6.8 TWIN PEAKS

GENERAL DESCRIPTION AND LOCATION

Twin Peaks, which contains 31.1 acres of Natural Area, is situated near the geographic center of San Francisco, north of Mount Davidson and south of Buena Vista Park and Corona Heights (Figure 1-1). At 922 feet in elevation, Twin Peaks is second only to Mount Davidson in height, offers spectacular views of the surrounding Bay Area, and is a world-famous tourist attraction. To the north is Sutro Tower, a San Francisco City Fire Department reservoir, and a parking lot for one of the most popular vista points in the City (popularly known as Christmas Tree Point). The Fire Department property, Christmas Tree Point, and other open space to the north contain Natural Areas, which when combined with San Francisco Recreation and Parks Department (SFRPD) property, make a much larger and more viable habitat area.[1] The Natural Areas at Twin Peaks essentially encompass the entire area except for the roads, viewpoints, and the reservoir (Figure 6.8-1).

Twin Peaks has a north-south orientation and is divided into several discontinuous sections by Twin Peaks Boulevard, which winds along its slopes. Twin Peaks is a prominent dividing point for the summer coastal fog. West-facing slopes receive substantial fog and strong winds while the east-facing slopes receive more sun and warmth. The vegetation is primarily a mix of intergrading patches of grassland and scrub.

Twin Peaks contains significant natural resources including some the largest expanses of coastal scrub and coastal prairie communities remaining in the City. These communities provide habitat for the endangered mission blue butterfly (*Icaricia icarioides missionensis*), one of only a few populations in the world. Twin Peaks also provides suitable habitat for other insects and a wide variety of bird species, outcrops of Franciscan chert, and populations of sensitive plants and animals. Because of the outstanding views of the City, Twin Peaks receives a high level of recreational use and contains a segment of the Bay Ridge Trail. Interpretive signs help educate Natural Area visitors about the resources at Twin Peaks.

GEOLOGY, HYDROLOGY, AND TRAILS

The pair of adjacent peaks that gives Twin Peaks its name characterizes this northern portion of the San Miguel Hills. Elevations range from approximately 600 to 920 feet. Soils have been mapped as the Barnabe-Candlestick soil complex, a mixture of very gravelly sandy loam and fine sandy loam (USDA 1991). Twin Peaks is predominantly characterized by thin rocky soils over native Franciscan bedrock (Figure 6.8-2). Twin Peaks is different from many other Natural Areas within San Francisco in that the majority of its users are confined to the roadway and paved overlook area. Thus, for the amount of use the area receives, the impact on native vegetation is relatively low. However, hillside trails and hilltop areas of both peaks show signs of

[1] The Non-SFRPD owned or managed properties are not addressed in this report.

overuse. Use of these areas has exposed shallow soils on steeper slopes, creating areas that are subject to erosion.

Along the roads throughout Twin Peaks, road-cuts have exposed 5- to 15-foot-high chert and sandstone outcrops on the uphill of the roads. The spoils from these cuts are deposited on the slopes directly adjacent to and below the roads.

The well-used Bay Ridge Trail cuts across the tops of the peaks, resulting in substantial areas of exposed, bare ground. The southern peak is bare on its northwest-facing slope, while the northern peak is bare at the top. The two peaks are informally connected by Twin Peaks Boulevard.

Erosion control activities are being implemented throughout Twin Peaks (Figure 6.8-2). South of the southern peak and below the road is an area that is being restored. Log barriers have been installed in this area to prevent vehicular access to the area. Brush boxes for erosion control are used in one area on the western slope of the Natural Area below the main access road. A third erosion control area is located on the east side between the peaks, and uses logs, brush boxes, and terracing to slow water runoff from Twin Peaks Boulevard.

VEGETATION

Based on aerial photo interpretation and ground-truthing, the vegetation of Twin Peaks was classified into 22 series (Table 6.8-1; Figure 6.8-3). These series are within five subformations: approximately 19 percent of the area is grassland and herbaceous vegetation; 4 percent is forest; 37 percent is scrub; 33 percent is mosaic; and 6 percent is classified as “other” (developed, bare ground, and rock outcropping). Eleven of these series are dominated by native species.

Forest

Three forest series were mapped at Twin Peaks. The mixed exotic series is the most abundant of these, accounting for approximately 1.05 acres. Blue gum forest and cypress forest can also be found on the lower slopes of the Natural Area, but in insignificant acreages.

Scrub

Scrub series dominate the landscape at Twin Peaks. Of the five series that were mapped, coyote brush scrub (5.84 acres), French broom scrub (3.91 acres), and California blackberry scrub (1.27 acres) account for almost 95 percent of the total acres of scrub habitat. The two remaining scrub series are of limited size (0.31 to 0.27 acres) and distribution. Four of the five series are dominated by native vegetation (Table 6.8-1). The scrub community is rich in species diversity; 36 of the 57 scrub species observed during collection of point sample data at Twin Peaks were native. Additionally, 59 percent of the cover within the scrub habitat was native.

Grassland and Herbaceous

Seven grassland and herbaceous series were mapped at Twin Peaks and cover over 5.8 acres. The majority of the acreage was mapped as wild oat grassland (3.76 acres) and red fescue prairie, accounting for over 4 acres. Series dominated by native vegetation include red fescue prairie (0.78 acres), reedgrass prairie (0.40 acres), and purple needlegrass prairie (0.47 acres). Collection of point sampling data within the grasslands at Twin Peaks revealed that 50 out of 84 total species were native. In addition to relatively high species richness, native species covered 57 percent of these grasslands.

Mosaic

The four mosaic series mapped at Twin Peaks are dominated by native vegetation, typically coyote brush. Wild oat/coyote brush and rattlesnake/coyote brush combined account for over 9 of the 10 acres of mosaic series at Twin Peaks. The remaining areas were mapped as bee plant/coyote brush, wild oat/service berry, or wild oat/silver bush lupine series.

Other

Three series were mapped as "other" habitats at Twin Peaks: bare ground, developed, and rock outcrops. Developed areas account for the largest coverage within this series (0.87 acres) and include the roads. Bare ground (0.25 acres) is often the result of human use that has removed the vegetation. The rock outcrops (0.75 acres) are mostly the result of road cuts that exposed the underlying bedrock, though some outcrops support native vegetation.

Sensitive Plant Species

Ten of the species designated as sensitive for this management plan occur on Twin Peaks (Table 6.8-2; Figure 6.8-4). Beach layia (*Layia carnosa*) is reported in the CNDDB; however, suitable habitat for this species is not present at Twin Peaks. Therefore, it is assumed not to be present at Twin Peaks. San Francisco gumplant (*Grindelia hirsutula* var. *maritima*), a federal species of concern and on CNPS List 1B[2], occurs throughout the open space, especially above the road. Coast rock cress (*Arabis blepharophylla*), on CNPS List 4,[3] occurs in small numbers on rocky north-facing slopes above the road. Pacific reed grass (*Calamagrostis nutkaensis*) is at the southern limit of its range and locally rare. This species also occurs on north-facing slopes of both peaks above the road. The fourth species found at Twin Peaks, stonecrop (*Sedum spathulifolium*), is designated as sensitive because it is a larval host plant for the San Bruno elfin butterfly (*Callophrys mossii bayensis*), a federally endangered species found just to the south of Twin Peaks on San Bruno Mountain. Climbing bedstraw (*Gallium porrigens*) and common fiddleneck (*Amsinckia menziesii* var. *intermedia*) can be found in very limited numbers on the south peak. A few areas of meadow white (*Cerastium arvense*) can be found in the same general

[2] CNPS List 1B plants are those that are rare or endangered in California and elsewhere.
[3] CNPS List 4 plants are those of limited distribution (a watch list).

area. Twin Peaks supports a population of mission blue butterfly; the primary host plant for this species is silver bush lupine (*Lupinus albifrons* var. *collinus*). Because this endangered butterfly is so reliant on this plant species, silver bush lupine is worthy of special management consideration. Fragrant fritillary (*Fritillaria liliacea*) is reported from Twin Peaks, but the current status of this species within the Natural Area is unknown (Wood 1996).

Invasive Plant Species

Eight vegetation series dominated by invasive species account for over 8 acres of land cover at Twin Peaks. French broom scrub and wild oat grassland cover the largest areas of ground (3.65 and 3.63 acres, respectively). Mixed exotic forest (0.98 acres) and wild oat/rattlesnake grassland (0.23 acres) are the next most frequent series dominated by invasive species.

WILDLIFE

Birds

The complex habitat of Twin Peaks provides suitable foraging, nesting, and roosting habitat for a wide variety of species. The grassland and scrub habitats provide foraging habitat for raptors such as American kestrel (*Falco sparverius*) while the forests on the lower slopes provide potential nesting habitat for these species. Nesting and foraging habitat for smaller birds, including white-crowned sparrows *(Zonotrichia leucophrys)*, is available in the scrub and mosaic habitats throughout the Natural Area. The reservoir on the northwestern side of Twin Peaks provides an important source of water for birds within this area.

Sensitive Bird Species and Important Bird Habitat

Of the birds designated as sensitive for this project, thirteen are known to occur at Twin Peaks (Table 6.8-2). Of these thirteen species, American goldfinch (*Carduelis tristis*), lesser goldfinch (*Carduelis psaltria*), purple finch (*Carpodacus purpureus*), pygmy nuthatch (*Sitta pygmaea*), and red-tailed hawk (*Buteo jamaicensis*) all breed within this Natural Area. Spotted towhees *(Pipilo maculatus)* and white-crowned sparrows also nest in the denser scrub areas of Twin Peaks. The majority of Twin Peaks is designated as important bird habitat (Figure 6.8-4). These are mostly scrub and grassland habitats that provide nesting and foraging habitat for the sensitive bird species that are known to occur on Twin Peaks. The California Natural Diversity Data Base (CNDDB) does not report the occurrence of any special-status species of birds at Twin Peaks (CNDDB 2005).

Mammals

Surveys of small mammals were conducted at Twin Peaks in summer 2000 (Paquin and Reading 2000). An array of approximately 40 live traps were placed in grassland and scrub habitats at dusk and serviced the next morning. This pattern was repeated for four consecutive nights (160 trap nights) of August 14-18, 2000. Trapping resulted in the capture of 12 California meadow

voles (*Microtus californicus*) and three house mice (*Mus musculus*). Other small mammals, such as gophers, are expected to occur. Brush rabbit (*Sylvilagus bachmani*) sign (scat) has been regularly observed in scrub areas of Twin Peaks. Larger mammals found in the Twin Peaks area such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*) and Virginia opossum (*Didelphis virginiana*) are typical of urbanized parks in general. The CNDDB does not report the occurrence of any special-status species of mammals at Twin Peaks (CNDDB 2005).

Reptiles/Amphibians

Seven surveys for reptiles and amphibians, totaling approximately 36 hours of field effort, were conducted at Twin Peaks in spring 2000 (Paquin and Reading 2000). These surveys, conducted by walking transects, did not result in the observation of any reptiles or amphibians. Additionally, a survey of the area by EIP biologists on April 19, 1999, did not locate any reptiles or amphibians. Weather during this survey event was typical for Twin Peaks: winds were steady at approximately 25 mph with gusts to over 35 mph, and the air temperature was just over 60° F (16° C). These conditions are not conducive to the discovery of reptiles. Although reptiles and amphibians were not detected during surveys, common species such as San Francisco alligator lizard (*Elgaria coerulea coerulea*) and western fence lizards (*Sceloporus occidentalis*) are expected to occur at Twin Peaks, as well as garter snakes. The CNDDB does not report the occurrence of any special-status species of reptiles or amphibians from Twin Peaks (CNDDB 2005).

Invertebrates

Sensitive Invertebrate Species

At least three special-status species of butterflies potentially occur within the City of San Francisco: mission blue butterfly, San Bruno elfin butterfly, and bay checkerspot butterfly (*Euphydryas editha bayensis*). Bay checkerspot butterflies have been historically reported (1980) from Twin Peaks but they are not currently expected to occur. A population of the federally endangered mission blue butterfly was reported from Twin Peaks in 1979 (CNDDB 2005). The mission blue butterfly lays its eggs on three species of lupine, but silver bush lupine appears to be preferred. Silver bush lupine is located throughout Twin Peaks (see Figure 6.8-4). Annual surveys conducted by SFRPD staff for this species in 2000 and 2001 documented the continuing presence of mission blues on Twin Peaks. Monitoring protocols identified for this species include egg surveys on lupine plants at regular intervals though spring (see Section 7). In 2000, 56 eggs were found on 115 plants in the southern portion of Twin Peaks. In May 2001 surveys found 14 eggs on 15 silver bush lupine.

Host plants for the mission blue and bay checkerspot butterflies are relatively common (various lupines, plantain, owl's clover, etc.) (Garth and Tilden 1986). While no surveys for bay checkerspot have been conducted, the presence of host plants indicates that suitable habitat may

exist within Twin Peaks. Stonecrop occurs on Twin Peaks and is a larval host plant for the San Bruno elfin butterfly, indicating that suitable habitat may also exist for this species.

MANAGEMENT AREAS

Management Areas (MAs) are intended to provide priority ranking for restoration and management work performed by the Natural Areas Program. Because of habitat similarities, only four Management Areas have been designated at Twin Peaks (Figure 6.8-5). The MA-1a areas include rich native grasslands and all of the sensitive species locations including mission blue butterfly habitats. Much of MA-2 areas are coastal scrub areas. There are two MA-3 areas (MA-3a and MA-3b), most of which are located along the boundary of the Twin Peaks Natural Area, adjacent to the surrounding residential neighborhoods.

ISSUES AND RECOMMENDATIONS

Several conservation and recreation-related issues have been identified for Twin Peaks. 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 Twin Peaks are presented first within each topic area, followed by site-specific issues and recommendations. Site-specific recommendations are keyed to the Management Area in which they should occur (Figure 6.8-5).

Site Improvements – Implementation of management recommendations at Twin Peaks would not change significantly the overall look of the Natural Area and would result in:

- preservation and enhancement of native grassland habitat;
- revegetation of exposed soils to limit loss of topsoil;
- increased and more sustainable populations of sensitive plants;
- improved wildlife habitat;
- planting of native species to improve habitat quality;
- increased habitat for mission blue butterflies; and
- improved access on designated trails.

Overall, implementation of the following recommendations at Twin Peaks will result in expanded and stable populations of sensitive plants and animals. Areas of native grassland and scrub vegetation will be enhanced while preserving public access and use of this highly visible Natural Area. Restoration of native grassland and scrub vegetation would improve habitats so that they may be comparable to that of the Marin Headlands reference site.

Vegetation

Issues relating to vegetation management at Twin Peaks involve the protection of sensitive species and habitats, typically through the control of invasive plants. Invasive plants threaten to

reduce the biodiversity and ecological function of the Natural Area at Twin Peaks. In addition to the following specific recommendations, control of invasive plants (GR-1) and reintroduction or augmentation of existing populations of sensitive plant species (GR-2) will help preserve and enhance the biodiversity of Twin Peaks. 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).

Issue TP-1: Local native species found within the Twin Peaks area is at risk of diminishing due to invasive vegetation. Areas of invasive vegetation (French broom, bur clover, and European grasses) occur throughout Twin Peaks and threaten the long-term survival of native plants. SFRPD is currently in the process of removing French broom scrub from areas of Twin Peaks, typically downslope of Twin Peaks Boulevard.

> ***Recommendation TP-1a*:** To protect existing populations of sensitive plants and preserve existing native grassland and coastal scrub habitats, contain and reduce woody and herbaceous invasive species (e.g., wild radish (*Raphanus sativus*), European grasses, Cape ivy (*Delairea odorata*), wild mustard (*Brassica* spp.), and oxalis) in all MA-1 and MA-2 areas. Within the MA-3 areas, some invasive plants (e.g., echium (*Echium candicans*), fennel, etc.) may remain in place to provide nectar, seed and larval habitat for wildlife; however they shall be monitored and managed to prevent encroachment into sensitive MA-1 and MA-2 areas.
>
> ***Recommendation TP-1b:*** In all MA-1 and MA-2 areas, existing rare or uncommon plant species (e.g., Johnny-jump-up, stonecrop, San Francisco gumplant, coast rock cress, etc.) shall be augmented to help insure the continued presence of these species within Twin Peaks. Additionally, in order to help countywide conservation efforts, SFRPD shall consider the reintroduction of sensitive species such as fragrant fritillary, alumroot (*Heuchera micrantha*), canyon gooseberry (*Ribes menziesii*), Scouler's large campion (*Silene scouleri* ssp. *grandis*), California saxifrage (*Saxifraga californica*), and western goldenrod (*Euthamia occidentalis*) within MA-1a and spiny redberry (*Rahmnus crocea*), western choke cherry (*Prunus virginiana*), and canyon gooseberry within MA-2a.
>
> ***Recommendation TP-1c:*** Existing grassland habitats within MA-1a and coastal scrub habitat within MA-2a are providing important habitat for a variety of plants and animals. SFRPD shall maintain and enhance these habitats using diversity, cover, and density targets generated from reference sites within and around San Francisco, and plant native grassland and scrub species (see Appendix B). Additionally, toyon (*Heteromeles arbutifolia*), oak, and coastal scrub shall be maintained in the tree-dominated areas on the park's edges in order to enhance wildlife habitat (MA-3a).
>
> ***Recommendation TP-1d:*** In order to ensure the continued existence of scrub and grassland communities, invasive tree species will be prevented from establishing in MA-

1 and MA-2 areas. Three pine trees shall be removed from MA-2a; no other tree removal shall occur on Twin Peaks. Over 85 trees will remain in the Twin Peaks Natural Area.

Wildlife

Wildlife-related issues at Twin Peaks focus on improving wildlife habitat. Vegetation management during the breeding season can impact nesting birds (GR-4); however, vegetation management can also provide materials to create artificial habitat for ground-dwelling birds, small mammals, and reptiles (GR-9). Artificial nesting structures may benefit some species, especially cavity nesters such as bluebirds, titmice, chickadees, and woodpeckers (GR-6). Finally, reduction in predation pressures will benefit all animals within the Natural Area (GR-7). In addition to these general recommendations, the following site-specific issues should be addressed.

Birds

Implementation of TP-1, including containment and reduction of invasive species and increase in oak and toyon, will enhance structural diversity for wildlife. No additional recommendations are required.

Invertebrates

Issue TP-2: Twin Peaks supports a population of mission blue butterflies (Figure 6.8-4). Mission blue butterflies are listed as endangered under the Federal Endangered Species Act. Priority shall be given to maintaining the habitat necessary for mission blue butterflies, especially the host plant (silver bush lupine).

***Recommendation TP-2a*:** SFRPD shall continue to monitor this mission blue butterfly population at Twin Peaks in accordance with monitoring guidelines (Section 7).

***Recommendation TP-2b*:** Augmentation of host plant populations shall occur whenever possible as part of any grassland revegetation work conducted on Twin Peaks.

Soils, Erosion, and Public Use

Erosion at Twin Peaks primarily relates to the trail system and public use. A network of designated and social trails winds through the Management Areas (Figure 6.8-5). 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 Twin Peaks already exist, but should be periodically maintained and updated to reflect the changing ecosystem as maintenance and enhancement activities proceed (GR-14).

Issue TP-3: Because Twin Peaks receives such a large volume of public use, the trail system is of particular importance in protecting not only sensitive habitats, but the people that use the Natural Area. A total of 8,741 feet of trails exists within the Natural Area. Existing fences in

some areas guide users to established paths. These paths are designed for foot traffic only, but receive some motorcycle and mountain bike use. Social trails, subject to closure, are very common and cover 2,303 feet. Pedestrian routes along Twin Peaks Boulevard are not marked and are inherently unsafe as pedestrians share the roads with cars.

> ***Recommendation TP-3a:*** Maintain existing fences to route park users to safe and designated trails (MA-1a and MA-2a). Additionally, SFRPD shall coordinate with other city agencies to develop safe pedestrian access along Twin Peaks Boulevard, including the development of new trails (approximately 500 feet) if required (MA-1a, Ma-2a, and MA-3a).
>
> ***Recommendation TP-3b:*** Signs should be installed at all formal access points indicating that trails are for foot use only. Following installation, SFRPD shall closely monitor the use of trails within the area. If it becomes clear that motorized and bicycle access continues and is damaging sensitive habitat areas, then the appropriate fencing shall be installed to prevent wheeled-vehicle access to sensitive habitats (MA-1a and MA-2a).
>
> ***Recommendation TP-3c:*** On-trail and on-leash use requirements are critical to the protection of the endangered species that reside there. Off-trail and off-leash use by people or pets may trample and destroy habitat and the butterfly itself. Such activities are in violation of the Endangered Species Act. The known habitat areas of the mission blue butterfly should be clearly signed as on-trail and on-leash. If habitat degradation occurs even after these measures are implemented, consider lining the trail with fences.

Issue TP-4: Habitat for the federally endangered mission blue butterfly is a sensitive habitat on Twin Peaks. Off-leash and off-trail activities can degrade this habitat and harm host plants. On-trail use with on-leash dogs would greatly reduce this impact, however, leash laws are currently rarely enforced.

> ***Recommendation TP-4a:*** There are 5.9 acres of mission blue butterfly habitat at Twin Peaks located next to or surrounding trails. If park users (and dogs) stay on trails, no further access restrictions or fencing would be required. However, if lack of enforcement and compliance with leash laws continues and/or damage to sensitive habitat areas is observed, SFRPD should consider restricting access to these sensitive habitat areas, as described in the dog policy, including physical barriers. Permanent physical barriers are viewed as a last resort to be used only after signage and other soft solutions have been shown to be ineffective. If fences are installed, public access would still be allowed on designated trails; however, low trailside fencing would be installed to discourage people and dogs from drifting off-trail (see Appendix H for examples of low rustic fencing).

Table 6.8-1. Vegetation series mapped at Twin Peaks.

	Vegetation Series	Total Acreage
Forest	blue gum forest	0.00
	cypress forest	0.34
	mixed exotic forest	1.05
	Subtotal	**1.39**
Scrub	California sagebrush scrub *	0.31
	California blackberry scrub *	1.27
	coyote brush scrub *	5.84
	poison oak scrub *	0.27
	French broom scrub	3.91
	Subtotal	**11.60**
Mosaic	bee plant/coyote brush mosaic *	0.60
	wild oat/coyote brush mosaic *	6.00
	wild oat/silver bush lupine mosaic *	0.59
	rattlesnake grass/coyote brush mosaic *	3.14
	Subtotal	**10.33**
Grassland	rattlesnake grassland	0.01
	wild oat grassland	3.76
	wild oat/rattlesnake grassland	0.31
	red fescue prairie *	0.78
	purple needlegrass prairie *	0.47
	reedgrass prairie *	0.40
	Subtotal	**5.73**
Other	wild radish	0.12
Herbaceous	**Subtotal**	**0.12**
Other	bare ground	0.25
	developed	0.87
	rock outcrop	0.75
	Subtotal	**1.87**
Grand Total		**31.04**

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

Table 6.8-2. Sensitive species historically and presently known to occur at Twin Peaks.

Species	Common Name	Status Federal, State, CNPS	Occurrence Status
ANIMALS			
Euphydryas editha bayensis	Bay Checkerspot Butterfly	FT	Historically reported
Icaricia icarioides missionensis	Mission Blue Butterfly	FE	Presently occurs
Carduelis tristis	American Goldfinch	SLC	Currently breeds
Columba fasciata	Band-tailed Pigeon	SLC	Presently occurs
Carduelis psaltria	Lesser Goldfinch	SLC	Currently breeds
Empidonax difficilis	Pacific-slope Flycatcher	SLC	Presently occurs
Vermivora celata	Orange-crowned Warbler	SLC	Presently occurs
Carpodacus purpureus	Purple Finch	SLC	Currently breeds
Sitta pygmaea	Pygmy Nuthatch	SLC	Currently breeds
Loxia curvirostra	Red Crossbill	SLC	Winter resident
Buteo jamaicensis	Red-tailed Hawk	SLC	Currently breeds
Pipilo maculatus	Spotted Towhee	SLC	Currently breeds
Catharus ustulatus	Swainson's Thrush	SLC	Presently occurs
Tachycineta thalassina	Violet-green Swallow	SLC	Presently occurs
Wilsonia pusilla	Wilson's Warbler	SLC	Presently occurs
PLANTS			
Arabis blepharophylla	Coast Rock Cress	CNPS List 4	Presently occurs
Calamagrostis nutkaensis	Pacific Reedgrass	LS	Southern range limit, presently occurs
Ceanothus thyrsiflorus	Coast Blue Blossom, California Lilac	LS	Presently occurs
Cerastium arvense	Meadow White	LS	Presently occurs
Gallium porrigens	Climbing Bedstraw	LS	Presently occurs
Grindelia hirsutula var. *maritima*	San Francisco Gumplant	FSC, CNPS List 1B	Presently occurs
Layia carnosa	Beach Layia	FE, SE, CNPS List 1B	Historically reported from San Francisco, location not well mapped, presumed extirpated
Sedum spathulifolium	Broadleaf Stonecrop	-	Larval food plant for San Bruno elfin butterfly, presently occurs
Viola adunca	Blue Violet	LS	Presently occurs
Amsinckia intermedia	Common Fiddleneck	LS	Presently occurs

Table 6.8-2. Sensitive species historically and presently known to occur at Twin Peaks.

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

EIP ASSOCIATES

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 6, 2002, revised December 11, 2005.

N

0 250 500
Feet

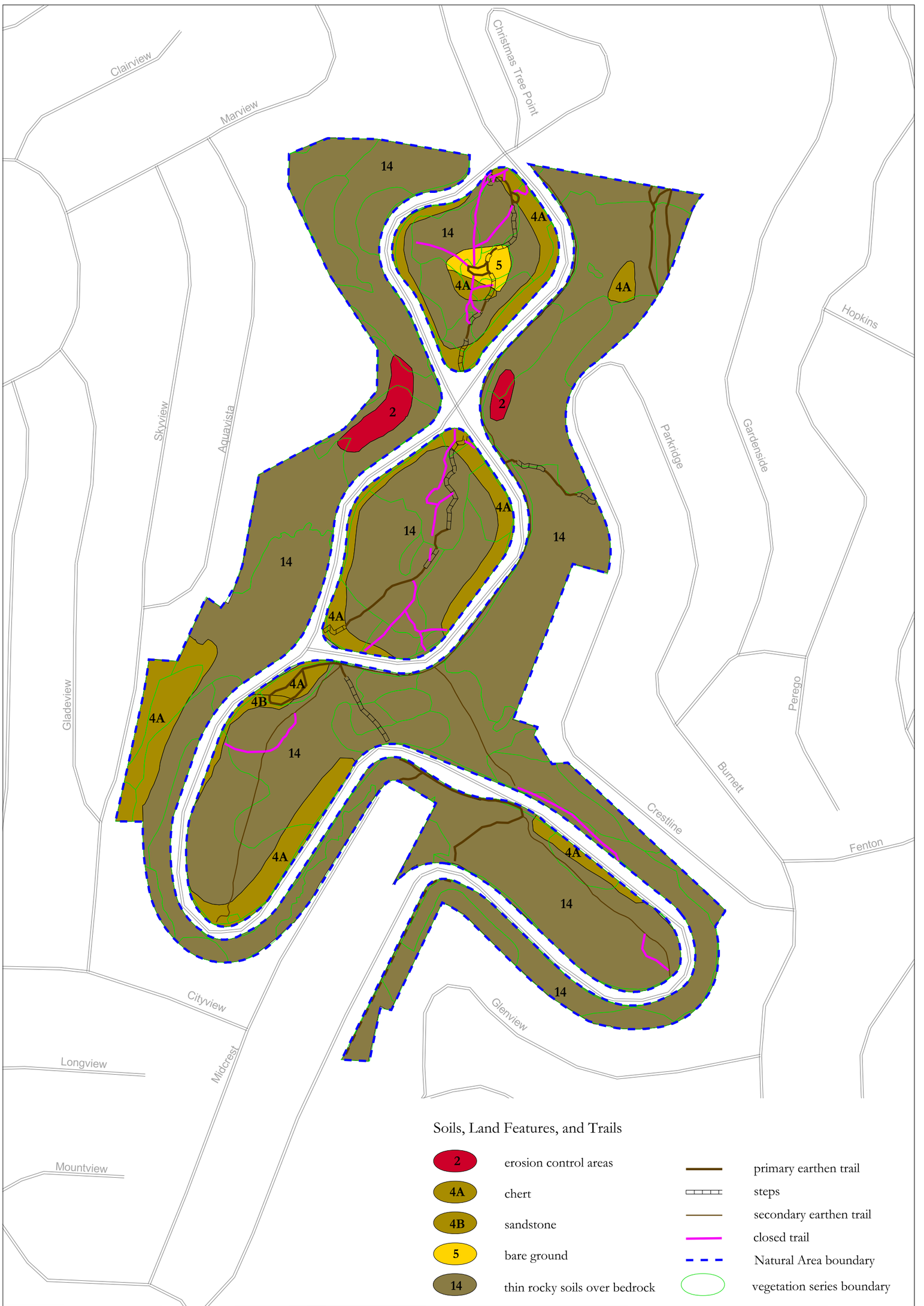
FIGURE 6.8 - 1

AERIAL PHOTOGRAPH, PROPERTY BOUNDARIES, AND NATURAL AREAS

Twin Peaks

Significant Natural Resource Areas Management Plan

San Francisco, California



EIP ASSOCIATES

Source: Soils and land features data collected by EIP Associates, 1999-2002; trail data collected by San Francisco Recreation and Park Department Natural Areas Program (NAP) 2005, digitized by San Francisco State Institute for GISc; vegetation data collected by NAP, San Francisco State University Biology Department and EIP Associates, 1999- 2000; data layers digitized by Geotopo, Inc., 2000; edited and corrected by SFSUIGIS, 2000 - 2002; natural area boundary created by SFSU IGIS based on a determination by NAP, 2005; streets data excerpted from ArcView StreetMap 2000, copyright 1998-2000, Environmental Systems Research Institute, Inc., (ESRI).

Created by Debra Dwyer of the San Francisco State University Institute for GISc August 24, 2001; revised December 11, 2005.

N

0 200 400

Feet

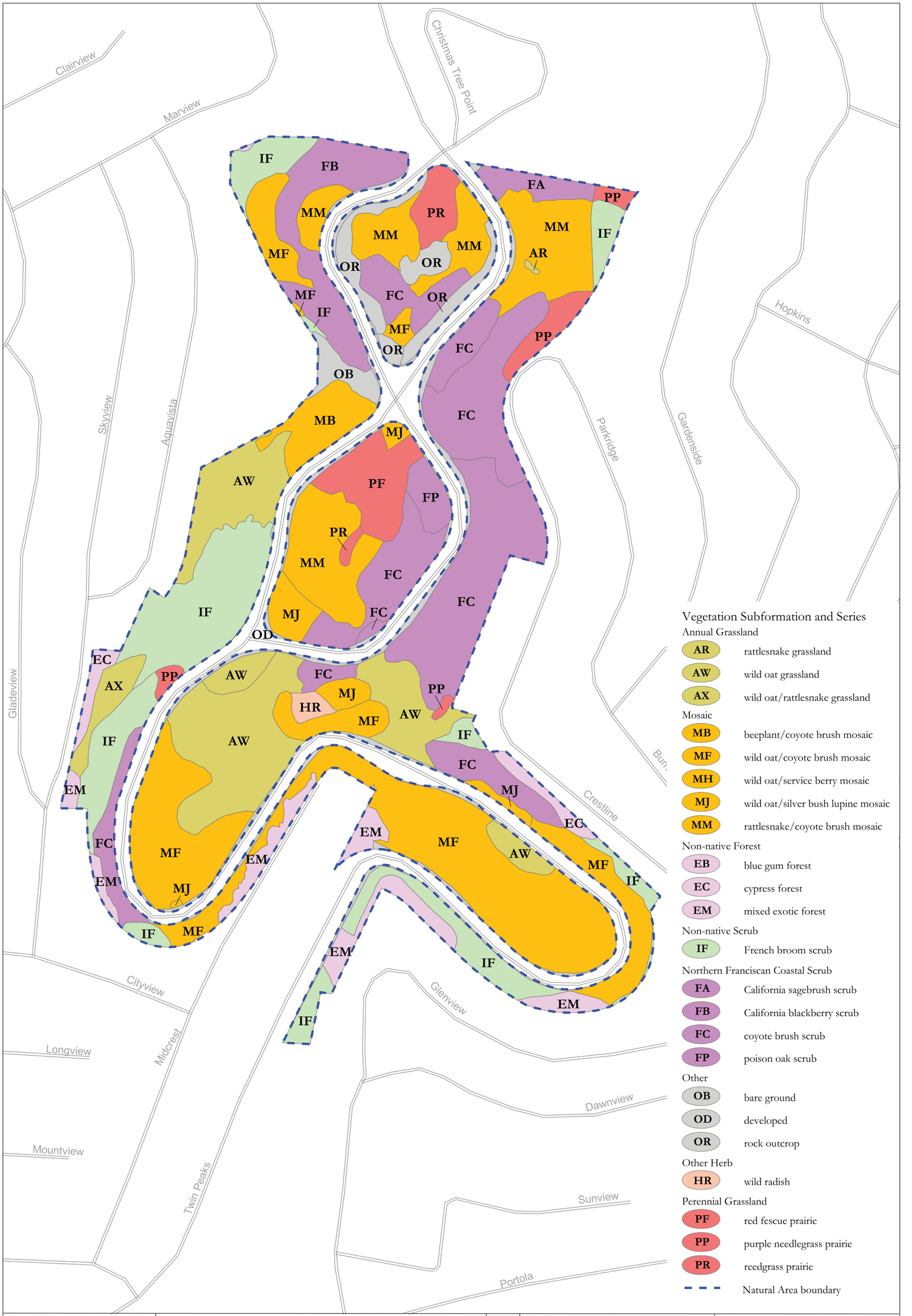
FIGURE 6.8 - 2

SOILS, LAND FEATURES, AND TRAILS

Twin Peaks

Significant Natural Resource Areas Management Plan

San Francisco, California



EIP ASSOCIATES

Source: Vegetation data collected by San Francisco Recreation and Park Department 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 23, 2001, revised October 9, 2005.

N

0 200 400
Feet

FIGURE 6.8 - 3
VEGETATION
Twin Peaks
Significant Natural Resource Areas Management Plan
San Francisco, California

EIP ASSOCIATES

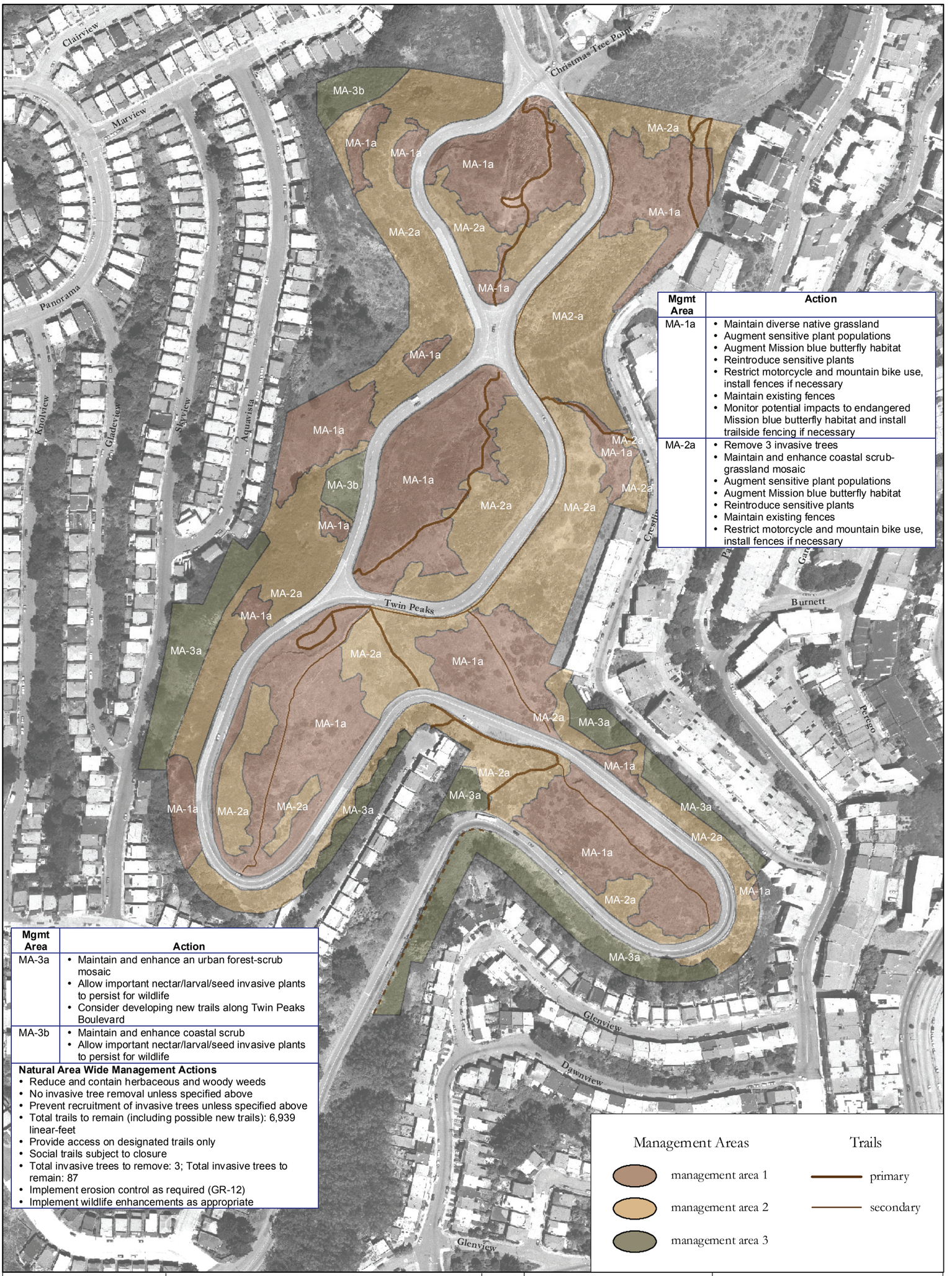
Source: Sensitive species data collected by San Francisco Department of Recreation and Parks Significant Natural Areas Program (NAP), 1998-2005; vegetation data collected by NAP, San Francisco State University Biology Department and EIP Associates, 1999-2000; data layers digitized by Geotopo, Inc., 2000; 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 Environmental Systems Research Institute, INC. (ESRI) ArcView StreetMap 2000 data, copyright ESRI 1998-2000.

Created by D. Dwyer, San Francisco State University Institute for GISc, September 10, 2001, revised October 9, 2005.

N

0 200 400
Feet

FIGURE 6.8 - 4
SENSITIVE SPECIES AND IMPORTANT BIRD HABITAT
Twin Peaks
Significant Natural Resource Areas Management Plan
San Francisco, California



Mgmt Area	Action
MA-1a	• Maintain diverse native grassland • Augment sensitive plant populations • Augment Mission blue butterfly habitat • Reintroduce sensitive plants • Restrict motorcycle and mountain bike use, install fences if necessary • Maintain existing fences • Monitor potential impacts to endangered Mission blue butterfly habitat and install trailside fencing if necessary
MA-2a	• Remove 3 invasive trees • Maintain and enhance coastal scrub-grassland mosaic • Augment sensitive plant populations • Augment Mission blue butterfly habitat • Reintroduce sensitive plants • Maintain existing fences • Restrict motorcycle and mountain bike use, install fences if necessary

Mgmt Area	Action
MA-3a	• Maintain and enhance an urban forest-scrub mosaic • Allow important nectar/larval/seed invasive plants to persist for wildlife • Consider developing new trails along Twin Peaks Boulevard
MA-3b	• Maintain and enhance coastal scrub • 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 (including possible new trails): 6,939 linear-feet
- Provide access on designated trails only
- Social trails subject to closure
- Total invasive trees to remove: 3; Total invasive trees to remain: 87
- Implement erosion control as required (GR-12)
- Implement wildlife enhancements as appropriate

Management Areas

- management area 1
- management area 2
- management area 3

Trails

- primary
- secondary

EIP ASSOCIATES

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 StreetMap 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 October 11, 2005.

N

0 75 150 300

Feet

FIGURE 6.8 - 5

MANAGEMENT AREAS AND TRAIL PLAN

Twin Peaks

Significant Natural Resource Areas Management Plan

San Francisco, California