

6.20 PALOU-PHELPS

GENERAL DESCRIPTION AND LOCATION

The 2.1-acre Palou-Phelps Natural Area is located near the intersection of Palou and Phelps streets in southeastern San Francisco (Figure 1-1). Elevations within the Natural Area range from approximately 70 to 180 feet above sea level (Figure 6.20-1). Palou-Phelps Park, which contains the Natural Area, is a small, 2.5-acre neighborhood park, with a playground area at the northern entry on the only flat portion of the park. The vegetation on the slope of Palou-Phelps is comprised primarily of grasslands. As a neighborhood park that supports native habitats, Palou-Phelps has high natural resource and recreational values for San Francisco citizens that include: diverse native grasslands; habitat for a variety of bird species, including raptors; city views; and recreational trail use.

GEOLOGY, HYDROLOGY, AND TRAILS

The Palou-Phelps Natural Area is an undeveloped open space comprised mostly of a steep hill rising up to the east and south from the playground on Palou Street. This Natural Area is underlain by sandstone that has been mapped in its decomposed stage as “thin rocky soils over bedrock” (Figure 6.20-2). Steep slopes and escarpments can be found scattered throughout the Natural Area. A network of designated and social trails winds through all Management Areas. A portion of the trail leading east from the entrance to the Natural Area is severely eroded and adjacent to a 20-foot drop-off with no fence. The trail is very narrow and hazardous at this point. A fence divides the park almost in half near where the grassland and blue gum forest meet. Blue gum trees cover the steep slope beyond the fenced area, extending to the eastern property line. This narrow section between the fence and the southern property line (MA-3a) is situated between backyards of neighboring houses and is currently inaccessible.

VEGETATION

The vegetation of Palou-Phelps Natural Area was classified into eight series (Table 6.20-1; Figure 6.20-3). These series are within four sub-formations: approximately 51 percent of the area is grassland; 24 percent is forest; 22 percent is mosaic; and 3 percent is classified as “other” (developed and rock outcroppings). Two of these series, wild oat/coyote brush mosaic and purple needlegrass prairie, are dominated by native species.

Forest

Two forest series were mapped at Palou-Phelps. The blue gum forest series is the most abundant of these, accounting for approximately 0.49 acres. A small patch of pine forest is located on the northern edge of the Natural Area above the playground.

Grassland

Two grassland series were mapped at Palou-Phelps and cover just over 1 acre. Almost all of this area was mapped as wild oat grassland (0.99 acres). Within this area, there is a small patch of native purple needlegrass prairie (0.04 acres). Collection of point data within the entire grassland at Palou-Phelps resulted in observations of 64 species, only 30 of which were native. Additionally, invasive species accounted for 78 percent of the grassland cover.

Mosaic

Two mosaic vegetation series were mapped at Palou-Phelps. A 0.04-acre patch of wild oat/coyote brush mosaic, dominated by native species, occurs in the western section of the Natural Area. An approximately 0.42-acre of invasive wild oat/French broom mosaic can be found in the eastern half of the Natural Area.

Other

Two series were mapped as “other” habitats at Palou-Phelps: developed and rock outcrops. The rock outcrop (0.05 acres) is likely the result of a road cut that exposed the underlying bedrock. Developed areas cover an insignificant amount of land.

Sensitive Plant Species

No sensitive plant species have been observed on Palou-Phelps. The California Natural Diversity Data Base (CNDDDB) does not report the occurrence of any sensitive plant species at Palou-Phelps (CNDDDB 2005).

Invasive Plant Species

Five vegetation series dominated by invasive species account for approximately 90 percent of the land cover at the Palou-Phelps Natural Area. Wild oat grassland, blue gum forest, and wild oat/French broom mosaic combine to cover approximately 1.9 acres. Within the grasslands, invasive species account for 78 percent of the cover. The remaining three series combined cover approximately one-tenth of an acre.

WILDLIFE

Birds

Although small, the Palou-Phelps Natural Area provides suitable foraging, nesting, and roosting habitat for a variety of species. The grassland habitats of Palou-Phelps provide foraging habitat for raptors, while the forests provide potential nesting habitat for these species. A female American kestrel (*Falco sparverius*) was observed within the grassland (EIP field visit, May 17, 1999), but nesting status was not established. Habitat for smaller birds (passerines) is available in

the mosaic habitats throughout the area. The grasslands in association with the coyote bush scrub could provide foraging and nesting habitat for dark-eyed junco (*Junco hyemalis*), western meadowlark (*Sturnella neglecta*), and white-crowned sparrow (*Zonotrichia leucophrys*). Important bird habitat has not been delineated for this Natural Area. Other than the kestrel, sensitive bird species have not been documented as occurring at Palou-Phelps (CNDDDB 2005).

Mammals

To date, no small mammal surveys have been conducted at Palou-Phelps. Species that occur in the grasslands are likely typical of other Natural Areas and include California meadow vole (*Microtus californicus*) and house mouse (*Mus musculus*). Larger mammals such as raccoons (*Procyon lotor*), striped skunks (*Mephitis mephitis*), and Virginia opossum (*Didelphis virginiana*) (*Didelphis virginiana*) are typical of urbanized parks in general and are expected to occur within the Palou-Phelps Natural Area. The CNDDDB does not report the occurrence of any sensitive mammal species within the area (CNDDDB 2005).

Reptiles/Amphibians

No reptiles or amphibians were observed during a survey of Palou-Phelps by an EIP biologist and a San Francisco Recreation and Park Department volunteer on the morning of May 17, 1999. Western fence lizards (*Sceloporus occidentalis*) and western terrestrial garter snakes (*Thamnophis elegans*) may occur onsite. The CNDDDB does not report the occurrence of any sensitive reptile or amphibian species (CNDDDB 2005).

Invertebrates

Sensitive Invertebrate Species

At least four special-status species of butterflies potentially occur within the City of San Francisco: mission blue butterfly (*Icaricia icarioides missionensis*), bay checkerspot butterfly (*Euphydryas editha bayensis*), San Bruno elfin butterfly (*Incisalia mossii bayensis*), and San Francisco silverspot (*Speyeria callippe callippe*) (CNDDDB 2005). Larval host plants for the mission blue and bay checkerspot butterflies are relatively common (various lupines, plantain, owl's clover, etc.) (Garth and Tilden 1986). The larval host plant for the San Bruno elfin butterfly is stonecrop (*Sedum spathulifolium*). The larval host plant for the silverspot is Johnny-jump-up (*Viola pedunculata*). The Palou-Phelps Natural Area is small and does not contain silver bush lupines (*Lupinus albifrons* var. *collinus*) or an abundance of other host plants for sensitive butterfly species; therefore, these species are not likely to occur at there.

MANAGEMENT AREAS

Only three Management Areas (MAs) have been designated at the Palou-Phelps Natural Area (Figure 6.20-4). Most of the grassland above the playground has been mapped as MA-1a and includes the purple needlegrass prairie and rich grasslands. On either side of this MA-1a are MA-

2a areas which are relatively less sensitive, but still support important natural resources and provide a buffer for the MA-1 area. Most of the active restoration at Palou-Phelps will occur within the MA-1 and MA-2 areas and these are the places where the public is most likely to see changes in the park landscape. The MA-3 areas are comprised of invasive scrub series and trees in the eastern portion of the Natural Area. The following text presents issues and recommended management actions by Management Area.

ISSUES AND RECOMMENDATIONS

Several conservation and recreation-related issues have been identified at Palou-Phelps. 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 Palou-Phelps 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 Palou-Phelps would not significantly change the overall look of the park and would result in:

- improved public access on designated trails;
- improved wildlife habitat; and
- enhancement of native grasslands.

Careful management and restoration of the grasslands at Palou-Phelps will create a native grassland that is rich in plant species, supports sensitive and rare plants, and offers habitat for sensitive species of butterflies. This grassland may be comparable to that found on the northern slope of Bayview Park (Section 6.17) or on San Bruno Mountain.

Vegetation

Issues relating to vegetation management at Palou-Phelps focus on the protection of habitats, typically through the control of invasive plants (GR-1) and management of vegetation series of limited distribution (GR-2). Grassland management is also necessary to ensure that the current grasslands are not substantially altered (GR-3). 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 issues should be addressed.

Issue PP-1: The grassland at Palou-Phelps supports a population of purple needlegrass prairie. The small size of this population, approximately 0.04 acres, makes it very susceptible to invasion by sensitive species. The grassland-scrub mosaic of this Natural Area could provide habitat for wildlife and sensitive plants if they are maintained. Currently the mosaics are largely comprised of invasive species such as French broom (*Genista monspessulana*) and wild oats (*Avena* sp.).

Invasive vegetation such as blue gum (*Eucalyptus* sp), wild radish (*Raphanus sativus*), wild oats, and sweet fennel (*Foeniculum vulgare*) threaten the survival of the prairie grassland and the grassland scrub mosaic.

Recommendation PP-1a: To protect and enhance the existing purple needlegrass prairie and scrub-grassland mosaic habitats within MA-1a and MA-2a, reduce and contain woody and herbaceous invasive plants such as wild radish, wild oats, Bermuda buttercup (*Oxalis pes-caprae*), sweet fennel, and European grasses. No trees are to be removed from MA-1a. Two previously cut eucalyptus from MA-2a will be removed for public safety reasons. All the remaining 40 trees (primarily blue gum eucalyptus) will remain. In order to maintain the grassland, prevent invasive trees from becoming established within the MA-1 and MA-2 areas. Within the MA-3 areas, allow some invasive plants such as radish, thistles, plantain, and fennel that are important nectar, seed and larval habitat for wildlife to persist; however, they shall be monitored to ensure that they do not encroach on sensitive habitats, and managed accordingly. Understory plants in MA-3 areas may also be reduced in order to improve tree health and wildlife habitat (see Urban Forest Recommendations in GR-15).

Recommendation PP-1b: In MA-1 and MA-2 areas where invasive plants have been removed, revegetate using appropriate native plants. Existing grasslands and coastal scrub-grassland mosaic habitats (MA-1a and MA-2a) shall be enhanced and diversified as appropriate. Using diversity, cover, and density targets generated from reference sites within and around San Francisco, plant native grassland and scrub species (see Appendix B).

Recommendation PP-1c: To further enhance the biodiversity of Palou-Phelps and help in the countywide conservation of sensitive plant species, consider reintroduction of sensitive plants such as big squirrel tail (*Elymus multisetus*) and broadleaf aster (*Aster radulinus*) (MA-1a and MA-2a).

Recommendation PP-1d: To help preserve the overall diversity of this Natural Area, in MA-3a, maintain the existing mosaic of urban forest and grassland. In the tree-dominated areas of MA3a, follow urban forest recommendation (GR-14). The grasslands should be managed as described in PP-1a and PP1b. In the areas adjacent to private property favor less fire prone vegetation (e.g., grasslands and perennial shrubs).

Wildlife

Wildlife issues at the Palou-Phelps Natural Area focus on habitat, food sources, and shelter. 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). Installation of plants required by California's native butterflies can help increase these populations (GR-10). Finally, reduction in predation pressures

will benefit all animals within the Natural Area (GR-7). Implementation of the general recommendation will enhance the wildlife habitat present. No site specific wildlife-related issues have been identified for this Natural Area.

Soils, Erosion, and Public Use

All of the erosion issues at Palou-Phelps relate to the trail system and public use. Palou-Phelps has a modest trail system of mostly earth trails (Figure 6.20-2). Some sections of the park are not well served with existing trails. Most of the trails at Palou-Phelps are in stable condition, except one trail that leads to the park's southern end. This plan proposes to improve and maintain 260 feet of trails, retain an additional 262 feet of unimproved trails, close 527 feet of social trails, and create approximately 500 feet of new trails to access the southeast portion of the Natural Area. The issue of erosion and habitat impacts related to social trails that may develop is addressed through implementation of GR-11 and GR-12. Interpretive signs regarding the ecosystem of Palou-Phelps should also be considered (GR-14). The following site-specific recommendations should also be addressed.

Issue PP-2: A social trail segment leading southeast from the playground is severely eroded and directly adjacent to a 20-foot cliff (area 1c on Figure 6.20-2). The trail is very narrow and hazardous at this point and was likely created by people trying to access the southern portion of the Natural Area.

Recommendation PP-2a: In addition to closing the section of unsafe social trail (MA-1a and MA-2a), investigate the best possible route to reach the southern portion (MA-3a) of the Natural Area (Figure 6.20-4).

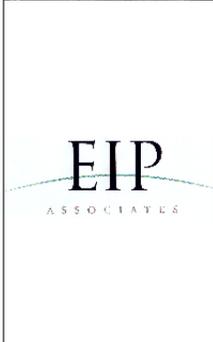
Table 6.20-1. Vegetation series mapped at Palou-Phelps.

| | Vegetation Series | Total Acreage |
|--------------------|-------------------------------|----------------------|
| Forest | blue gum forest | 0.49 |
| | pine forest | 0.00 |
| | Subtotal | 0.49 |
| Mosaic | wild oat/coyote brush mosaic* | 0.04 |
| | wild oat/French broom mosaic | 0.42 |
| | Subtotal | 0.46 |
| Grassland | wild oat grassland | 0.99 |
| | purple needlegrass prairie* | 0.04 |
| | Subtotal | 1.03 |
| Other | developed | 0.01 |
| | rock outcrop | 0.05 |
| | Subtotal | 0.05 |
| Grand Total | | 2.03 |

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



- - - 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 October 12, 2005.

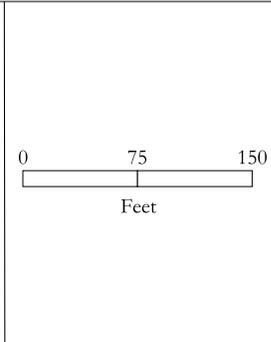
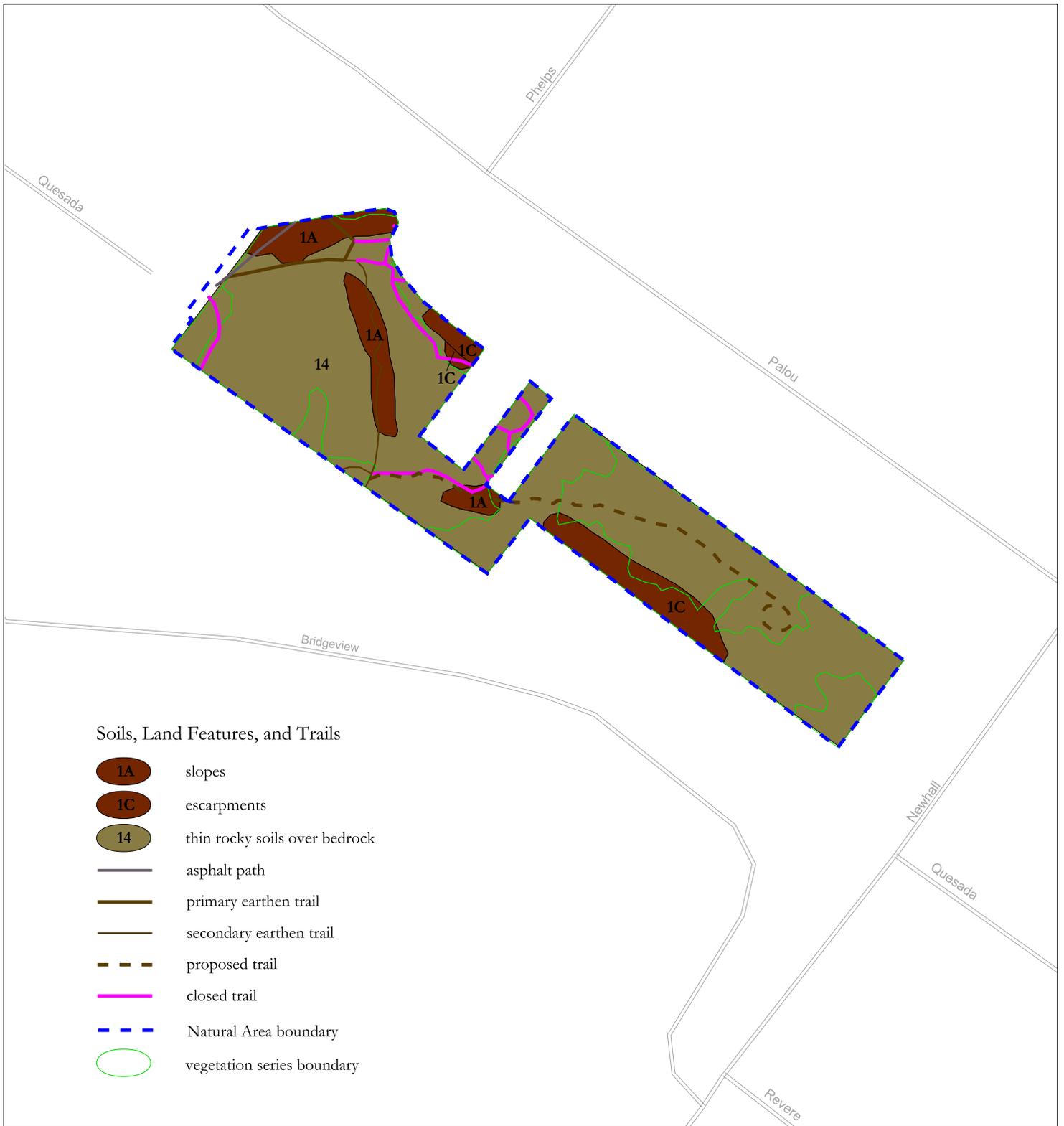


FIGURE 6.20 - 1
AERIAL PHOTOGRAPH,
PROPERTY BOUNDARIES,
AND NATURAL AREAS
Palou-Phelps
Significant Natural Resource Areas
Management Plan
San Francisco, California



Soils, Land Features, and Trails

-  1A slopes
-  1C escarpments
-  14 thin rocky soils over bedrock
-  asphalt path
-  primary earthen trail
-  secondary earthen trail
-  proposed trail
-  closed trail
-  Natural Area boundary
-  vegetation series boundary

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 (SFSUGIS), 2000, 2005; trails data digitized by SFSUGIS, 2005; natural area boundary created by SFSUGIS from data determined by NAP, 2005; streets data excerpted from ArcView Street-Map 2000 Data, copyright 1998-2000, Environmental Systems Research Institute, Inc. (ESRI).

Created by Debra Dwyer of San Francisco State University Institute for GISc August 28, 2001, revised December 11, 2005.

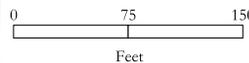


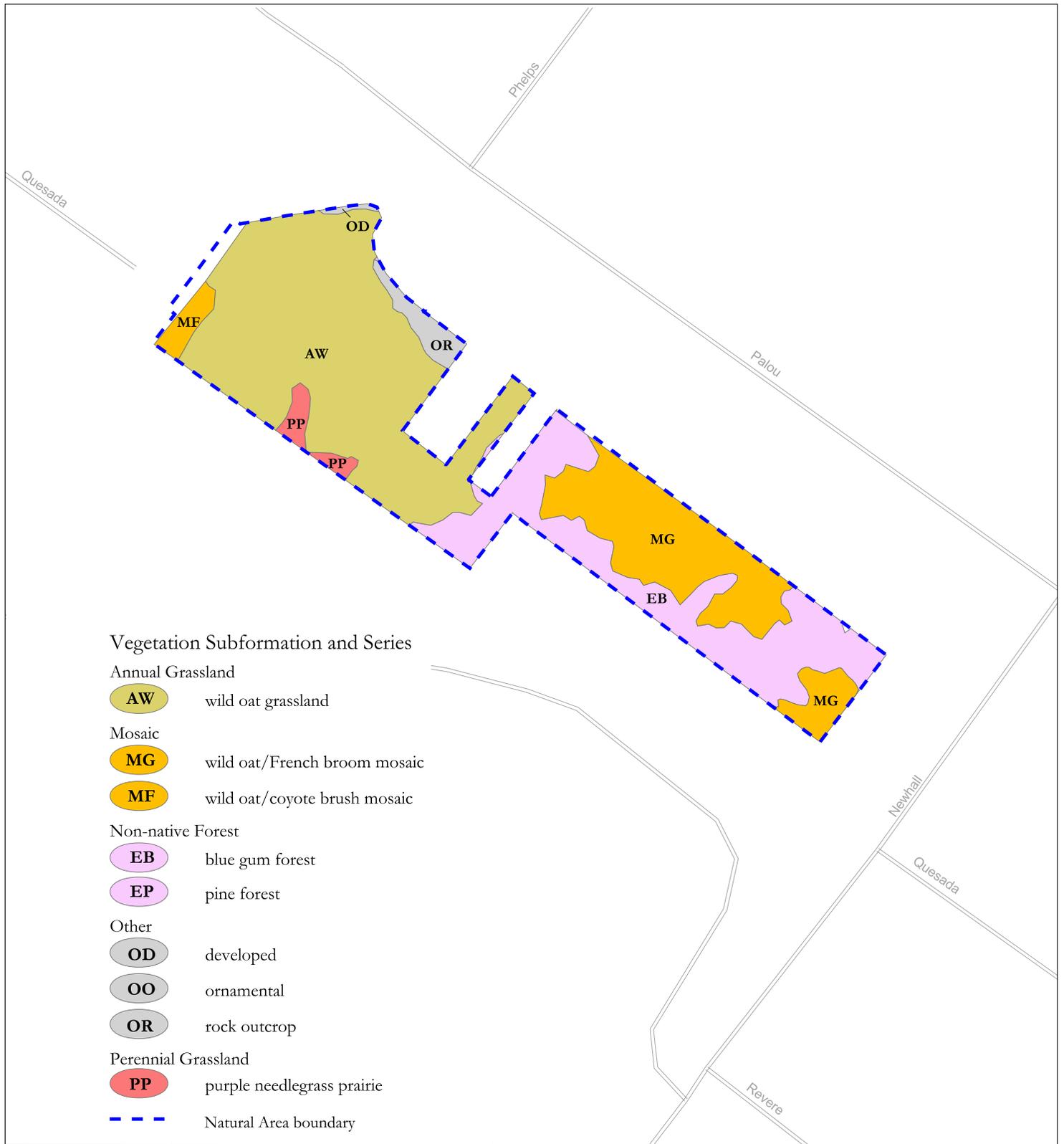
FIGURE 6.20 - 2
SOILS, LAND FEATURES,
AND TRAILS

Palou-Phelps

Significant Natural Resource Areas
Management Plan

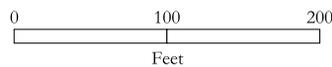
San Francisco, California





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; vegetation digitized by Geotopo, Inc., 2000; edited and corrected by San Francisco State University Institute for GISc (SFSUGIS), 2000; natural area boundary created by SFSUGIS from data determined by NAP, 2005; streets data excerpted from ArcView StreetMap by Environmental Systems Research Institute, Inc. ESRI, copyright 1998-2001.

Created by Debra Dwyer of San Francisco State University Institute for GISc August 24, 2001, revised October 12, 2005.



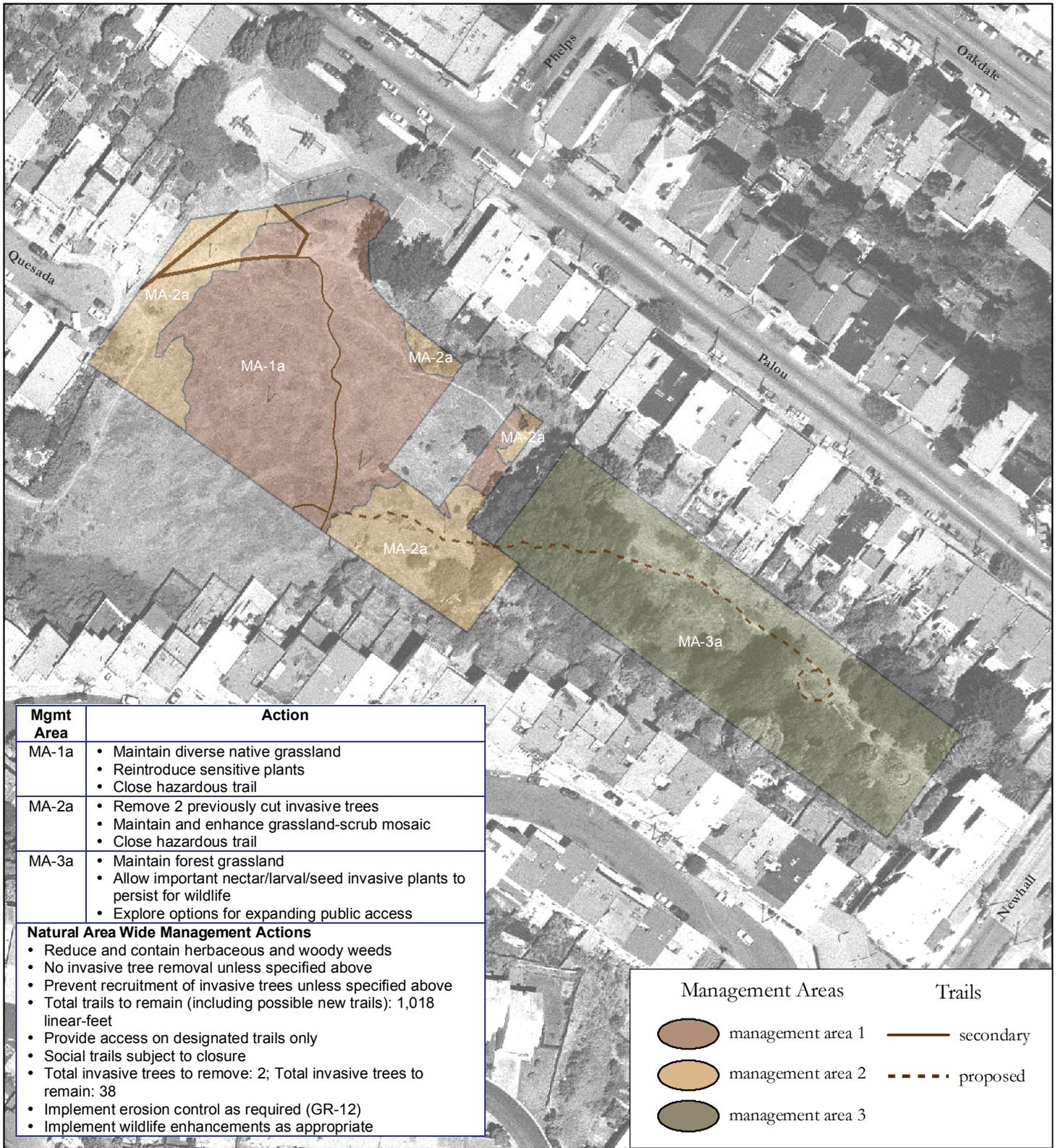
**FIGURE 6.20 - 3
VEGETATION**

Palou-Phelps

**Significant Natural Resource Areas
Management Plan**

San Francisco, California





| Mgmt Area | Action |
|---|--|
| MA-1a | <ul style="list-style-type: none"> • Maintain diverse native grassland • Reintroduce sensitive plants • Close hazardous trail |
| MA-2a | <ul style="list-style-type: none"> • Remove 2 previously cut invasive trees • Maintain and enhance grassland-scrub mosaic • Close hazardous trail |
| MA-3a | <ul style="list-style-type: none"> • Maintain forest grassland • Allow important nectar/larval/seed invasive plants to persist for wildlife • Explore options for expanding public access |
| Natural Area Wide Management Actions | |
| <ul style="list-style-type: none"> • 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): 1,018 linear-feet • Provide access on designated trails only • Social trails subject to closure • Total invasive trees to remove: 2; Total invasive trees to remain: 38 • Implement erosion control as required (GR-12) • Implement wildlife enhancements as appropriate | |

Management Areas

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

Trails

- secondary
- proposed



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.

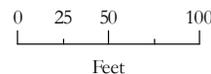


FIGURE 6.20 - 4
MANAGEMENT AREAS
AND TRAIL PLAN
Palou Phelps
Significant Natural Resource Areas
Management Plan
San Francisco, California