

# **San Bruno Mountain Habitat Management Plan 2007**

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## **APPENDIX A**

### **Management Units**

## Appendix A. Management Units

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The following is a description of each of the 13 management units including a description of the topography, vegetation communities, invasive species, and rare and endangered species. A brief description of past and current land-use and management practices is also provided. Finally, conservation needs are identified and recommended management is provided. Each management unit map shows: 1) Priority management areas, 2) invasive species infestations, 3) proposed brush control areas, and 4) potential grazing areas.

### 1. Southeast Ridge (191 acres)

#### Figures 1 and 2

The Southeast Ridge is located on the far eastern edge of the Mountain and is bordered by Bayshore Boulevard and Highway 101 on the east and south, and the ridge trail on the north. The unit has expansive areas of grassland on steep slopes and narrow bands of coastal scrub and some woodland vegetation within the ravines. The lower slopes have an Indian midden site (the Preservation Parcel), and development grading has been done on the southeastern corner and eastern flat areas for the Terrabay Phase III commercial development. The grassland within this unit has infestations of French broom, fennel, and a variety of herbaceous weeds (Figure 1).

The unit has significant mission blue and callippe silverspot habitat along the upper ridgelines and on the northern slopes between Bayshore Boulevard and the ridge. Significant patches of mission blue habitat are located along the ridge trail and on fire roads, rocky outcrops and slumps within the unit. Approximately 75% of this unit is within the Priority 1 management area (Figure 2).

The lower northern slope of this unit includes the Preservation Parcel, which is an Ohlone Native American midden site. The steep slopes were used for cattle grazing

primarily in the last century. A San Francisco Water Department pipeline runs through the eastern side of the unit, and the Terrabay Phase III commercial development is currently under construction on the more gradual slopes on the southeastern side of the unit. The Southeast Ridge has very dry conditions in summer and fall, and is prone to occasional wildfires.

<b>Resource</b>	<b>Habitat Value</b>
Mission Blue	High
Callippe Silverspot	High
San Bruno Elfin	Not Present
Bay Checkerspot	Moderate
Native Plant Community Diversity and Dominance	Moderate

#### Conservation Needs and Prescription

This unit, like many grassland areas on the south side of the Mountain, has many species of grassland weeds. Many of these weeds are too ubiquitous to control using herbicide or hand control methods and require the use of burning, grazing and/or mowing. The objective for this unit is to protect existing butterfly habitat and populations through management of grasslands with grazing and control of non-natives.

The conservation prescription for the Southeast Ridge includes the following: conduct grazing to reduce thatch, non-native species coverage, and reverse coastal scrub bristly ox-tongue, and other invasive weeds as a supplement to grazing; consider reseeding native grasses and forbs, including butterfly host plants into sites where non-natives have been dominant; use the 'weed emergency fund' to control weeds on an as-needed basis after wildfires; coordinate with CDF to minimize and restore areas impacted during wildfire control operations.

Figure 1. Southeast Ridge, Invasive Species Map



Figure 2. Southeast Ridge, Priority Management Areas



## 2. Brisbane Acres (190 acres)

### Figures 3 and 4

The Brisbane Acres management unit is bordered by the Southeast Ridge management unit on the south side and the City of Brisbane on the north. Steep slopes, ravines and ridgelines compose a significant amount of the topography in the area. The lower northern slopes are typified by non-native Monterey cypress, Monterey pine, French broom and Eucalyptus forests interspersed with native coastal scrub and coast live oak woodland (Figure 3). Residential development rims the northern boundary of the unit. Upper ridge areas are typified by native grassland and a lesser amount of northern coastal scrub. The unit has significant mission blue and callippe silverspot habitat along the upper ridgelines. Significant patches of mission blue habitat are located along the ridge trail and on fire roads, rocky outcrops and slumps within the unit. There are a few rocky outcrops supporting *Sedum spathulifolium* within the unit, which may provide very marginal habitat for San Bruno elfin. A few ridgeline locations also support populations of rare plants including *Diablo helianthella* (CNPS 1B), and one documented location of San Francisco campion (FE). Approximately 50% of this unit is within the Priority 1 management area (Figure 4).

This management area contains high economic value in the form of private residences, infrastructure (including paved and unpaved roads, water tanks, drainage systems, etc.) and close proximity as a view-shed for the City of Brisbane. The area also contains a PG&E easement and is crossed by San Francisco Water District water supply lines.

Based on historical photography and communications with local residents, the unit was thoroughly grazed and burned during the early and middle 20<sup>th</sup> century, and grassland was the dominant plant community at that time. Since then, coastal scrub has reclaimed much of those areas. The Brisbane Acres is prone to occasional wildfires, and the most recent occurred in August 2006 and burned 38 acres.

Resource	Habitat Value
Mission Blue	High
Callippe Silverspot	High
San Bruno Elfin	Low
Bay Checkerspot	Moderate
Native Plant Community Diversity and Dominance	High

This management area currently has a very high fuel hazard and fire risk. The proximity of fuel loads to existing structures and residences within the Brisbane Acres area presents a serious potential threat to human life and health. These threats are in the form of Eucalyptus and Monterey cypress groves with an understory of native and non-native shrubs and trees. Large French broom stands adjacent to and within these non-native forests also represent a fire hazard.

### Conservation Needs and Prescription

This unit, like other higher elevation, north facing grasslands on the Mountain, has significant stands of native grasslands and wildflowers. The objective for this unit is to protect existing butterfly habitat and populations through the management of grasslands through grazing and control of non-natives. Due to the habitat value of this unit, grazing should first be successfully tested on slopes with similar aspects and vegetation before being implemented within this unit. To reduce fire danger, methods such as manual removal and pile burning in winter are recommended to manage brush.

Figure 3. Brisbane Acres, Invasive Species Map

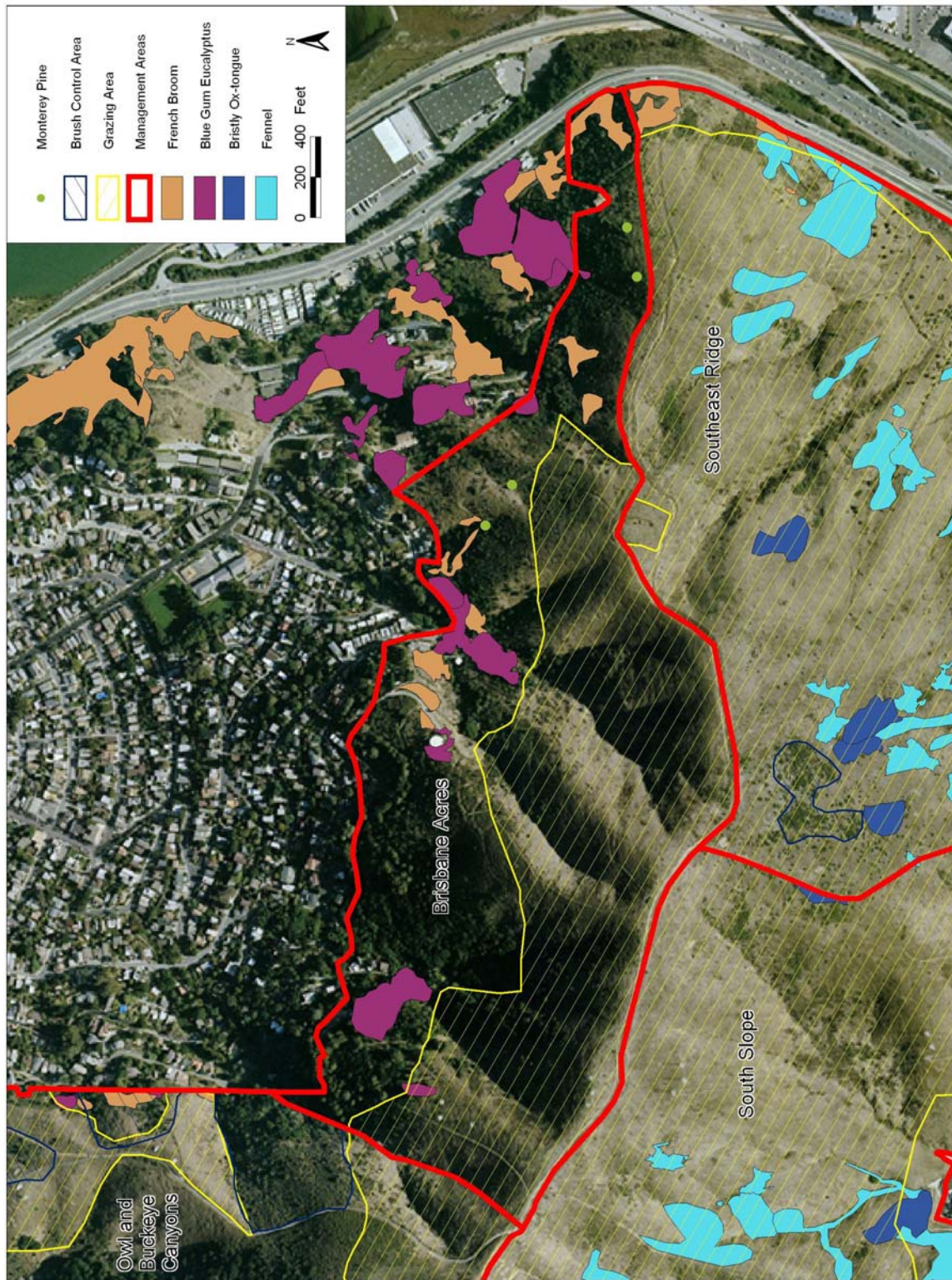
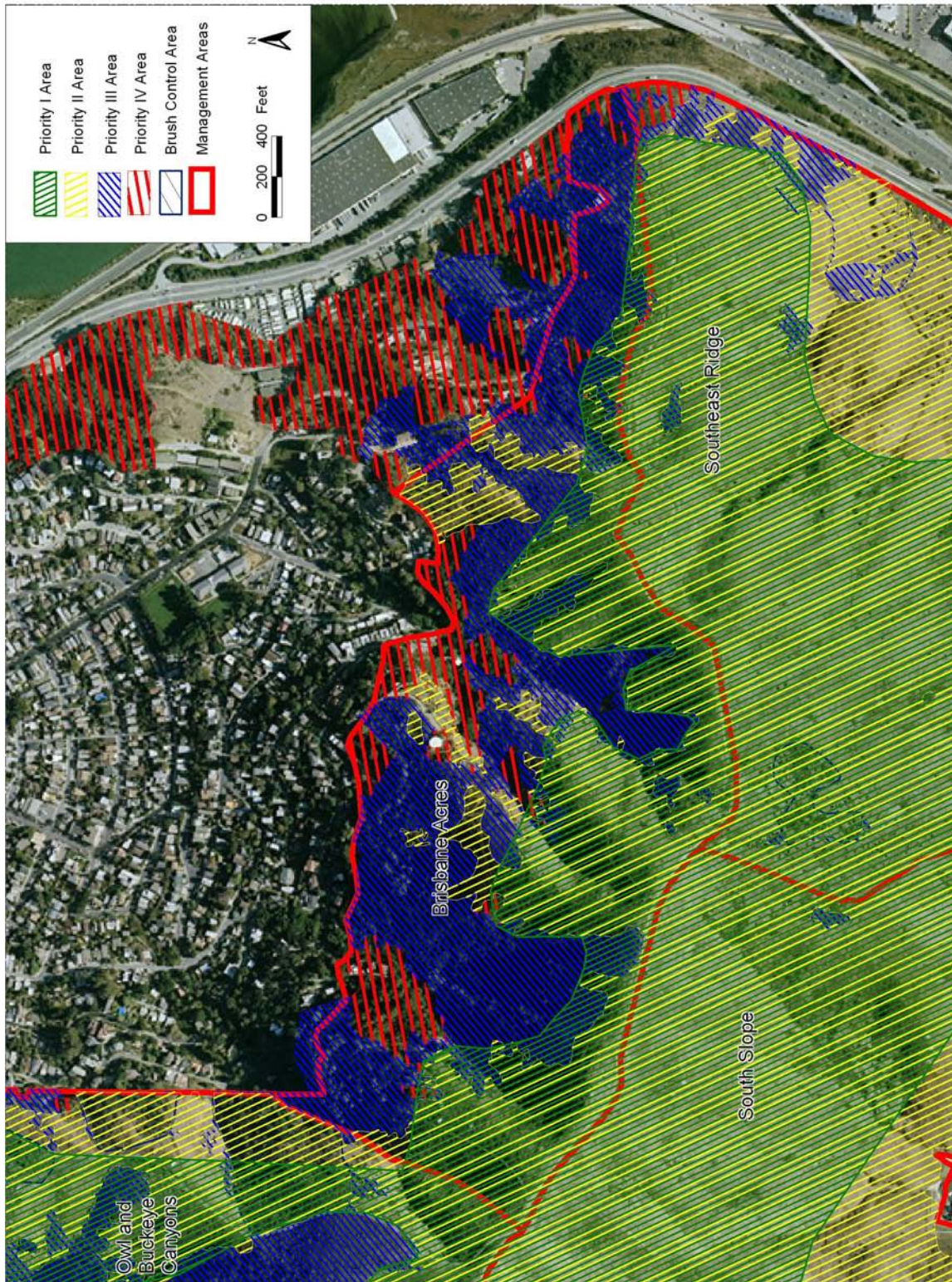




Figure 4. Brisbane Acres, Priority Management Areas



### 3. South Slope (477 acres)

#### Figures 5 and 6

This area is bordered by the ridge trail on the north and the Terrabay development on the south. The South Slope management unit is dominated by grasslands on steep, south facing slopes and ravines. Small areas of coastal scrub and with rocky intermittent drainages occur within the ravines. The Area D landslide and surrounding cut slopes created by the Terrabay development have the low quality habitat due to infestations of fennel, bristly ox-tongue, pampas grass and non-native grasses and forbs (Figure 5). Higher quality grasslands are found on undisturbed middle and upper elevation grasslands. This unit has significant callippe silverspot and mission blue habitat throughout the unit, with important habitat along the Ridge Trail. Approximately 75% of this unit is within the Priority 1 management area (Figure 6).

Resource	Habitat Value
Mission Blue	High
Callippe Silverspot	High
San Bruno Elfin	Not Present
Bay Checkerspot	Moderate
Native Plant Community Diversity and Dominance	High

The South Slope provides a view-shed for the City of South San Francisco. No specifically designated HCP trails are located in this area, other than the ridge trail. However, there are small foot trails and old fire trails along some of the ridges. Historically wildfire, prescribed burning and grazing have been important in maintaining this area as open grassland.

#### Conservation Needs and Prescription

This unit, like many grassland areas on the south side of the Mountain, needs to be grazed and/or burned more frequently to control brush and invasive species. Many of the invasive species are too ubiquitous to control using herbicide or hand control methods and require the use of grazing and/or burning. Weeds have proliferated on the Area D landslide area and adjacent cut slopes, and have radiated outward. It is important that management utilize methods such as grazing and/or burning to reduce thatch build-up and control coastal scrub expansion. Reseeding and planting with native grasses, and butterfly host and nectar plants could improve habitat quality for mission blue and callippe silverspot within the disturbed cut slope areas. Well-established fire buffer zones need to be maintained around the residential developments along the lower slopes.

Figure 5. Southslope, Invasive Species Map

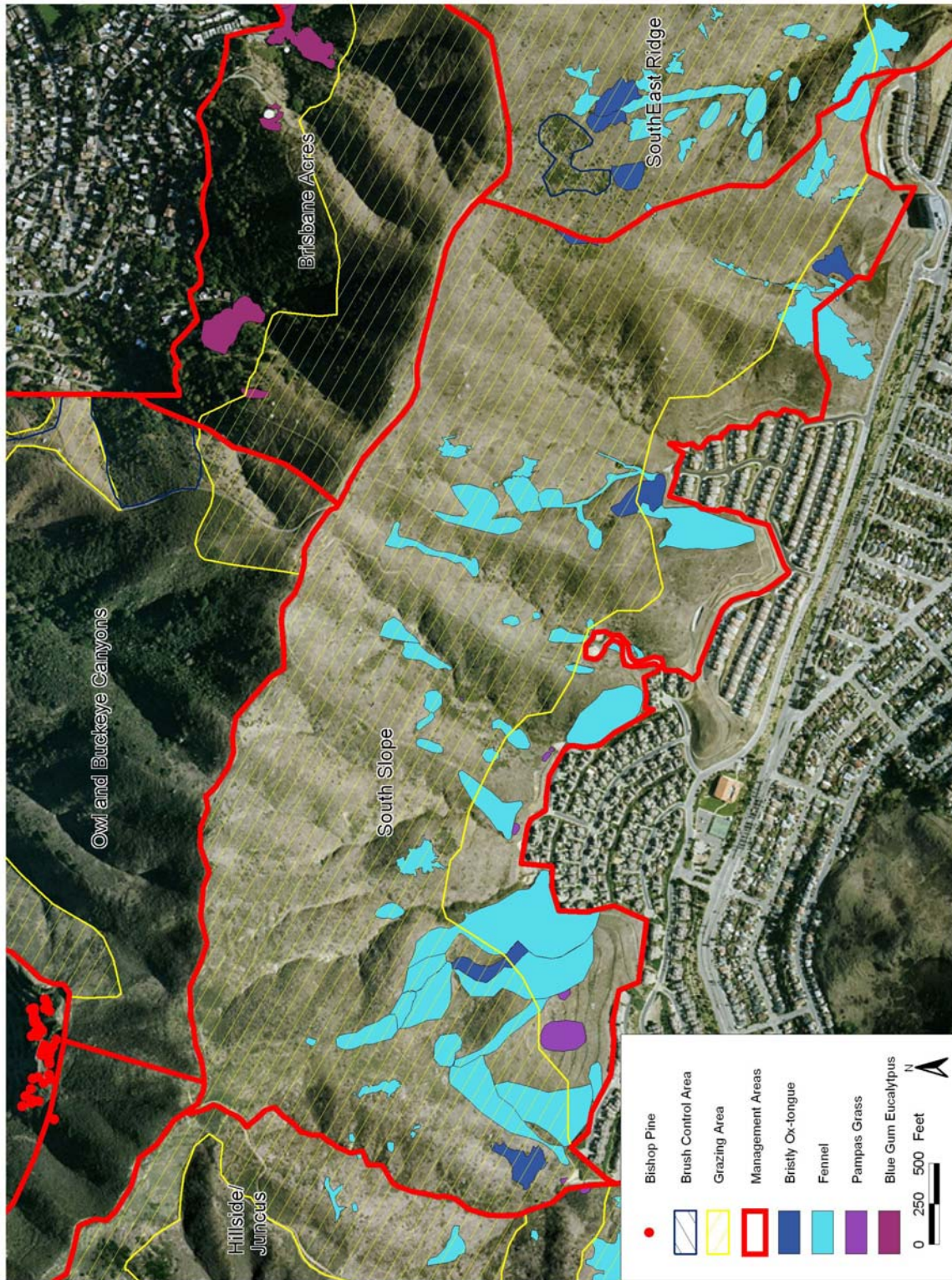


Figure 6. South Slope, Priority Management Areas



#### 4. Owl and Buckeye Canyons (294 acres)

##### Figures 7 and 8

The Owl and Buckeye Canyons management unit is partially owned by the California Department of Fish and Game and is managed by the County of San Mateo. It is located along the southern and western border of the City of Brisbane. The area is characterized by steep canyons and ridgelines. Intermittent drainages are present in the larger canyons and associated ravines. Slopes are typified by native grasslands, and coastal scrub and Coast live oak woodland occupies ravines and slopes at mid-slope positions. Upper ridges are typified by native grassland and prairie communities and a significant amount of northern coastal scrub. The overall extent of invasive, non-native herbs, shrubs and trees is low due to management by volunteer groups such as San Bruno Mountain Watch and the HCP Habitat Manager (Figure 7). The canyons contain a dominance of native, undisturbed communities and some of the best recreational values due to the variety of habitats (coast live oak woodlands, riparian woodlands, seasonal marsh, and coastal scrub). This unit has high habitat value for endangered species within the grassland areas, and overall high ecological diversity. Approximately 50% of this unit is within the Priority 1 management area (Figure 8).

Resource	Habitat Value
Mission Blue	High
Callippe Silverspot	High
San Bruno Elfin	High
Bay Checkerspot	Moderate
Native Plant Community Diversity and Dominance	High

The Quarry Road represents one of the only developed or significantly altered areas within this unit and provides access to the quarry operations. Additionally, the PG&E transmission and gas lines pass through the eastern slope of this management area. A gravel road (Army Road) connects the Quarry Road to the Ridge Trail. Older roadcuts are found on the upper slopes on the west side of Owl Canyon, some of which provide habitat for the San Bruno elfin butterfly.

Buckeye and Owl Canyons were grazed and burned in the past, but have not burned or been grazed for over three decades. As a result, the lower slopes of the unit have converted to coastal scrub vegetation.

##### Conservation Needs and Prescription

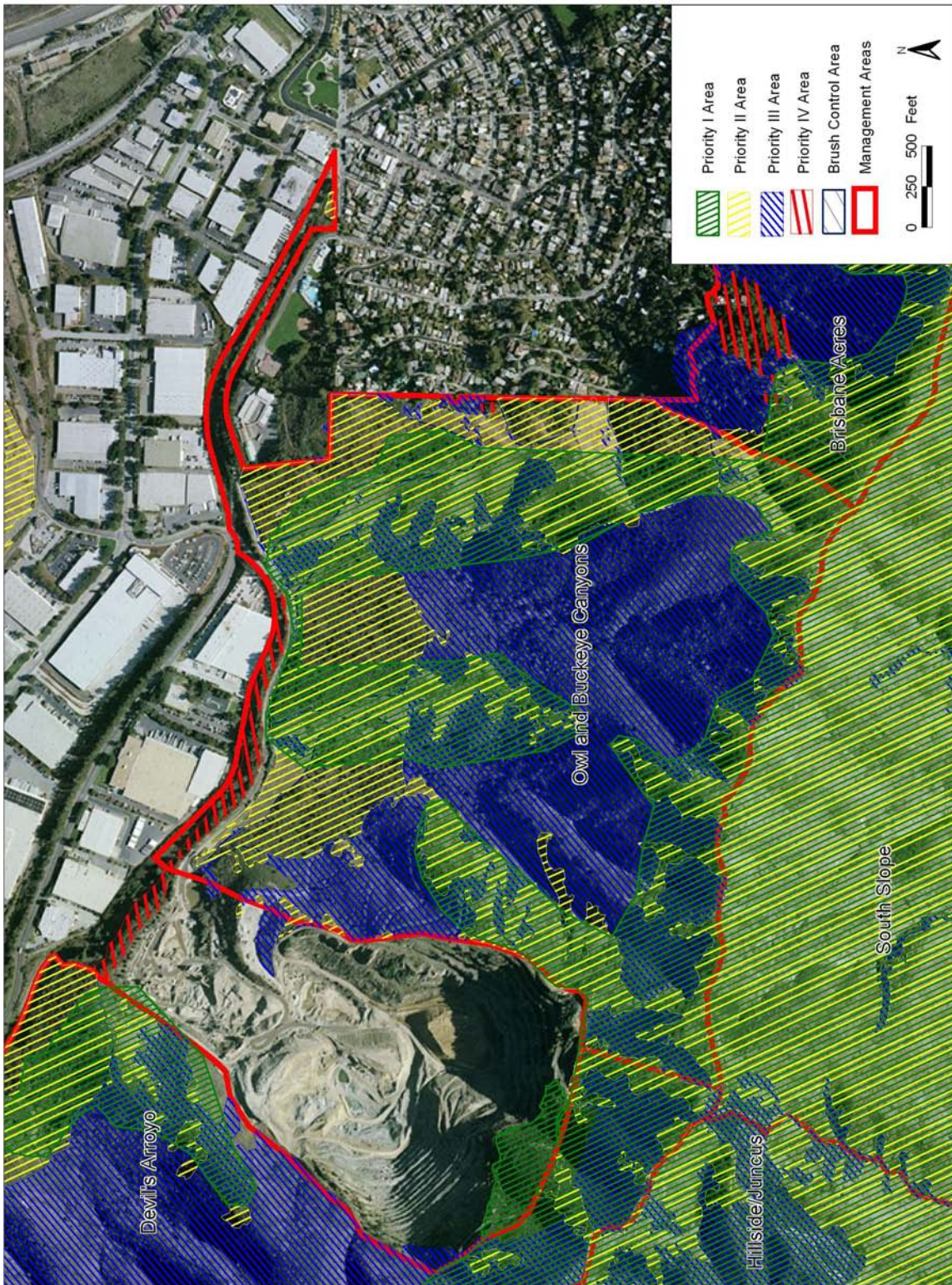
A large stand of French broom occurs on the lower northeastern slopes of this management unit, and on the western boundary near the Quarry. This infestation has been largely contained, but continues to threaten the diverse grasslands and mission blue and callippe silverspot habitat. Other invasive species such as pin-cushion plant (*Scabiosa purpurea*), and annual European grasses need to be managed. Brush control and grazing may be needed to manage the native grasslands more effectively. A fire

buffer should be established and maintained along the western and northern boundary of the unit between habitat areas and the City of Brisbane.

Figure 7. Owl and Buckeye Canyons, Invasive Species Map



Figure 8. Owl and Buckeye Canyons, Priority Management Areas





## 5. Northeast Ridge (214 acres)

### Figures 9 and 10

The Northeast Ridge or the Guadalupe Hills area includes rolling hillsides, terraces and slopes. It is an important habitat area for the callippe silverspot and mission blue butterflies. Grasslands are the dominant community and abundant host plants for both the callippe silverspot and mission blue are present. Plant communities include valley needlegrass grassland, blue wild rye grassland, northern coastal scrub, non-native grassland, eucalyptus forest, and broom shrublands. The grasslands are dominated by non-native annual grasses and herbaceous weeds in many areas, yet the grasslands still support the rare butterflies and their host plants in stable numbers. Approximately 80% of this unit is within the Priority 1 management area (Figure 10). Control work on French broom, eucalyptus and fennel has been effective; however non-native annual grasses and weeds such as Italian thistle and wild radish pose potential threats to the grassland (Figure 9). Eucalyptus groves on the west side are a potential fire risk.

<b>Resource</b>	<b>Habitat Value</b>
Mission Blue	High
Callippe Silverspot	High
San Bruno Elfyn	Not Present
Bay Checkerspot	Low
Native Plant Community Diversity and Dominance	Low

PG&E transmission lines run northeast to southwest across the ridge. The Ridge development is located on Mission Blue Drive spanning the entire southern boundary of the conserved habitat. The Northeast Ridge supports several trails that are well used by the public and therefore provide recreational value.

### Conservation Needs and Prescription

With both mission blue and callippe silverspot abundant on the Northeast Ridge, the greatest conservation need is the restoration and maintenance of grassland habitat. Grazing and burning are two processes that, as is common with the whole of the Mountain, were vital for the maintenance of the Northeast Ridge grassland habitat. In the absence of these processes, exotics and scrub have proliferated. To manage unwanted vegetation, the Northeast Ridge would likely benefit from a cattle grazing program. Areas for restoration and maintenance should be prioritized by butterfly host plant densities. Also, more habitat islands could be created on the Northeast Ridge, such as has occurred on the graded slopes as mitigation by Brookfield Homes. Follow-up herbicide and hand control will be crucial to maintaining areas cleared by grazing from returning to weeds.

## 6. Carter-Martin (129 acres)

### Figures 9 and 10

These rolling hills and steeper slopes have similar topography to the Northeast Ridge management area. The Brisbane Technology Park and Bayshore Boulevard form the southeast border of this management area, while the Guadalupe Canyon Parkway forms the southwestern border. These slopes range from north to south facing, but have predominately northeastern exposure.

Plant communities include northern coastal scrub, valley wild rye grassland, non-native grassland, broom shrubland, and eucalyptus forest. Grassland communities dominate the most acreage within the unit. Though pockets of grassland enriched with a high percentage of native grasses and forbs occur in the area, there is a prominence of grasslands dominated by non-native annual grasses and other invasive herbs and shrubs. The slopes above the Bay Ridge development on the west are exclusively dominated by thick stands of gorse, while the slopes above the Bay Vista and Linda Vista developments are a mixture of native and non-native scrub (French broom) along with non-native herbaceous infestations including oxalis, pampas grass and fennel (Figure 9). The unit has moderate habitat value for mission blue and callippe silverspot. Areas of restoration (planting islands) are present and providing mission blue habitat within this management unit. Approximately 40% of this unit is within the Priority 1 management area (Figure 10).

<b>Resource</b>	<b>Habitat Value</b>
Mission Blue	Moderate
Callippe Silverspot	Moderate
San Bruno Elfin	Not Present
Bay Checkerspot	Low
Native Plant Community Diversity and Dominance	Low

Infrastructure within this management area includes the S.F. Water District lines and easements, and the PG&E transmission lines. Developments and residences include the Brisbane Technology Park, and three residential complexes: Bay Ridge, Bay Vista and Linda Vista. The Carter-Martin management unit provides an open space for hiking and outdoor recreation for the residents of the HCP developments. However, usage does not appear to be significant and there are no designated roads or trails, aside from the S.F. Water Districts access roads.

Dense gorse and broom stands represent significant fuel loads and are mixed with native coastal scrub in places. This mixture of native and non-native scrub is especially prominent on the slopes above Bay Vista and Linda Vista, while the slopes above Bay Ridge are almost exclusively dominated by gorse. Maintaining a minimum 30-foot fuel-free buffer zone around all residences/fence lines and infrastructure is essential for reduction of fire risk to homeowners.

### Conservation Needs and Prescription

A high priority for this area is reversing the establishment of gorse, broom and coastal scrub. This management area has connectivity to other Northeast Ridge grasslands and has a high density of endangered butterfly habitat and butterfly populations. Restoring and maintaining a dominance of grassland communities is essential for this area.

Much of the land in this unit is in the ownership of private landowners and developers, and is to be dedicated to the County as conserved habitat once the lands have been restored to a suitable condition for acceptance. Management of vegetation may include scrub removal and pile burning by CDF crews and goat grazing to reduce the density and extent of heavy non-native brush cover and native scrub. In addition, regular treatments of non-native plant infestations with herbicide and manual removal will be needed. Continuing the establishment of butterfly habitat islands and localized restoration projects is also important.

Figure 9. Northeast Ridge and Carter/ Martin, Invasive Species Map



Figure 10. Northeast Ridge and Carter/ Martin, Priority Management Areas



## 7. Hillside/ Juncus (217 acres)

### Figures 11 and 12

The parcel west of Hillside School is a combination of areas of low quality habitat adjacent to Pacific Nursery and Holy Cross Church coupled with steeper, rocky ravines and slopes (Juncus Ravine and Tank Ravine). There are PG&E Transmission lines through Tank Ravine. Plant communities include northern coastal scrub, coastal terrace prairie, valley needlegrass grassland, central coast riparian scrub, valley wild rye grassland non-native grassland, and eucalyptus forest. Fennel infestations have spread throughout the lower slopes in Tank and Juncus Ravines, and Bermuda buttercup (*Oxalis pes-caprae*) has moved upslope into grasslands from the Pacific Nursery (Figure 11). The habitat value is high for mission blue butterflies and moderate for callippes. Eucalyptus groves are a fire hazard near the school due to the explosiveness of the oils in the trees and the strong westerly winds that frequent this area. Approximately 80% of this unit is within the Priority 1 management area (Figure 12).

The parcel has received extensive control work primarily on fennel in recent years funded by Myer's development and the HCP. A pilot grazing experiment was initiated on the lower slopes in 2003 and focused treatment of Oxalis was performed in 2005 and 2006.

Resource	Habitat Value
Mission Blue	High
Callippe Silverspot	Moderate
San Bruno Elfin	Low
Bay Checkerspot	Moderate
Native Plant Community Diversity and Dominance	Moderate

This management area receives moderate public use. A network of roads and trails favor outdoor recreation hiking, photography, and picnics.

### Conservation Needs and Prescription

Conservation needs include the reduction of scrub communities, continued monitoring and control of oxalis, fennel and other non-natives, and the maintenance of diverse native grasslands. It is recommended that a buffer area be established between Pacific Nursery and HCP lands to help control the introduction of non-native vegetation.

Figure 11. Hillside/ Juncus, Invasive Species Map

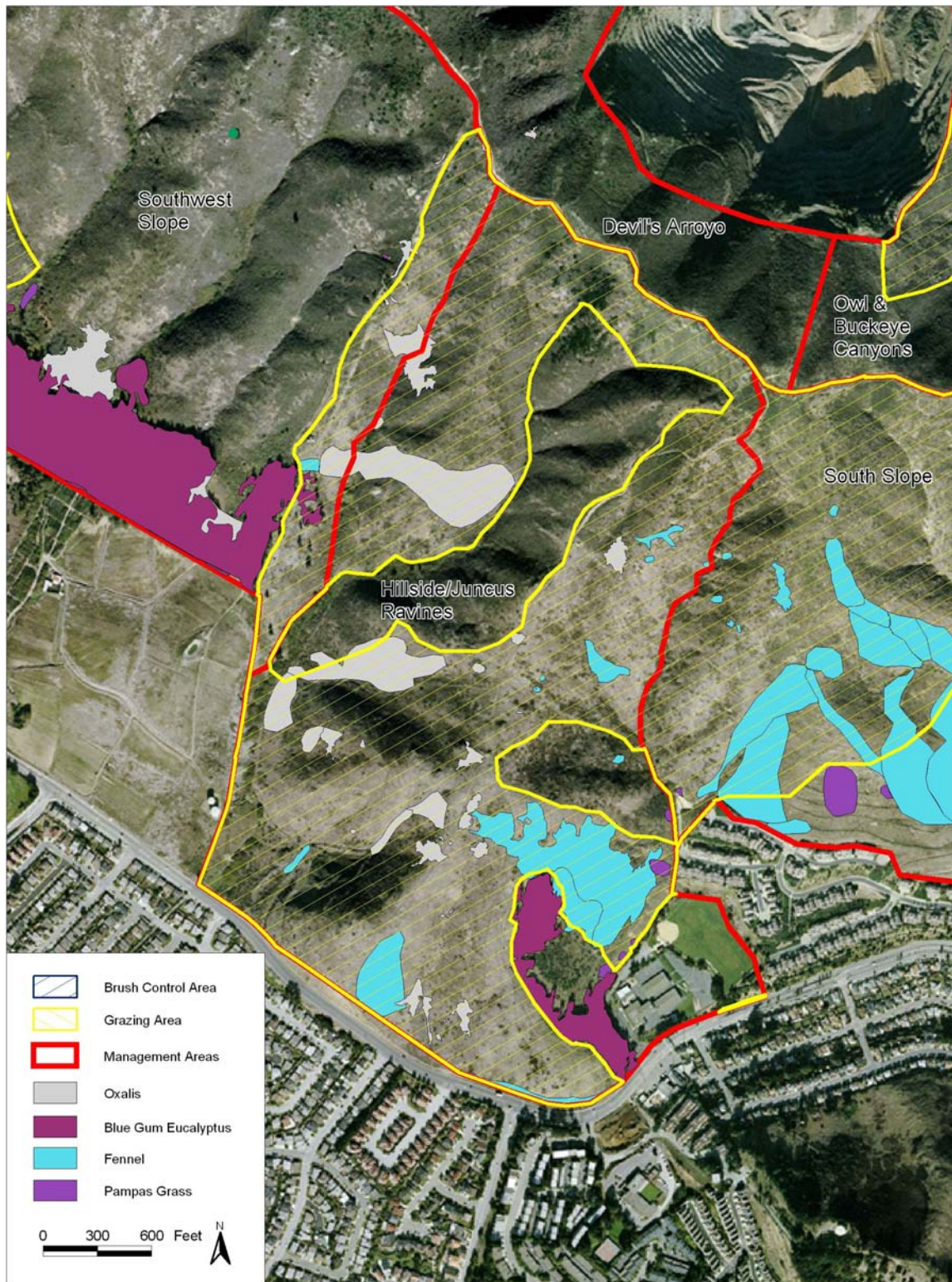
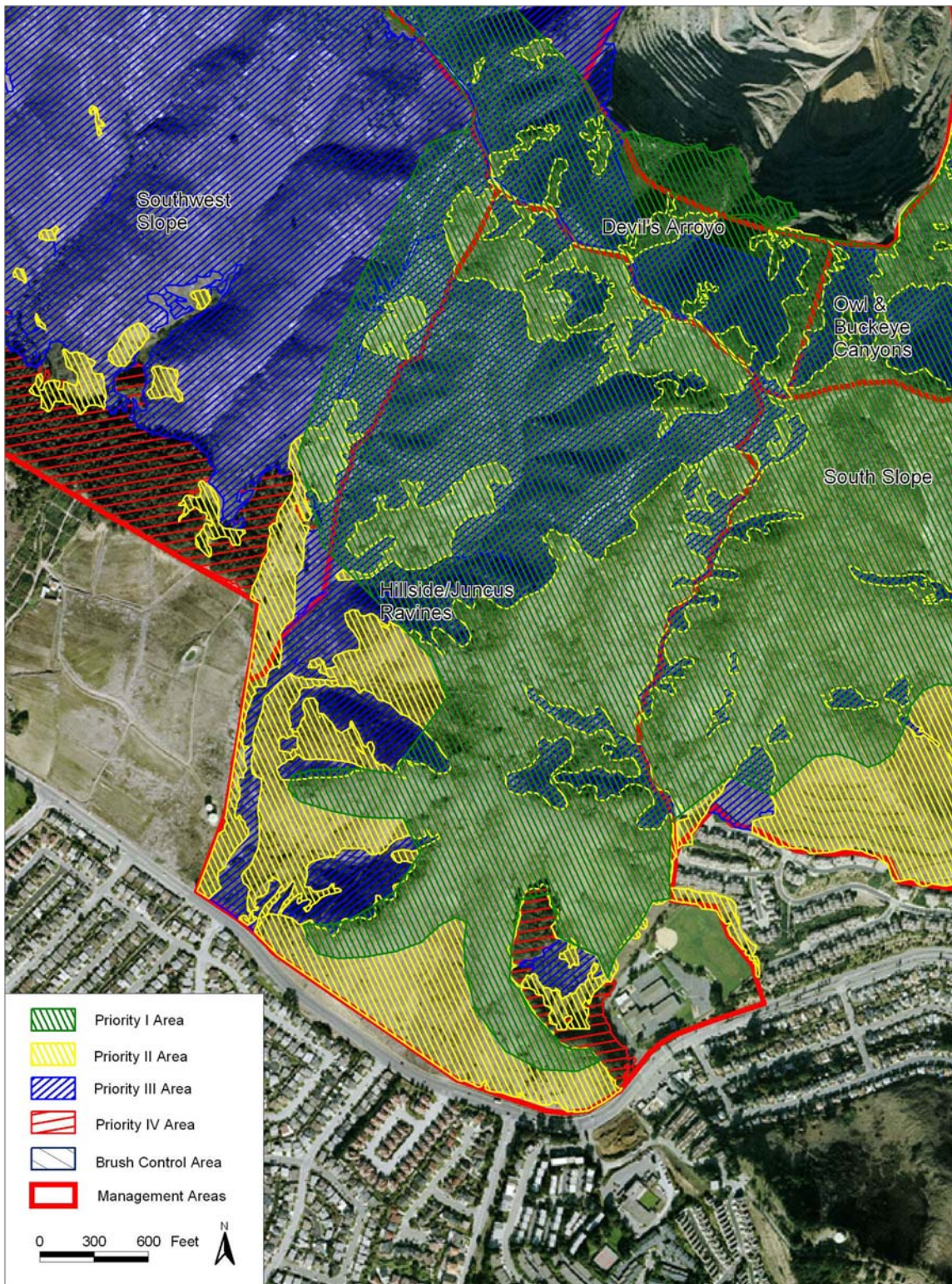


Figure 12. Hillside/Juncus, Priority Management Areas





## 8. Devil's Arroyo (268 acres)

### Figures 13 and 14

Devil's Arroyo represents an area of large expansive slopes covered mostly by dense coastal scrub. Steep north-facing slopes and ravines extend from the base of the slope near the Brisbane Industrial Park to the Summit Trail. Plant communities include blue blossom chaparral, northern coastal scrub, coastal terrace prairie, valley needlegrass grassland, central coast riparian scrub, eucalyptus forest, broom shrubland, and non-native grassland. Relatively small yet botanically diverse grassland patches are found on ridgelines and balds on the upper slopes of this unit. The habitat value is high for San Bruno elfin butterflies, and moderate for mission blue and callippe silverspot butterflies. Manzanita Dike, the largest colony of San Bruno manzanita (CE, CNPS 1B) is found in Devil's Arroyo. Montara manzanita (CNPS 1B) is also found within this management unit. The Summit Trail forms the southern boundary, the Guadalupe Valley Quarry forms the eastern boundary, the Brisbane Industrial Park the northern boundary, and the eastern ridgeline adjacent to Dairy Ravine forms the western boundary. The upper slopes of this unit are mostly pristine, while the lower slopes have non-native infestations emanating from disturbed areas around the industrial park (Figure 13). High fuel loads are present in this area from build-up of dense scrub communities coupled with steep inaccessible slopes. The last burn event that occurred in this unit was in 1964. Approximately 40% of this unit is within the Priority 1 management area (Figure 14).

Resource	Habitat Value
Mission Blue	Moderate
Callippe Silverspot	Moderate
San Bruno Elfin	High
Bay Checkerspot	Moderate
Native Plant Community Diversity and Dominance	High

This unit was likely grazed and burned in the past, and supported a greater extent of grassland that it has currently. No structures or development is within this unit, except for PG&E Transmission and gas lines which extend in a north south direction through the unit. Although Devil's Arroyo provides dramatic views of coastal prairies and shrublands there are no maintained trails through this unit, except for the ridge trail along the southern boundary.

### Conservation Needs and Prescription

Maintaining stands of native grasslands and conserving the endemic manzanita species should be focus of this area, in addition to maintaining healthy stands of blue blossom chaparral. Senescent stands of chaparral are ubiquitous through this unit. Blue blossom, a fire-dependent plant species, needs to burn in a hot fire approximately every 25-35 years in order to germinate and recruit new stands to replace old and decaying shrubs.

Figure 13. Devil's Arroyo, Invasive Species Map

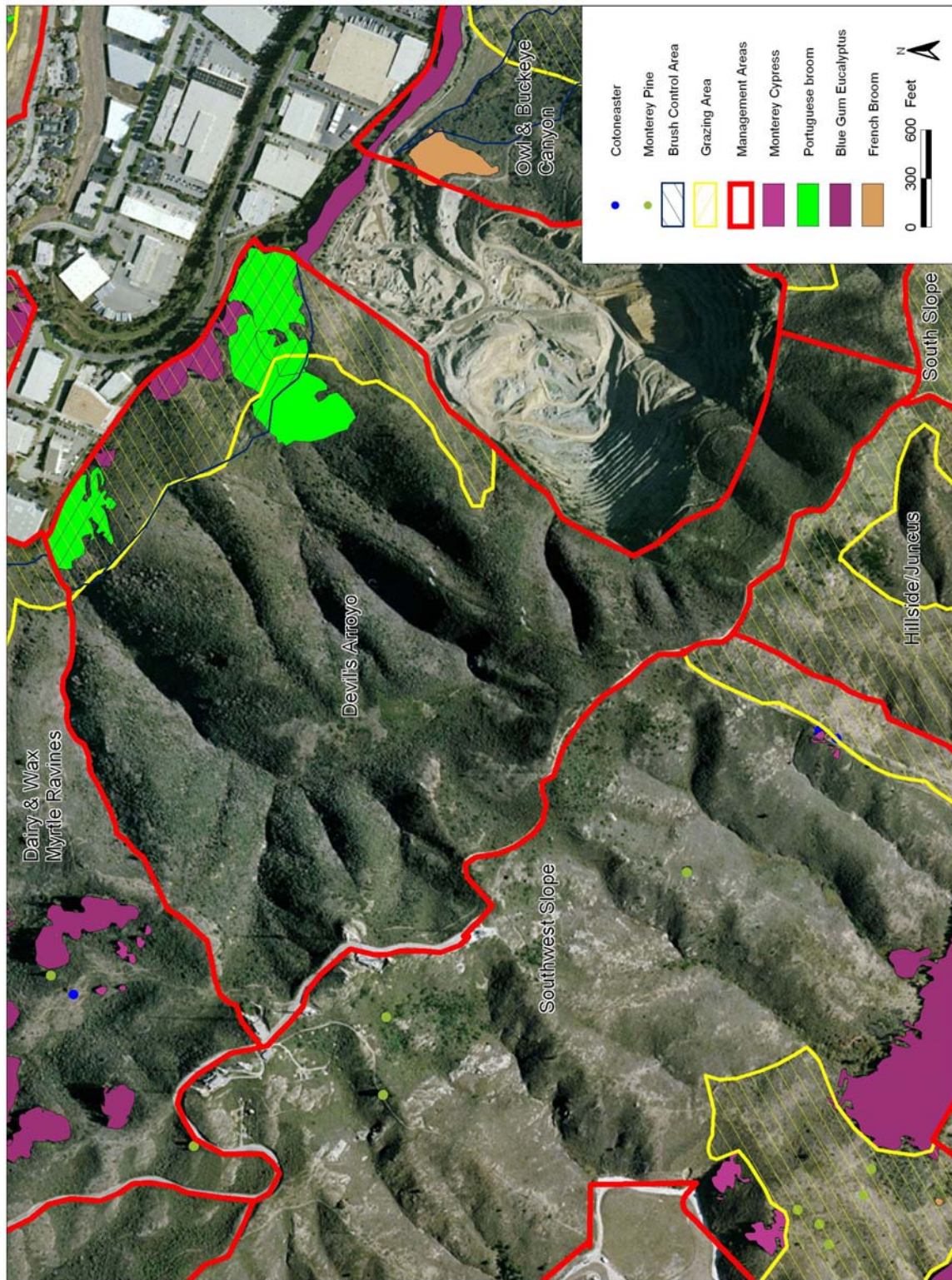
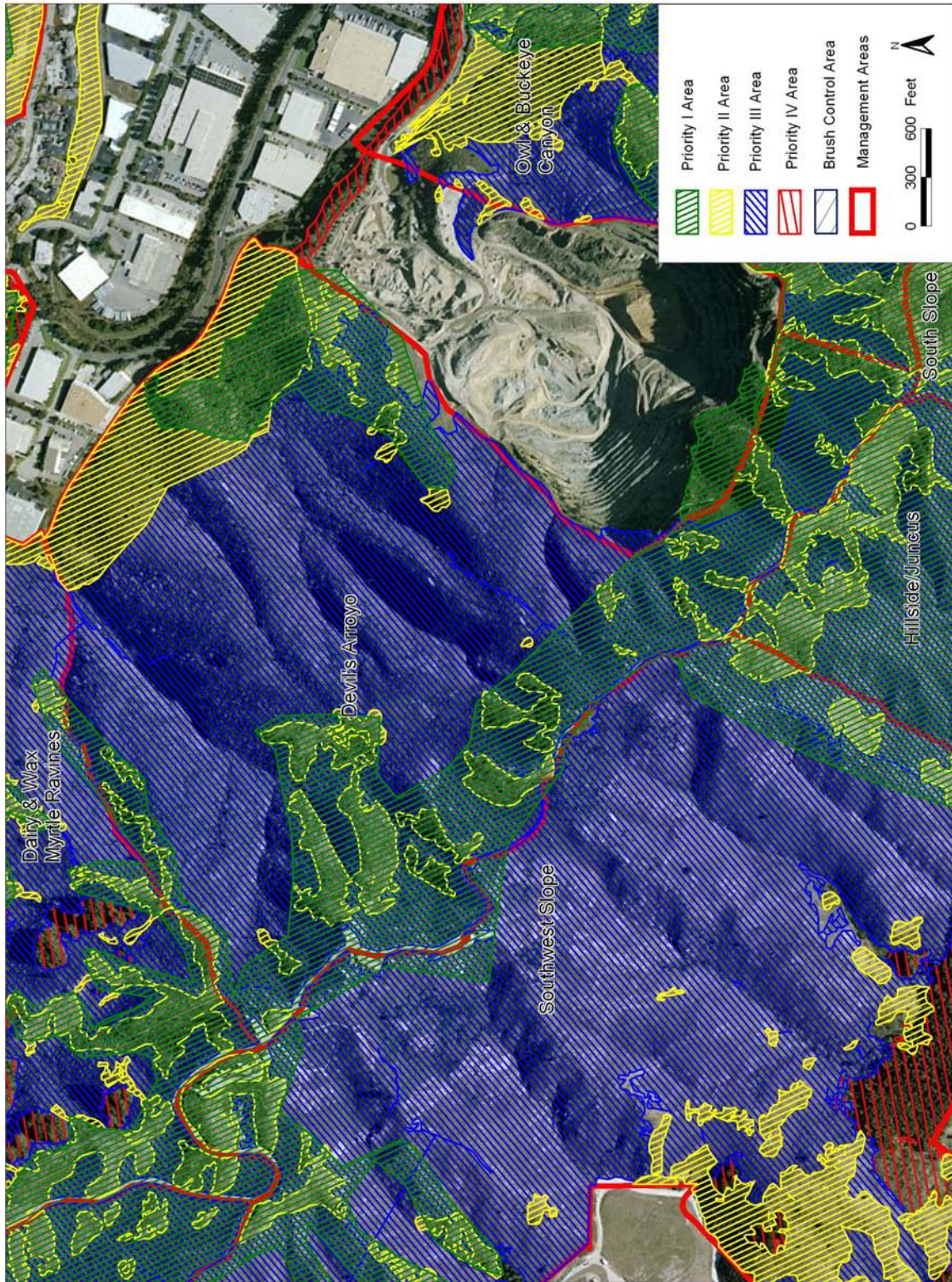


Figure 14. Devil's Arroyo, Priority Management Areas



## 9. Dairy and Wax Myrtle Ravines (214 acres)

### Figures 15 and 16

Dairy and Wax Myrtle Ravines have a combination of high quality native habitats and disturbed restoration areas. Most of the parcel is owned by the County of San Mateo, with lower elevation portions of the unit owned by McKesson, Inc, and Brookfield Homes. The unit consists of steep slopes that extend from the Brisbane Industrial Park along Guadalupe Canyon to the summit of the Mountain and includes a variety of vegetation types and slope exposures, with coastal scrub being the dominant plant community (Figure 15). Radio Road forms the northern and western boundary of this unit, Devil's Arroyo and the city of Brisbane form the eastern boundary, and Guadalupe Canyon Parkway forms the southern boundary. The Friends of San Bruno Mountain established a native plant 'Botanic Garden' area on the south side of Radio Road within this unit. Over 30 acres of the site was logged in 1995, and restoration work has been focused on returning this area to native habitats. Important habitat for mission blue, callippe silverspot, and San Bruno elfin is found in this unit. Approximately 50% of this unit is within the Priority 1 management area (Figure 16).

The Botanical Garden area receives a significant amount of visitor usage in the form of docent-led hikes, visits from local school children and regular use by local outdoor enthusiasts. The area contains the Eucalyptus Loop Trail, and the Dairy Ravine Trail. On the north side of the ravine is Old Ranch Road, which was the original road that traversed the Mountain before Guadalupe Canyon Parkway was built in the 1960's. The Road was used to move cattle between Dairy Ravine on the top of the slope down to a Dairy located at the western end of the Brisbane Industrial Park. Two City of Brisbane Water Tanks (upper and lower) are located on the north side of the ravine, and PG&E transmission lines cross over the lower slopes adjacent to the Ridge development.

Resource	Habitat Value
Mission Blue	Moderate
Callippe Silverspot	Moderate
San Bruno Elfin	High
Bay Checkerspot	Low
Native Plant Community Diversity and Dominance	Moderate

The grasslands on the north side of Wax Myrtle Ravine have the highest densities of mission blue and callippe silverspot host plants and populations in this unit. The unit has high quality San Bruno elfin habitat located near nine-fern rock and within upper Dairy Ravine. A controlled burn that escaped fire lines resulted in a wildfire that burned 72.5 acres of this unit in July 2003. The burn has significantly improved the condition of this management unit by removing dense stands of gorse and eucalyptus slash, which has provided access into the ravine for restoration crews.

### Conservation Needs and Prescription

Expand butterfly habitat through brush control and grazing on the lower elevation slopes surrounding the Brisbane Industrial Park and in other areas as determined. Continue control of eucalyptus, gorse, Himalayan blackberry, poison hemlock, oxalis and other weeds throughout the unit.

Figure 15. Dairy and Wax Myrtle Ravines, Invasive Species Map

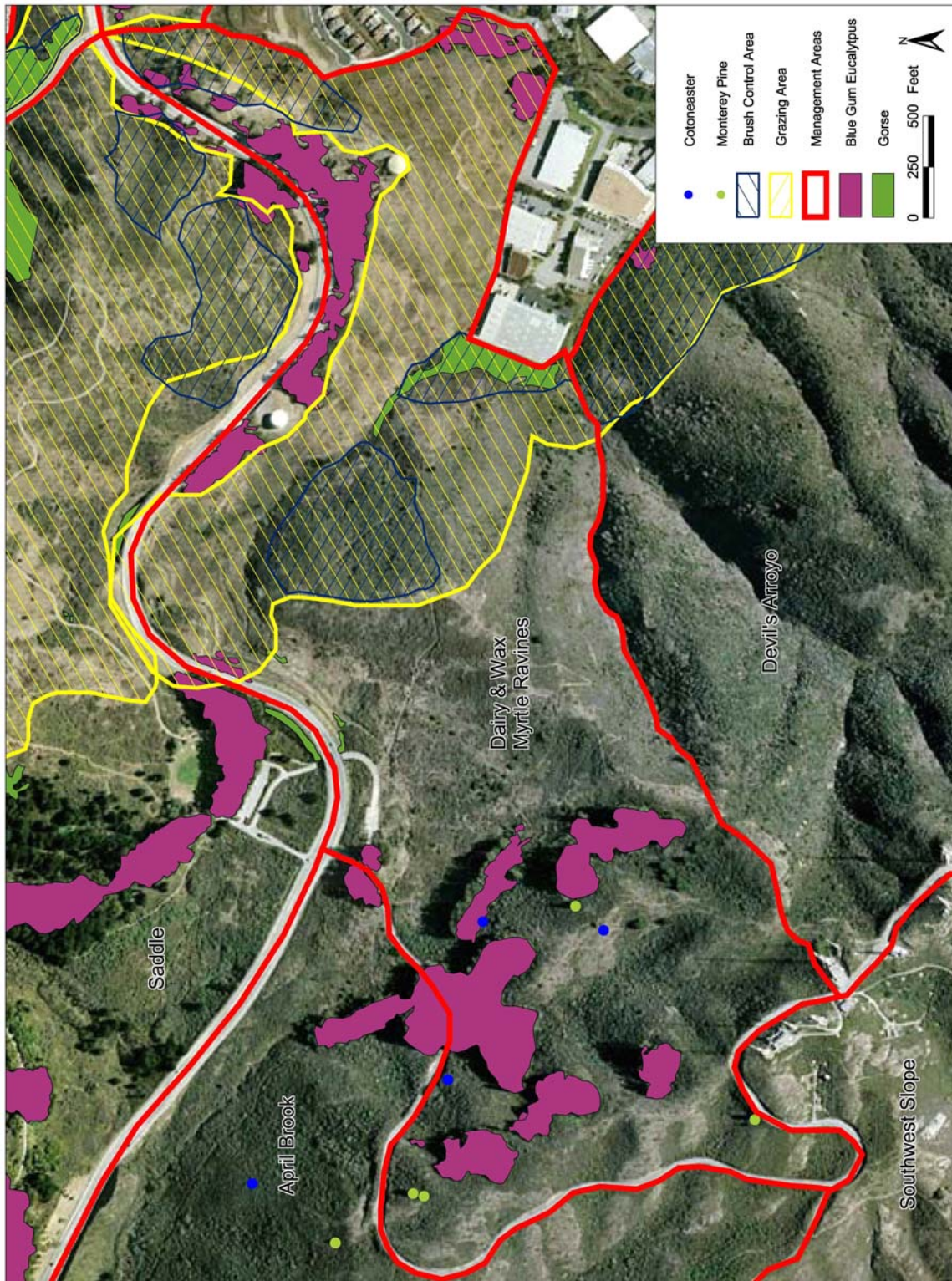
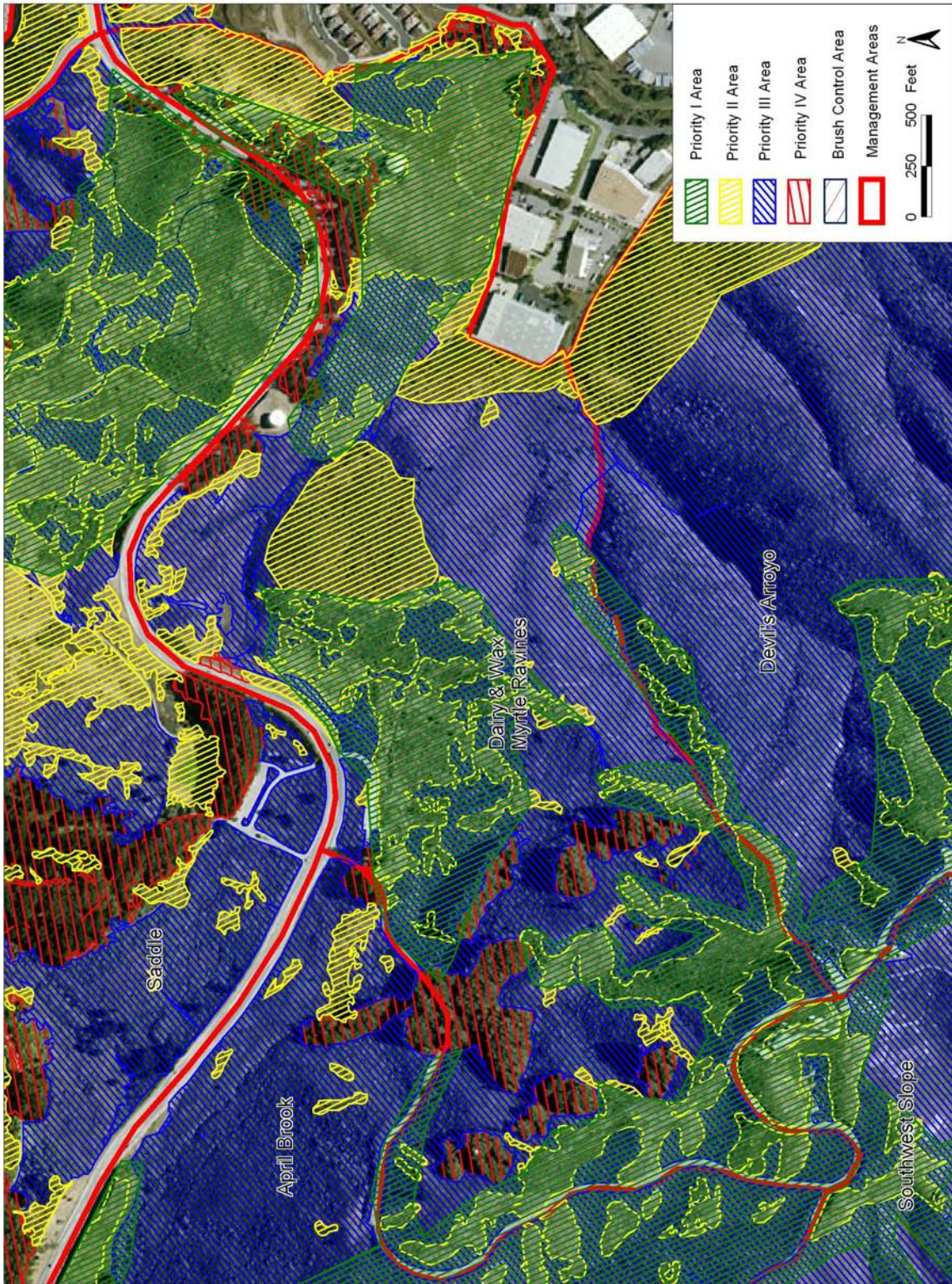


Figure 16. Dairy and Wax Myrtle Ravines, Priority Management Areas



## 10. Southwest Slope (436 acres)

### Figures 17 and 18

Southwest Slope is composed of steep south facing slopes on the west side of San Bruno Mountain. Summertime coastal fog strongly influences the vegetation, which is dominated by coastal scrub with patches of native grassland along ridgelines and isolated side slopes. The management unit is bordered by the Cypress AMLOC landfill, the Cypress golf course and residential development within the City of Colma.

Resource	Habitat Value
Mission Blue	High
Callippe Silverspot	Low
San Bruno Elfin	Low
Bay Checkerspot	Low
Native Plant Community Diversity and Dominance	High

This management unit is composed of steep, rocky slopes and ravines dominated by coastal scrub vegetation (Figure 17). The unit was likely used for cattle grazing in years prior to the HCP. The Cypress AMLOC landfill is located at the base of the slopes and along the summit are a series of radio towers, dishes, transmission lines and buildings operated by American Tower Corporation and PG&E. The County Park ranger station is located on the west peak. The lower slopes have been disturbed from farming and horticultural practices on lands above Pacific Nursery.

Eucalyptus logging operations were conducted in 1995 on a 21-acre section of eucalyptus forest on slopes above Pacific Nursery that has since grown back. A 4-acre site was logged of eucalyptus in 1995 (above Hoffman Street) for restoration, and has converted to native and nonnative brush and weeds. The western low elevation grasslands are dominated by purple needlegrass and fescue bunchgrasses. The federally endangered San Francisco Campion (*Silene verecunda* ssp. *verecunda*) is located within this unit on the upper slopes near Radio Road. Approximately 20% of this unit is within the Priority 1 management area (Figure 18).

Coastal scrub requires infrequent burning to maintain healthy stands of grassland and brush. Mission blue habitat is scattered within patches of grassland and on fire roads along ridgelines. This unit has only very small patches of habitat for the San Bruno elfin and callippe silverspot butterflies.

### Conservation Needs and Prescription

The unit needs infrequent controlled burns to protect and enhance the grassland patches within it, and reduce fuel loads within senescing coastal scrub habitat. Weed infestations within lower elevation ravines and disturbed areas need to be controlled. This management unit could benefit from creating a grazed buffer zone at the base of the slopes. The western low elevation grasslands dominated by purple needlegrass and



fescue bunchgrasses, need extensive invasives control work and would likely benefit from being grazed.

Figure 17. Southwest Slope, Invasive Species Map

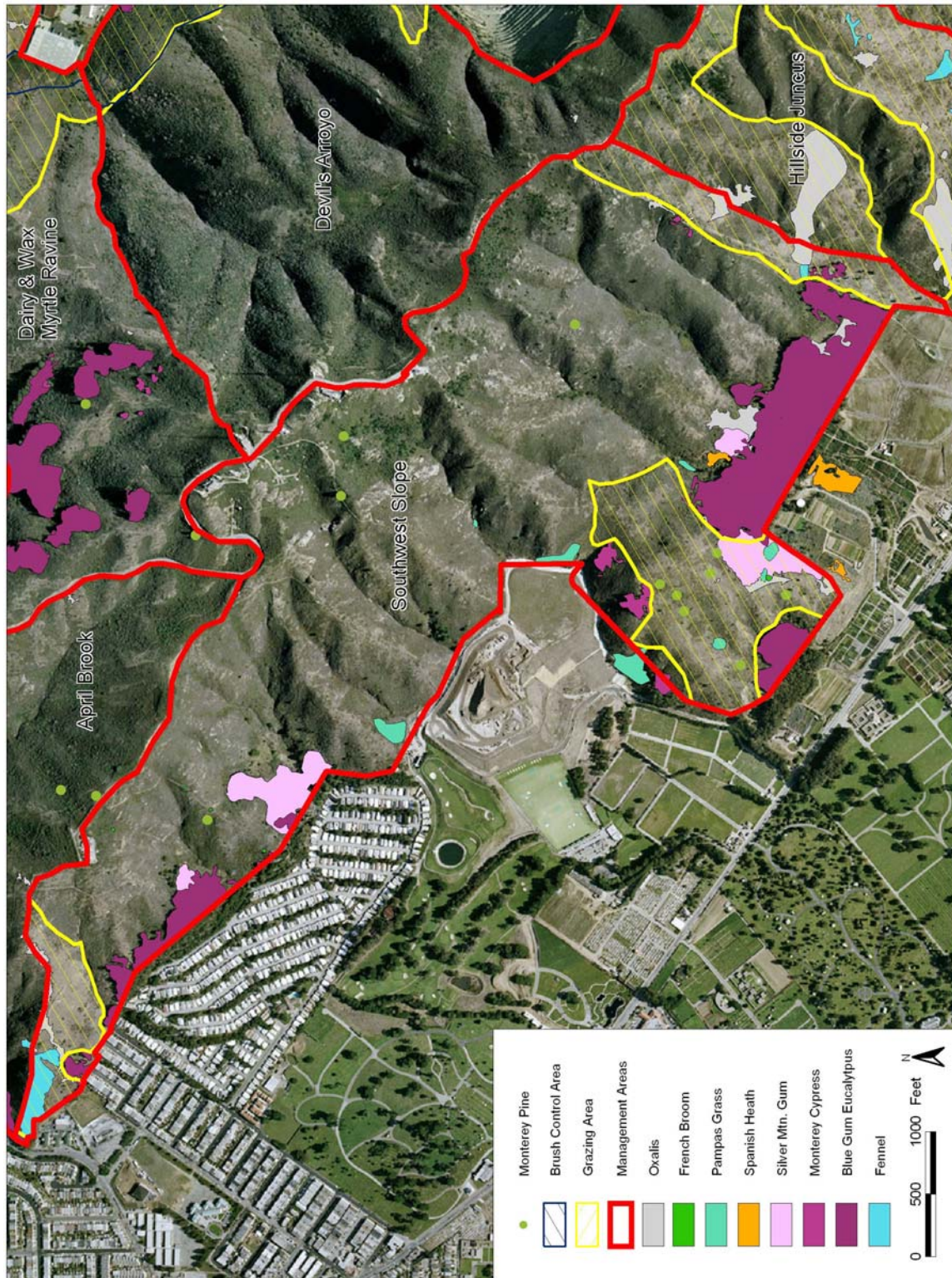
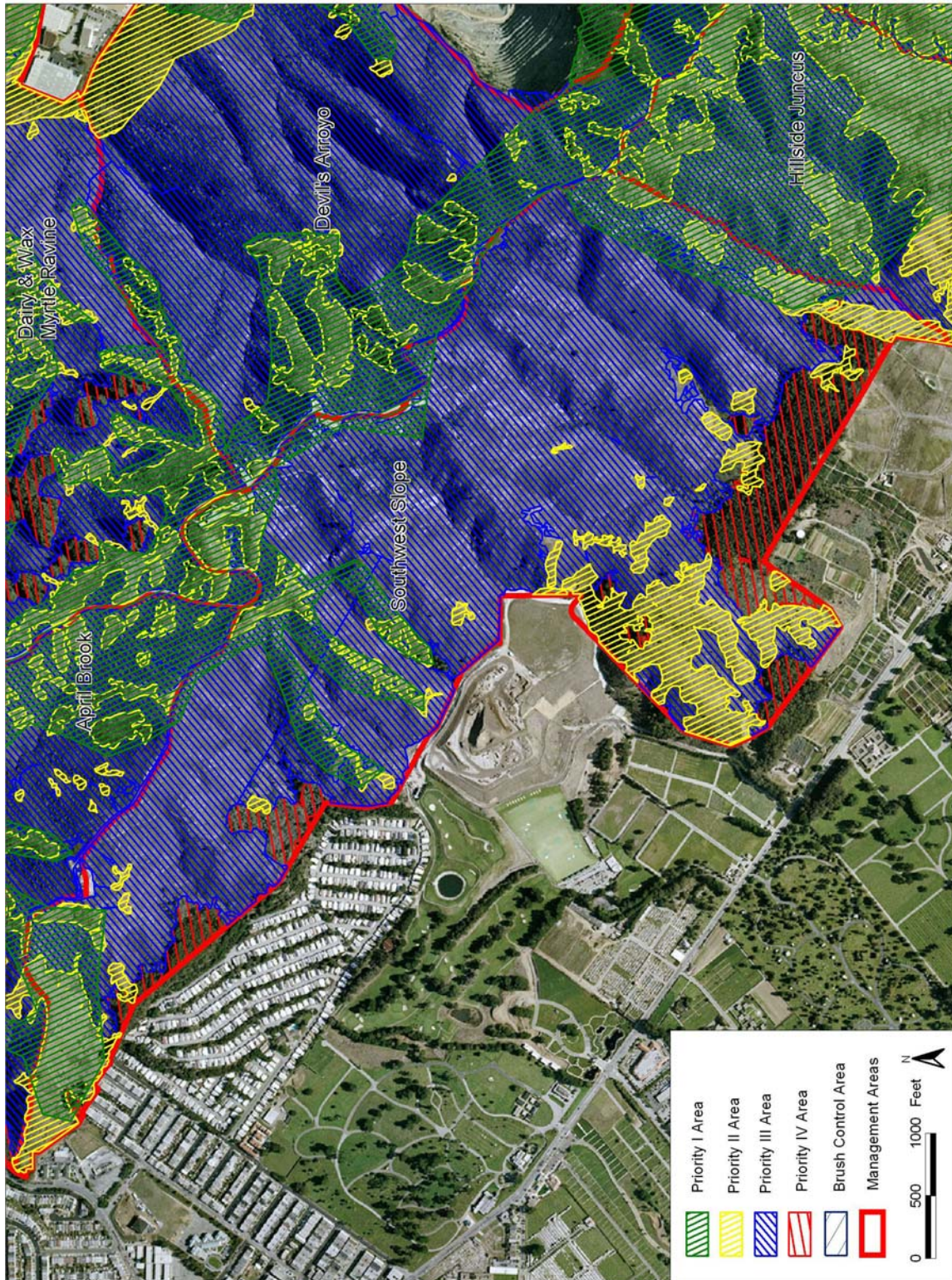


Figure 18. Southwest Slope, Priority Management Areas



## 11. April Brook (273 acres)

### Figures 19 and 20

The April Brook management area is characterized by a mosaic of native grasslands, coastal scrub and rock outcrops occurring over a range of topography from rolling hills to relatively steep slopes and ravines. The Guadalupe Canyon Parkway forms the northern border of this unit. The April Brook area is a favorite for hikers on the Mountain due to its wide-open slopes covered by coastal prairie and moist scrublands. The Summit Trail loops through this management area and provides views of San Francisco, the ocean and the Farrallon Islands.

The lower slopes are typified by riparian forests and scrub along Colma Creek and associated drainages, while vegetation on the upper ridges are typified by fescue dominated prairies and rocky outcrops. Colma Creek flows westward and through the Colma Creek restoration site.

This management area has very limited mission blue and callippe silverspot habitat; however it provides moderate San Bruno elfin habitat, and contains large expanses of pristine grasslands and coastal scrub (Figure 19). A single dune tansy (*Tanacetum camphoratum*) plant is present within this unit. This area was likely grazed and burned in the past. In most areas native vegetation dominates this unit. A 4-acre eucalyptus removal and restoration project was conducted along Colma Creek. The Colma Creek restoration site has two mission blue habitat islands, and a mixture of grassland, coastal scrub, and arroyo willow riparian plant communities. Approximately 50% of this unit is within the Priority 1 management area (Figure 20).

Resource	Habitat Value
Mission Blue	Low
Callippe Silverspot	Low
San Bruno Elfin	Moderate
Bay Checkerspot	Low
Native Plant Community Diversity and Dominance	High

### Conservation Needs and Prescription

Maintenance will likely require grazing and/or periodic prescribed burns in order to keep this area from converting to coastal scrub and to maintain a mosaic of open grasslands and scrub. The spread of non-native invasive species into this ecologically rich management area should be prevented. Conduct weed control work along roadsides and trailsides in this unit, to prevent the further expansion of herbaceous weeds and non-native grasses into the coastal prairies. Continue control on other weeds such as gorse, cotoneaster, acacia, and Monterey pines. Monitor and control for new invasive species problems such as Veldt grass (*Ehrharta ehrharta*) and Bermuda buttercup.

Figure 19. April Brook, Invasive Species Map

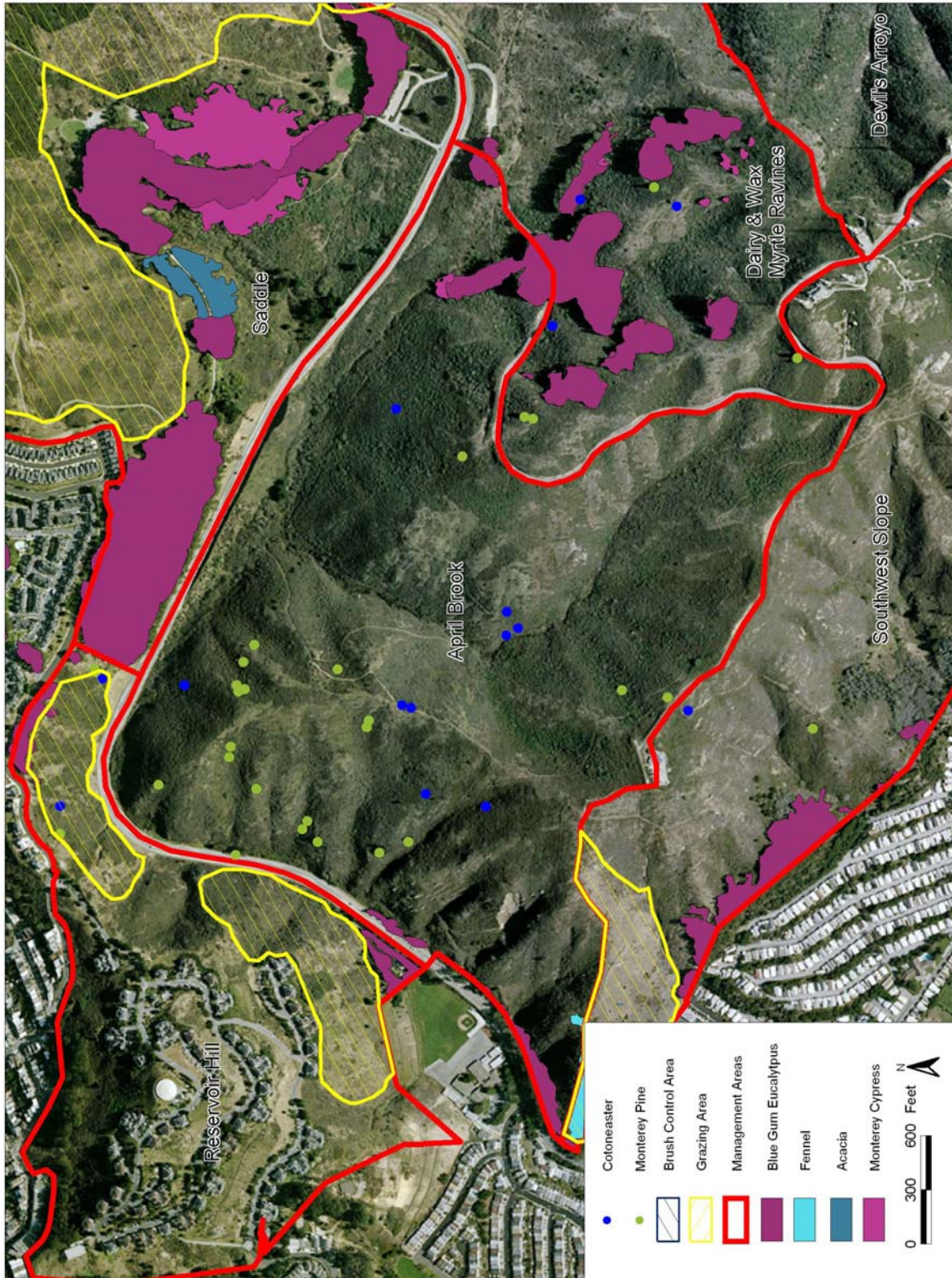
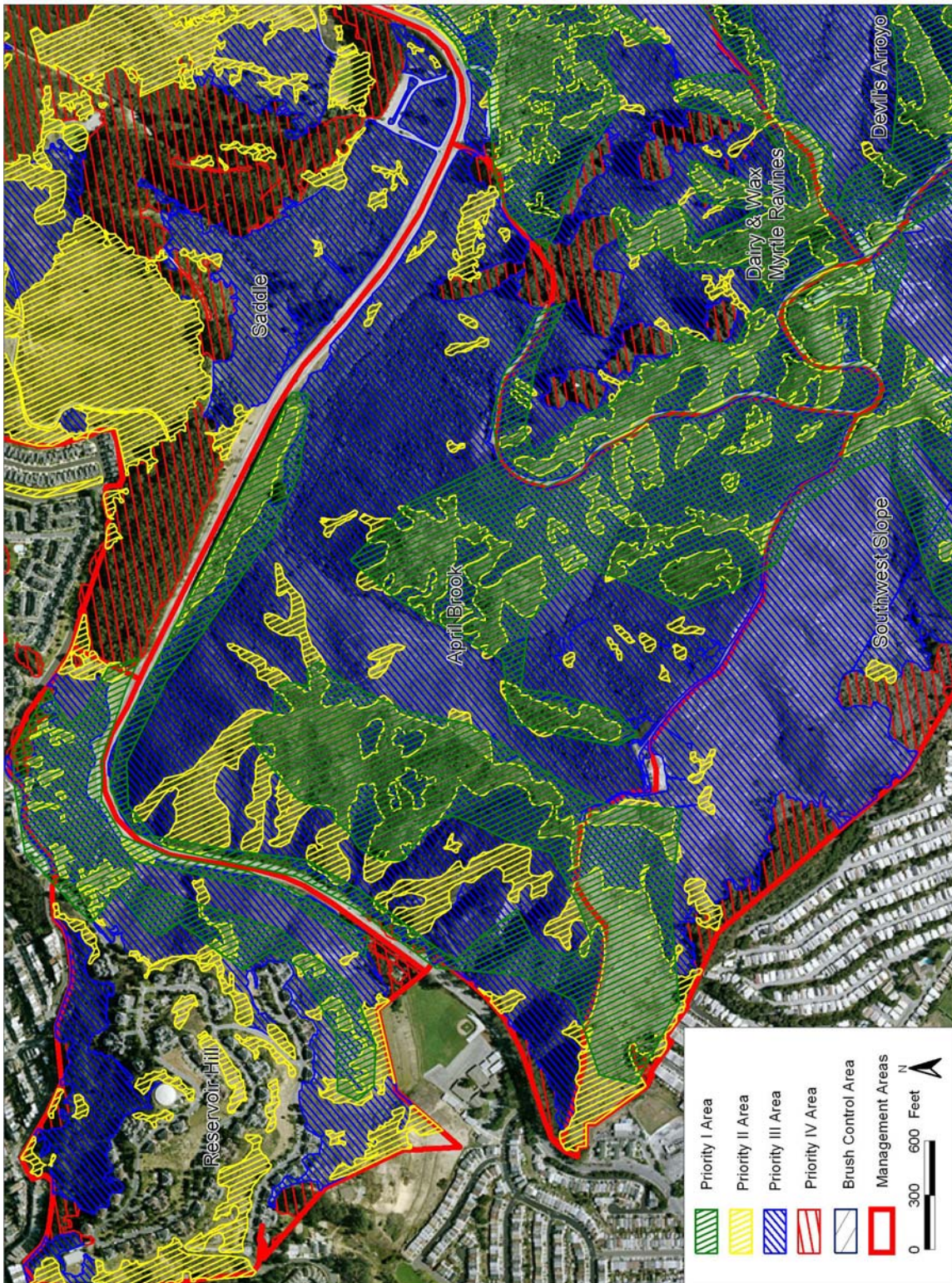


Figure 20. April Brook, Priority Management Areas



## 12. Saddle (320 acres)

### Figures 21 and 22

The Saddle is bordered by Guadalupe Canyon Parkway on the south and east, and the City of Daly City on the north and west. Due to the large infestation of gorse once present in this unit, the unit has been the site for intensive gorse control treatments including herbicide, brushing, and burning since the inception of the HCP in 1982. The eastern slopes provide important grassland habitat for the callippe silverspot and mission blue butterflies. The north saddle is mostly made up of steep, inaccessible slopes primarily covered by gorse (Figure 21).

The headwaters of Colma Creek and the botanically-rich Saddle bog area are located on the western side of the unit bordering Guadalupe Canyon Parkway. Extensive freshwater marsh and riparian wetlands occur in the central portion of the bog. Colma Creek drains southward and under the Guadalupe Canyon Parkway. A headwaters restoration project to remove eucalyptus trees is being conducted through a California State Parks Grant, and managed by CNPS "Heart of the Mountain" and the San Mateo County Parks Division. Through a separate State Parks Grant, the Saddle has had approximately 50 acres of gorse controlled. The current estimate of gorse in the unit is 34 acres (2007). Approximately 30% of this unit is within the Priority 1 management area (Figure 22).

<b>Resource</b>	<b>Habitat Value</b>
Mission Blue	Moderate
Callippe Silverspot	Moderate
San Bruno Elfin	Not Present
Bay Checkerspot	Low
Native Plant Community Diversity and Dominance	Moderate

The central and western portions of the saddle consist of gradual slopes and were used for farming in the past. The eastern slopes are much steeper and were likely used for cattle grazing. A park visitor's area, parking lot, and picnic area are located in this unit just north of Guadalupe Canyon Parkway. HCP approved developments were built along Carter Street adjacent to Daly City housing. This unit receives most of the visitor usage in the Park, in the form of hiking, jogging, and picnicking. This site has patches of gorse on the north side of the Saddle that needs to be managed for fire hazard reduction.

Management under the HCP has focused on controlling gorse, Himalaya blackberry, iceplant, pampas grass, and cotoneaster. One mission blue habitat island has been created within a former gorse patch in the central saddle.

### Conservation Needs and Prescription

Managing the areas of gorse and coastal scrub in the eastern Saddle is a high priority and these areas need continued maintenance. In addition, habitat areas on the eastern

slopes for callippe silverspot and mission blue are threatened by coastal scrub expansion. Focus should be on maintaining habitat areas on the eastern slope through prescribed burning.

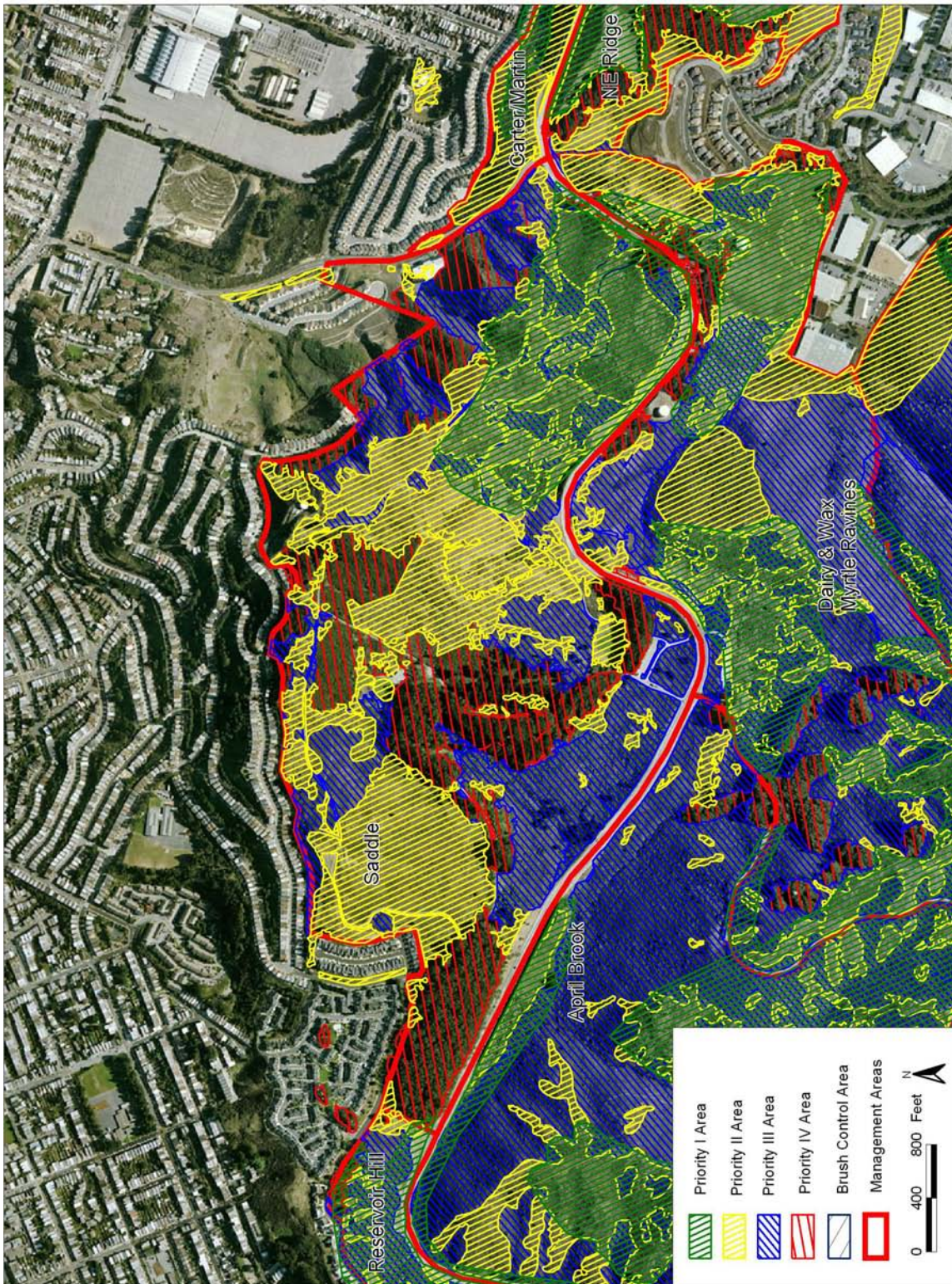
Burns and grazing may be important for managing brush and thatch within grasslands but significant follow-up efforts are necessary to control the high number of gorse seedlings that recruit immediately after disturbance. The Saddle needs to be managed to control species such as English ivy, Monterey cypress, Cape ivy, pampas grass, iceplant, velvet grass, Harding grass, orchard grass, cotoneaster, and Himalayan blackberry to restore native diversity and plant community structure. This work should be done in coordination with previous grant-funded projects in the central Saddle and Colma Creek.



Figure 21. Saddle, Invasive Species Map



Figure 22. Saddle, Priority Management Areas



### 13. Reservoir Hill (127 acres)

#### Figures 23 and 24

This management unit is bordered by Guadalupe Canyon Parkway on the east and the cities of Daly City and San Francisco on the west and north respectively. Plant communities include northern coastal scrub, coastal terrace prairie, Eucalyptus forest, central dune scrub, and non-native grassland (Figure 23). Special-status plants found on Reservoir Hill include San Francisco lessingia (*Lessingia germanorum*; FE, CE, CNPS 1B), and San Francisco spineflower (*Chorizanthe cuspidata* var. *cuspidata*; CNPS 1B). Reservoir Hill has a high habitat value for mission blue butterflies. The Pointe Pacific development, which was built in the early 1980's as part of the HCP occupies the central and western portions of the unit. On the western side the unit has large expanses of coastal scrub with patches of grassland that extend from Guadalupe Canyon Parkway to the Pointe Pacific Development and Crocker Avenue to the north. A 4-H Club is located at the base of the unit along Guadalupe Canyon Parkway. Approximately 30% of this unit is within the Priority 1 management area (Figure 24).

Resource	Habitat Value
Mission Blue	High
Callippe Silverspot	Low
San Bruno Elfyn	Low
Bay Checkerspot	Low
Native Plant Community Diversity and Dominance	Moderate

The unit is composed of mostly steep slopes with the exception of the Pointe Pacific development, which is located on a plateau area. A large water tank is located on the highest peak within the development. The land was primarily used for cattle grazing and for water storage for the city of Daly City. Local residents and visitors use the area for hiking.

Large stands of coastal scrub exist down slope of the Pointe Pacific development and adequate fire buffers need to be maintained to protect the residential areas from wildfire. Eucalyptus groves occur within portions of this unit.

#### Conservation Needs and Prescription

Expansion of coastal scrub within this unit in the absence of burning and/or grazing has reduced the amount of grassland to small isolated patches. These grasslands should be opened up through manual removal of scrub or grazing, while existing butterfly habitat is maintained. Also important is the maintenance and restoration of existing portions of dune scrub and associated rare plant species. This rare community and its plant populations are threatened by iceplant (*Carpobrotus* sp.) and other non-natives. Management techniques such as herbicide application should be used to control non-natives. Logging and manual removal of eucalyptus is also recommended. This management unit could also be considered for the establishment of habitat islands.

Figure 23. Reservoir Hill, Invasive Species Map

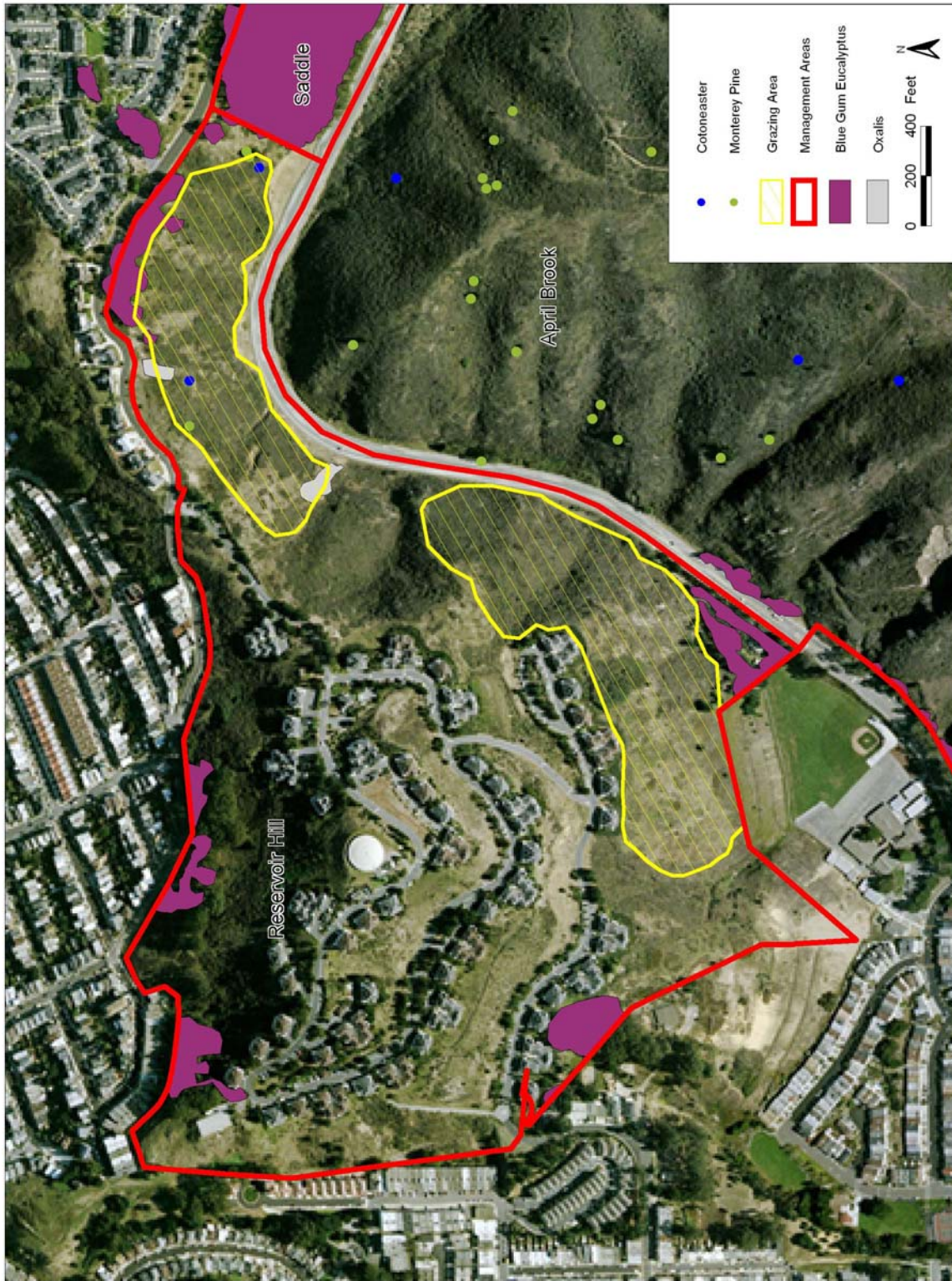
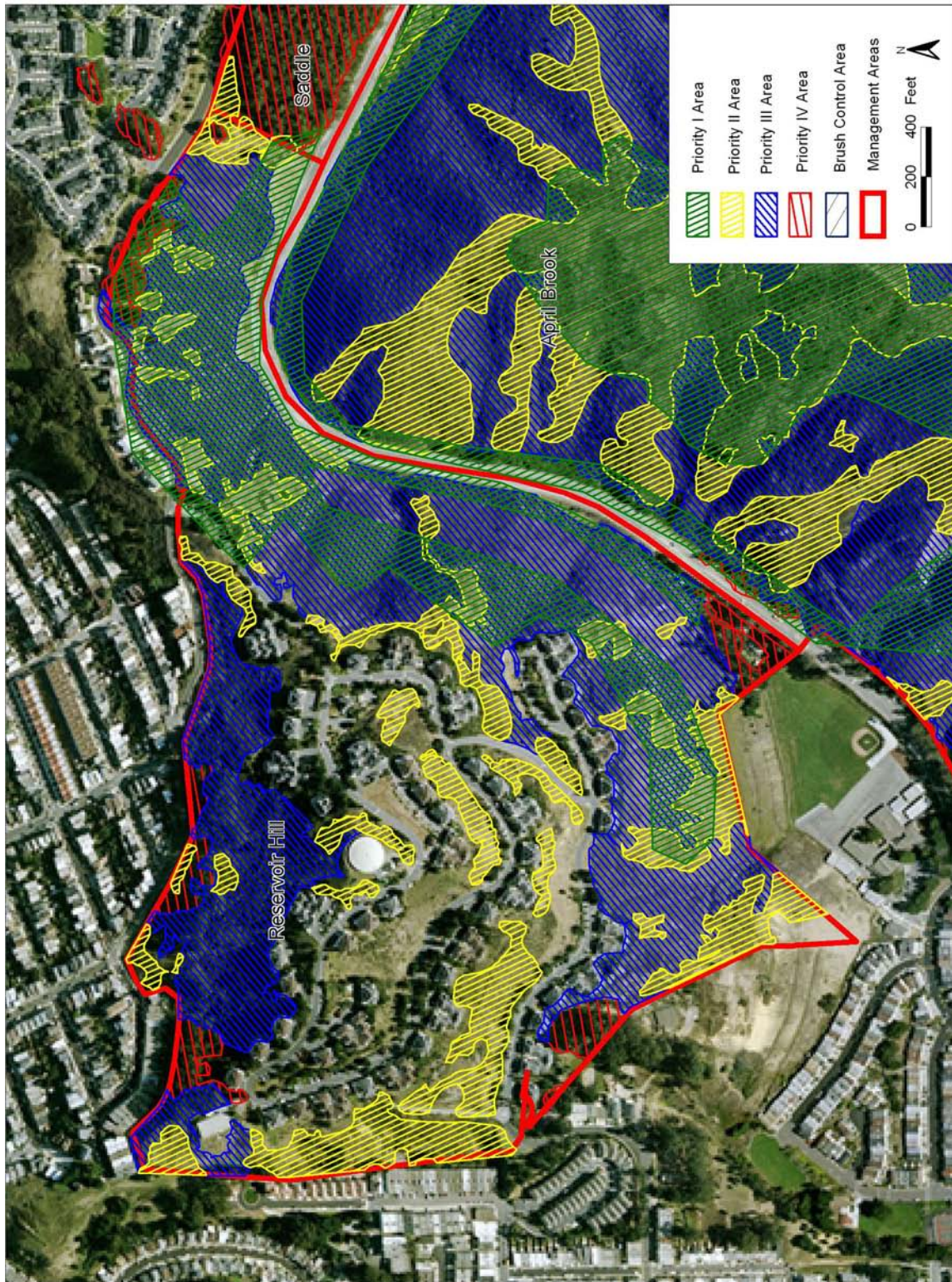


Figure 24. Reservoir Hill, Priority Management Areas



### Guadalupe Quarry

The Guadalupe Quarry (96 acres) is operated by California Rock and Asphalt and is not a current participant to the San Bruno Mountain HCP. California Rock and Asphalt is responsible for vegetation management as part of their mining permit requirements under the jurisdiction of the County of San Mateo. Slopes on the upper benches and above the active mining area of the Quarry, have habitat for the mission blue, callippe silverspot, and San Bruno elfin. If these lands are dedicated to the HCP area in the future, then HCP habitat management would be expanded to include this area.

<b>Resource</b>	<b>Habitat Value</b>
Mission Blue	Moderate
Callippe Silverspot	High
San Bruno Elfin	High
Bay Checkerspot	Moderate
Native Plant Community Diversity and Dominance	Moderate