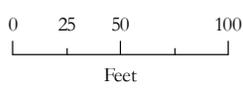
Mgmt Area	Action
MA-1a	<ul style="list-style-type: none"> Maintain native grassland Plant showy native habitat shrubs at road frontage
MA-2a	<ul style="list-style-type: none"> Maintain and enhance grassland-scrub mosaic with scattered trees for wildlife and shade
MA-3a	<ul style="list-style-type: none"> Maintain and enhanced grassland-scrub-oak woodland Maintain a few large eucalyptus and cypress trees As eucalyptus mature and die, replace with oak and toyon trees Allow important nectar/larval/seed invasive plants to persist for wildlife

- Natural Area Wide Management Actions**
- Reduce and contain herbaceous and woody weeds
 - No invasive tree removal unless specified above
 - Prevent recruitment of invasive trees unless specified above
 - Total trails to remain: 1,559 linear-feet
 - Provide access on designated trails only
 - Social trails subject to closure
 - Total invasive trees to remove: 0; Total invasive trees to remain: 10
 - Implement erosion control as required (GR-12)
 - Implement wildlife enhancements as appropriate

Management Areas		Trails	
	management area 1		primary
	management area 2		secondary
	management area 3		

Source: Management areas and trails data collected by San Francisco Department of Recreation and Park Natural Areas Program (NAP), 2005; trails data digitized by San Francisco State University Institute for GISc (SFSU IGIS), 2005; streets data excerpted from Environmental Systems Research Institute (ESRI), Inc.'s Street-Map 2000 data copyright ESRI 1998-2001; aerial photography San Francisco Department of Public Works, 2002, Orthophoto - San Francisco - 1-foot resolution - 2001; all data are in California State Plane Zone III projection, NAD 1983; map produced using ArcGIS 9.0 software by ESRI.

Map created May 29, 2005 by Debra Dwyer, San Francisco State University, Institute for Geographic Information Science; revised August 23, 2005.



**FIGURE 6.13 - 4
MANAGEMENT AREAS
AND TRAIL PLAN**
Kite Hill
**Significant Natural Resource Areas
Management Plan**
San Francisco, California

