

2 Background and Environmental Setting

2.1 Program Area

2.1.1 Midpen Lands

Managed Land

The lands within Midpen's lands boundary are located within the Santa Cruz Mountain Region along the San Francisco Peninsula and include the San Francisco Peninsula between the Pacific Ocean and the San Francisco Bay (Figure 2-1). Midpen's boundary extends from San Carlos in San Mateo County in the north to the unincorporated Santa Clara County area located south of Los Gatos in the south.

The unique location is dominated by the Santa Cruz Mountains, which is influenced by a Mediterranean climate composed of mild, wet winters and long, hot, and dry summers cooled by coastal fog. The San Andreas Fault, one of the world's longest and most active faults, cuts through the eastern side of the Santa Cruz Mountains. Continual seismic movement along the fault and the differing composition of the underlying rocks have created many soil types and terrain features, including steep, narrow canyons, rolling hills, and flat bay lands. Habitat communities on Midpen lands represent a wide spectrum, including bayside tidal wetlands, grasslands, oak woodlands, riparian corridors, coyote brush scrubland, and evergreen forests. Of the 26 OSPs, 25 24 are open to the public free of charge, 365 days a year from sunrise to one-half hour after sunset. Table 2-1 summarizes key information for each of the 26 OSPs and other Midpen-managed lands. As Midpen continues to expand its land holdings, the amount of vegetation management work conducted under the Program within its lands is expected to also increase. Midpen continues to actively acquire new lands to preserve as open space in perpetuity. For example, between 2015 and 2020, Midpen added approximately 1,600 acres to its land holdings. Midpen lands depicted on maps throughout the Program represent the conditions at the time of preparation. The lands covered by the Program are subject to change as Midpen continues to actively acquire new lands.

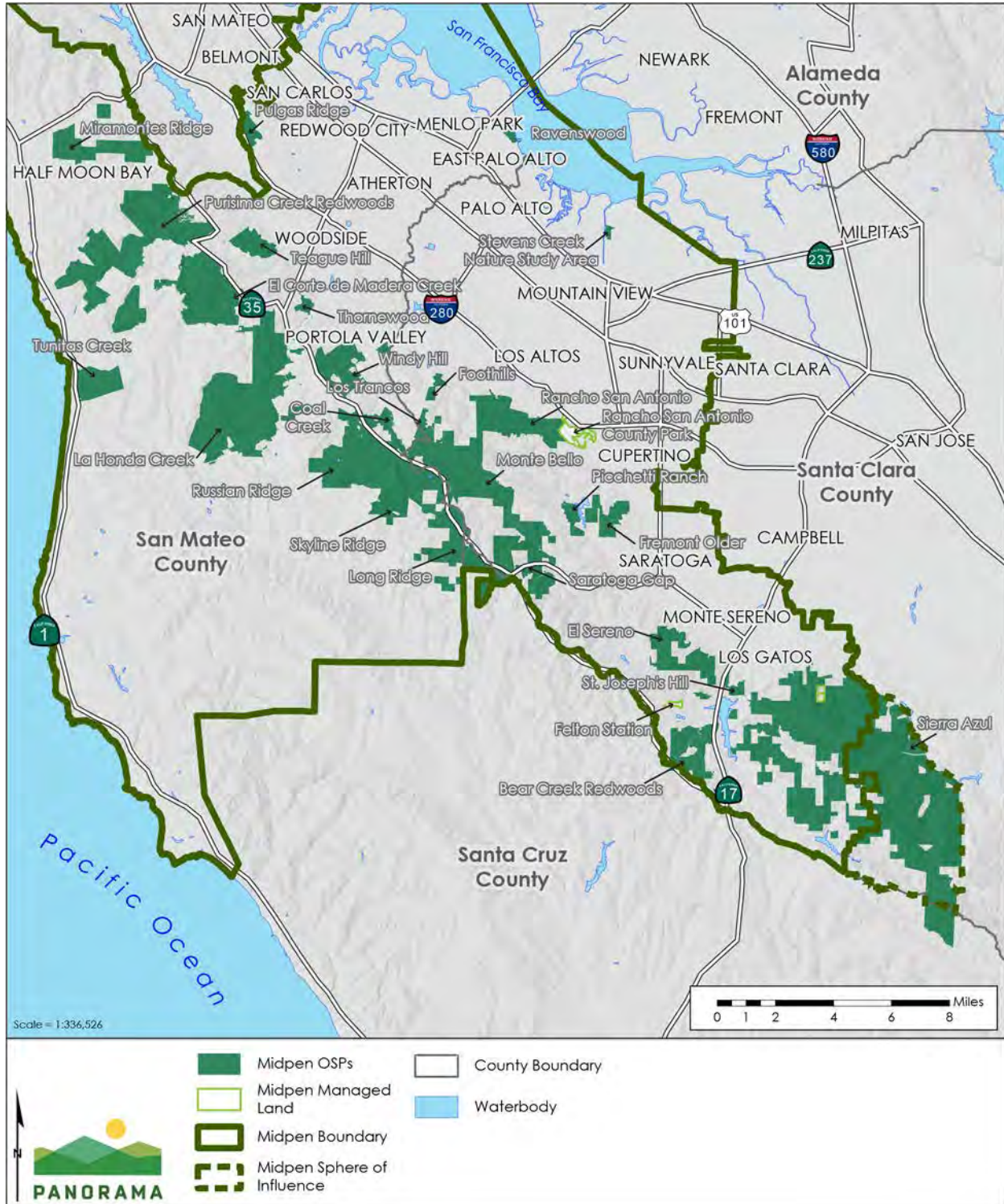
Facilities within OSPs and Managed Land

Recreational, Administrative, and Operational Facilities

Midpen owns and operates recreational, administrative, and operational facilities. Recreational facilities available to the public include trails, restrooms, a visitor center, and parking areas. One campground, Black Mountain Backpack Camp, is available for visitors within Monte Bello OSP.

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Figure 2-1 Midpen Lands



Source: (USGS, 2013; USGS, 2016; Tele Atlas North America, Inc., 2018; Midpen, 2019c)

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Table 2-1 Summary of Midpen Lands

Managed Land	Acres	Description
Bear Creek Redwoods OSP	1,437	- Major amenities: trails open to hiking and horseback riding, stables, historical/cultural artifacts, <u>historic complex</u>, Upper Lake, restrooms, parking lot - Major uses: recreation, horse boarding - Primary vegetation: redwood and fir forests, oak woodland
Coal Creek OSP	508	- Major amenities: trails open to hiking, horseback riding, biking, and dogs on-leash - Major uses: recreation - Primary vegetation: oak woodland, grassland
El Corte de Madera Creek OSP	2,906	- Major amenities: trails open to hiking, horseback riding, and biking; coastal views; sandstone formation; picnic tables; creeks; restrooms; parking lots - Major uses: recreation - Primary vegetation: mixed evergreen and redwood forest
El Sereno OSP	1,430	- Major amenities: trails open to hiking, horseback riding, biking, and dogs on-leash; creeks; permit parking - Major uses: recreation, <u>fire escape route</u> - Primary vegetation: chaparral
<u>Felton Station</u>	<u>44</u>	<u>Not currently open to the public</u>
Foothills OSP	212	- Major amenities: trail open to hiking, horseback riding, and dogs on-leash; scenic viewpoint; roadside parking - Major uses: recreation - Primary vegetation: chaparral, oak woodland
Fremont Older OSP	739	- Major amenities: trails open to hiking, biking, and dogs on-leash; benches; restrooms; historic residence; parking lot and roadside parking - Major uses: recreation - Primary vegetation: chaparral, grassland, oak woodlands
La Honda Creek OSP	6,144	- Major amenities: trails open to hiking, horseback riding, and dogs on-leash; vista point; active grazing; creeks; restrooms; historic barns; residences; parking lots - Major uses: agriculture, recreation, coastal field office - Primary vegetation: redwood and oak forests, grassland
Long Ridge OSP	2,226	- Major amenities: trails open to hiking, horseback riding, biking, and dogs on-leash; benches; scenic vistas; ponds; creeks; roadside parking - Major uses: recreation - Primary vegetation: grassland, hardwood forest, oak savanna

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Managed Land	Acres	Description
Los Trancos OSP	274	- Major amenities: trails open to hiking and horseback riding, San Andreas fault trail, benches, creeks, restrooms, parking lot and roadside parking - Major uses: recreation - Primary vegetation: forest, grassland, oak woodland
Miramontes Ridge OSP	1,716	- Not currently open to the public - Major uses: agriculture, horse stable - Primary vegetation: coastal scrub
Monte Bello OSP	3,537	- Major amenities: trails open to hiking, horseback riding, and biking; scenic vistas; campsite; creeks; benches; restrooms; parking lot - Major uses: recreation - Primary vegetation: chaparral, forest, grassland
Picchetti Ranch OSP	308	- Major amenities: trails open to hiking and horseback riding, vineyard, ponds, restrooms, historic homestead and ranch, Picchetti Winery, picnic tables, parking lots and roadside parking - Major uses: agriculture/winery, recreation, <u>small events</u> - Primary vegetation: chaparral, oak woodland
Pulgas Ridge OSP	366	- Major amenities: trails open to hiking and dogs on-leash, benches, restrooms, off-leash dog area, parking lot - Major uses: recreation - Primary vegetation: chaparral, hardwood forest
Purisima Creek Redwoods OSP	4,798	- Major amenities: trails open to hiking, horseback riding, and biking; creeks; scenic vistas; picnic tables; benches; restrooms; parking lots; active grazing - Major uses: agriculture, recreation - Primary vegetation: coastal scrub, redwood forest
Rancho San Antonio OSP	3,988	- Major amenities: trails open to hiking, horseback riding, and (limited) biking; benches; water troughs; vista points; Deer Hollow Farm and ranch buildings; Foothills field office; historic Grant Cabin; restrooms; parking lots - Major uses: education, agriculture/farming, recreation, <u>maintenance and patrol</u> field office - Primary vegetation: chaparral, hardwood forest
Rancho San Antonio County Park	287	- Major amenities: trails open to hiking, horseback riding, and (limited) biking; picnic tables; benches; model aircraft field; water troughs; vista points; restrooms; parking lots - Major uses: recreation - Primary vegetation: grassland, oak woodland
Ravenswood OSP	374	- Major amenities: trails open to hiking and biking, benches, observation decks, <u>boardwalk</u>, parking lot - Major uses: recreation, <u>commuter route</u> - Primary vegetation: marshland

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Managed Land	Acres	Description
Russian Ridge OSP	3,491	- Major amenities: trails open to hiking, horseback riding, and biking; viewing platforms; creeks; commemorative site; restrooms; parking lots; active grazing - Major uses: agriculture, recreation - Primary vegetation: conifer forest, grassland
Saratoga Gap OSP	1,613	- Major amenities: trails open to hiking, horseback riding, and biking; sandstone rock outcrops; parking lots and roadside parking - Major uses: recreation - Primary vegetation: oak and Douglas fir forests
Sierra Azul OSP and Easements	19,023	- Major amenities: trails open to hiking, horseback riding, biking, and dogs on-leash; scenic vistas; <u>shade structures</u>; picnic tables; water troughs; Mount Umunhum Summit; Ceremonial Space; natural/cultural interpretation restrooms; parking lots and roadside parking - Major uses: recreation - Primary vegetation: chaparral, oak woodland forest, serpentine grassland
Skyline Ridge OSP	2,143	- Major amenities: trails open to hiking, horseback riding, and biking; picnic tables; Alpine Pond; Horseshoe Lake; creeks; multimedia nature tours; David C. Daniels Nature Center; Skyline field office; restrooms; parking lot - Major uses: agriculture, recreation, <u>maintenance and patrol</u> field office - Primary vegetation: grassland, mixed evergreen forest
St. Joseph's Hill OSP	270	- Major amenities: trails open to hiking, horseback riding, biking, and dogs on-leash; benches; scenic vistas; restrooms; roadside parking - Major uses: recreation - Primary vegetation: chaparral, grassland, oak woodland
Stevens Creek Shoreline Nature Study Area	55	- Major amenities: trails open to hiking and biking, birdwatching, parking lots - Major uses: recreation - Primary vegetation: wetland
Teague Hill OSP	626	- Major amenities: trails open to hiking and horseback riding - Major uses: recreation - Primary vegetation: Douglas fir, oak, madrone forest
Thornewood OSP	167	- Major amenities: trails open to hiking, horseback riding, and dogs on-leash; Schilling Lake; parking lot; <u>historic residence</u> - Major uses: recreation - Primary vegetation: oak and redwood forest
Tunitas Creek OSP	1,660	- Not currently open to the public - Major uses: agriculture - Primary vegetation: coastal scrub

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Managed Land	Acres	Description
Windy Hill OSP	1,414	- Major amenities: trails open to hiking, horseback riding, biking, and dogs on-leash; benches; picnic tables; Sausal pond; restrooms; parking lots and roadside parking; <u>historic complex</u> - Major uses: recreation - Primary vegetation: grassland, oak and redwood forest

Note: Midpen has actively preserved nearly 65,000 acres, of which approximately 60,000 ~~59,000~~ acres are managed by Midpen; the remaining acreage is managed by other park and open space entities.

Administrative and operational facilities include two ~~main~~ field offices, two satellite field offices, the main administrative office, and various residences occupied by employees and members of the public. The ~~main~~ field offices are located at Rancho San Antonio OSP and Skyline Ridge OSP.

Historic Sites

Several historic sites are located within OSPs. Examples of historic sites include the Alma College Cultural Landscape, a historic residence and garden in Fremont Older OSP, historic barns in La Honda Creek OSP, Picchetti Brothers Winery and surrounding homestead, Deer Hollow Farm's historic ranch buildings, Thornewood residence, and the Hawthorns Historic Complex.

Roads and Trails

Midpen maintains 21 miles of paved roads and 235 miles of unpaved roads within the OSPs. Over 240 miles of trails are available to the public (Midpen, 2020a). Segments of four regional trails are located within OSPs, including the Bay Area Ridge Trail, Skyline-to-the-Sea Trail, Bay to Ridge Trail, and the Bay Trail.

State Route (SR) 35, also known as Skyline Boulevard, runs adjacent to 15 of the 26 OSPs, serving as a key gateway to Skyline Ridge OSP and other managed areas. Several major roadways provide access to Midpen lands, including SR 9, 17, 35, 84, and 92, as well as Interstate 280. Private vehicles are not permitted within OSPs except in parking lots and access roads/driveways leading to them.

Utilities

Water for use in administrative buildings and public facilities on Midpen OSPs generally comes from springs, creeks, and groundwater or from commercial water supplies. Irrigation water for agricultural production on Midpen OSPs comes from on-site surface waters and wells. Wastewater from public restrooms on Midpen OSPs is stored in on-site vaults before removal and disposal by local service providers. Solid waste disposal services on Midpen OSPs are provided for employee and tenant residences by local providers.

Pacific Gas and Electric Company (PG&E) maintains power lines and underground gas lines through many of the OSPs. PG&E maintains these facilities through easements. Standards for vegetation management and clearance requirements under PG&E utility lines are governed by

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General Order 95, Section III of the California Public Utilities Commission. PG&E retains the responsibility for vegetation clearance associated with PG&E infrastructure.

2.1.2 Surrounding Lands

Nearby Communities and Development

Midpen lands lie entirely within the Santa Cruz Mountain Region. The eastern edge is heavily influenced by the urban areas of San Francisco, San Jose, and other San Francisco Peninsula cities. Low density suburban development also extends from the flat bay lands westward into the foothills of the Santa Cruz Mountains where narrow, meandering roadways provide access to single family homes situated among the chaparral-covered hillsides. Development on the lower western slopes of the Santa Cruz Mountains consists of scattered small communities and rural residences. Much of the land in the upper portions of the Santa Cruz Mountains includes natural areas that are held in OSPs and parks.

Midpen's jurisdiction encompasses 17 cities (Atherton, Cupertino, East Palo Alto, Half Moon Bay, Los Altos, Los Altos Hills, Los Gatos, Menlo Park, Monte Sereno, Mountain View, Palo Alto, Portola Valley, Redwood City, San Carlos, Saratoga, Sunnyvale, and Woodside) and unincorporated areas in San Mateo, Santa Clara, and northern Santa Cruz counties with a combined population of over 700,000 residents.

Although land uses within OSPs are predominantly natural open space and agriculture (primarily conservation grazing), many of the OSPs abut small areas of low-density residential development.

Residential land uses are adjacent to Midpen OSPs. According to CAL FIRE, approximately 95 percent of all fires are human caused. Fires started in residential areas in the WUI can ignite natural areas and spread.

The majority of the wildland-urban interface (WUI) (refer to Figure 2-2) along the OSPs has a CAL FIRE Fire Hazard Severity Zone rating of "High" or "Very High" (refer to Figure 2-3). Fire can spread rapidly throughout WUI areas through adjacent structures and/or vegetation, or by ember dispersion. Most of the land owned by Midpen is within the WUI. Community Wildfire Protection Plans (CWPPs) have identified priority areas for fuel reduction within several OSPs, including Pulgas Ridge, Bear Creek Redwoods, and Sierra Azul OSPs and along Highway 35 within several OSPs.

Open Space

Midpen OSPs abut open space owned and maintained by various agencies, as shown in Figure 2-4. Agencies with the largest quantity of open space land in the surrounding area include California State Parks, San Mateo County Parks, and Santa Clara County Parks.

WILDLAND-URBAN INTERFACE

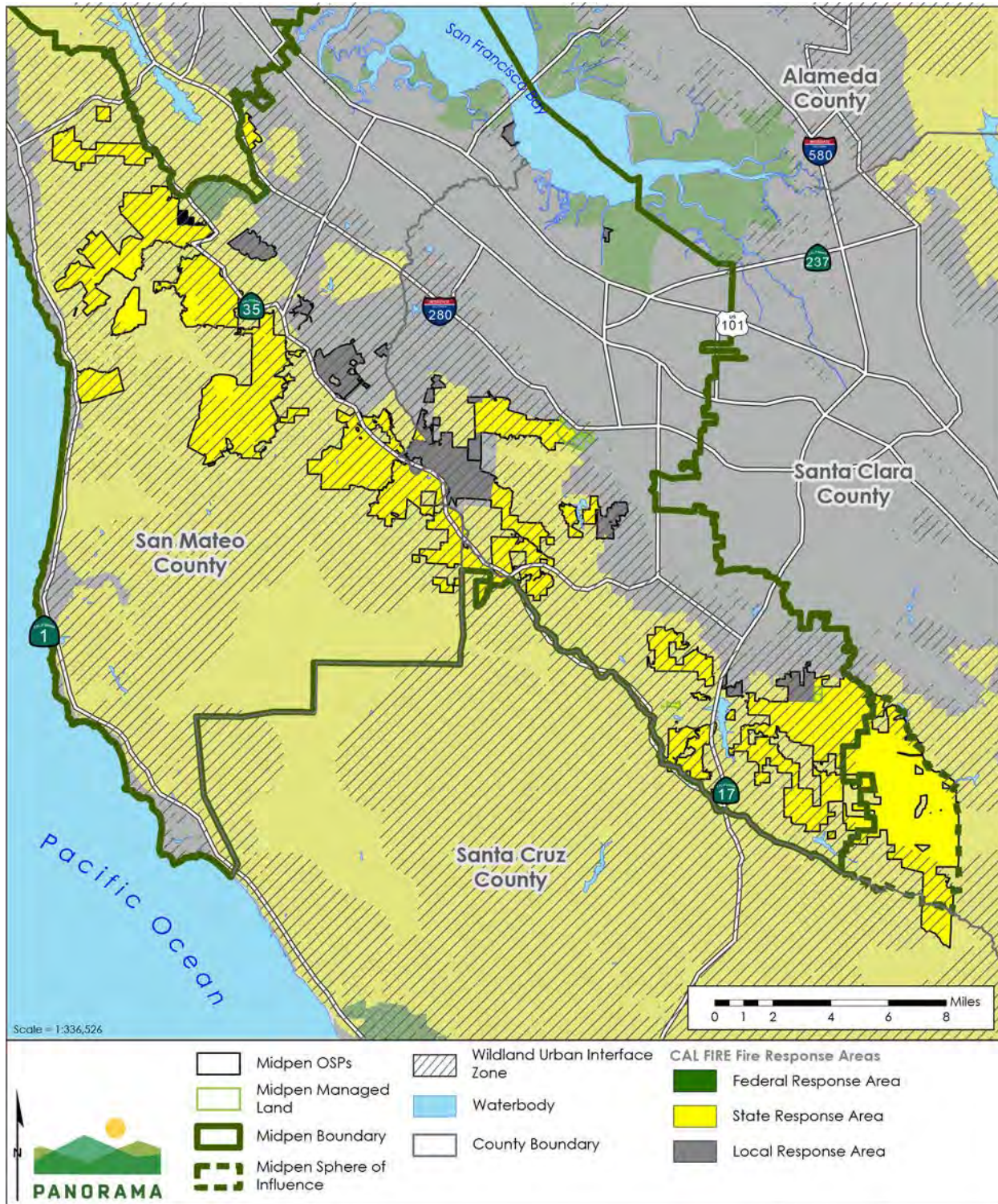
The Wildland-Urban Interface, or WUI, refers to the area where houses and other structures are built close to, or intermingled with, undeveloped wildlands.

The WUI poses significant concern in the event of fire, as it combines the characteristics of wildlands (where larger fires generally occur) and developed areas (where lives, homes, and property are vulnerable).

Within Midpen lands, many neighborhoods fall within this interface. As a result, vegetation management on Midpen lands not only enhances ecological resiliency of the natural lands, it also minimizes fire hazard for adjacent communities.

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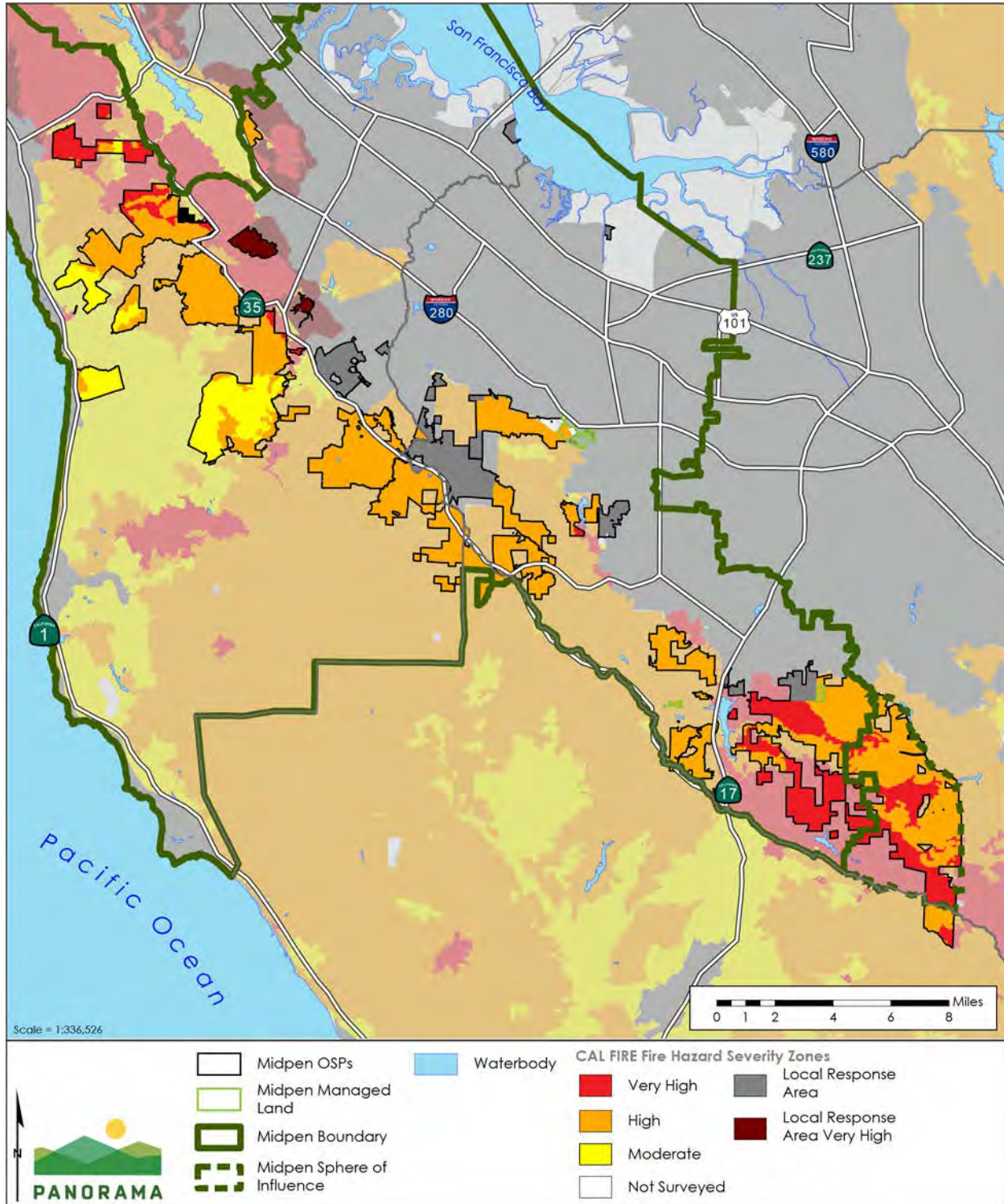
Figure 2-2 CAL FIRE Wildland Urban Interface and Responsibility Areas Within and Surrounding Midpen Lands



Source: (USGS, 2013; USGS, 2016; Tele Atlas North America, Inc., 2018; CAL FIRE, 2007; Midpen, 2018c; Midpen, 2019c)

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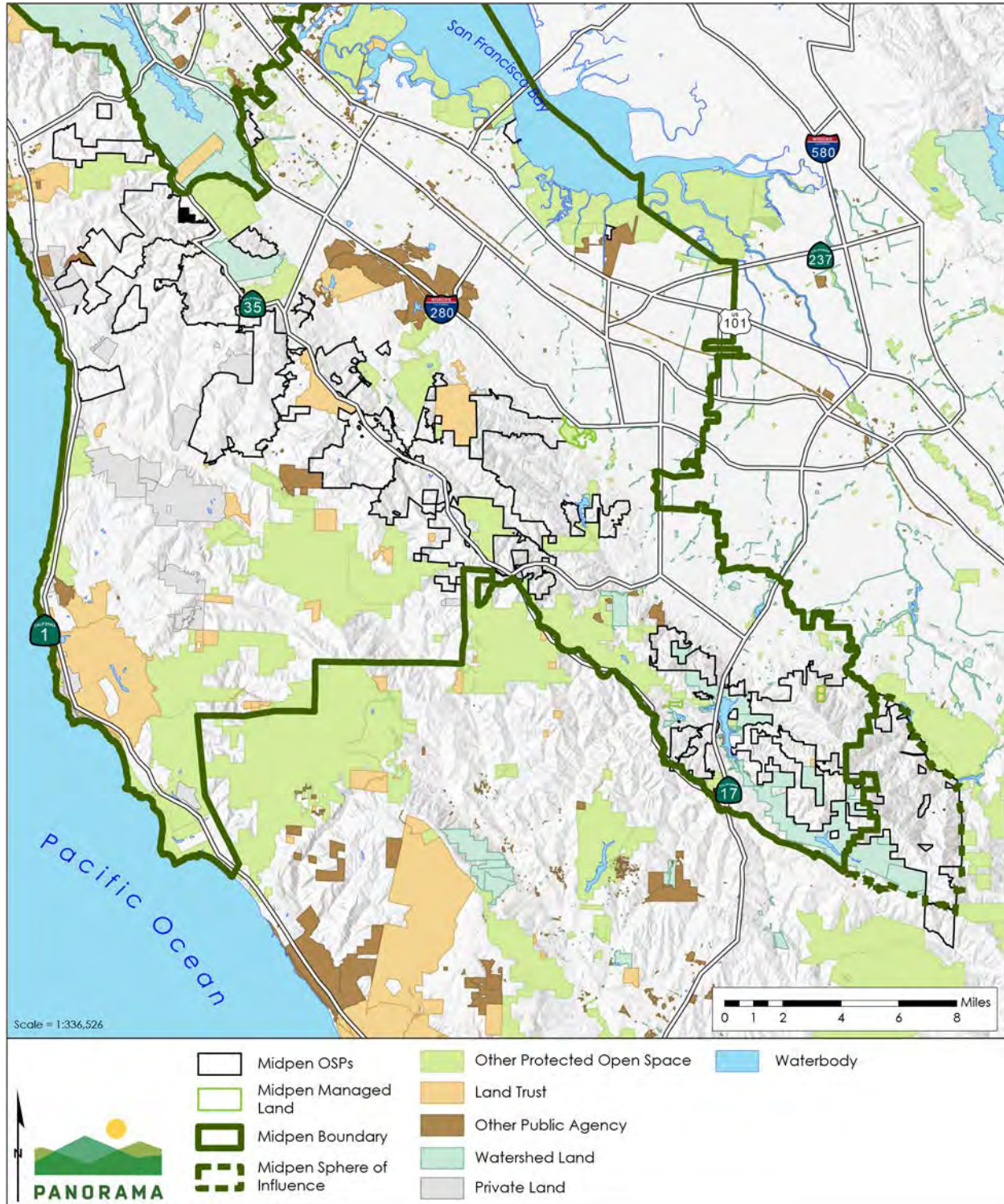
Figure 2-3 CAL FIRE Fire Hazard Severity Zones Within and Surrounding Midpen Lands



Source: (USGS, 2013; USGS, 2016; Tele Atlas North America, Inc., 2018; CAL FIRE, 2007; Midpen, 2018c; Midpen, 2019c)

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Figure 2-4 Open Space Within and Surrounding Midpen Lands



Source: (USGS, 2013; USGS, 2016; Tele Atlas North America, Inc., 2018; Midpen, 2018a; Midpen, 2019c)

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Valley Water (formerly known as the Santa Clara Valley Water District) operates 10 reservoirs within Midpen's jurisdiction (but outside of the OSPs), that provide water for surrounding communities. These reservoirs are within open space lands owned and/or managed by Valley Water or Santa Clara County Parks. Several reservoirs are adjacent to Midpen OSPs. Stevens Creek Reservoir is located between Picchetti Ranch OSP and Fremont Older OSP. Lexington Reservoir, Guadalupe Reservoir, and Almaden Reservoir are located within the vicinity of Sierra Azul, St. Joseph's Hill, and Bear Creek Redwoods OSPs.

Agriculture

Agricultural production on the San Francisco Peninsula dates back to the late 18th century. Today, small family-owned farming and ranching businesses play an important role in the coastal economy, production of locally sourced food, and continuing the agricultural heritage of the area. The key types of agriculture in the area are livestock grazing, cultivated agriculture, nursery crops, and vineyards. Midpen actively manages approximately ~~6,500~~ 8,500 acres of land under its Conservation Grazing Program. Approximately 5,800 acres of land within 0.25 mile of Midpen-owned lands are zoned for agriculture.

2.2 Resources on Midpen Lands

2.2.1 Agricultural Lands

Midpen manages approximately ~~6,500~~ 8,500 acres under its current Conservation Grazing Program. Midpen uses conservation grazing to manage vegetation to enhance the diversity of native plants and animals; for fire protection; to help sustain the local agricultural economy; and to foster the region's rural heritage. More about Midpen's Conservation Grazing Program can be found here <https://www.openspace.org/our-work/resource-management/grazing>.

Five Midpen OSPs (La Honda Creek, Russian Ridge, Purisima Creek, Skyline Ridge, and Tunitas Creek) use conservation grazing as a method of vegetation management, including wildland fuel reduction. These OSPs are along the San Mateo ~~coast~~ County Coast. Midpen leases suitable agricultural lands to tenants with expertise in managing livestock for this purpose. All leases are subject to grazing management plans to ensure that priority resource management goals are met. Approximately 7,700 acres of OSP land is in Williamson Act contracts. These contracts are within 21 OSPs (Midpen, 2019c). A map of the conservation grazing areas is shown in Figure 2-5. Small agricultural areas are located within some Midpen OSPs as shown in Table 2-2.

Table 2-2 Agricultural Uses on Midpen Lands

Managed Land (Property)	Size (Acres)	Agricultural Use/Activity
Purisima Creek Redwoods OSP (Lobitos Ridge)	6.7	Two crop fields; flowers and vegetables
Miramontes OSP (Madonna Creek Ranch)	27	Dry hay farming

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Managed Land (Property)	Size (Acres)	Agricultural Use/Activity
Miramontes OSP (Madonna Creek Ranch)	47.9	Irrigated area for pumpkins, other crops, and Christmas tree farm
Skyline Ridge and Monte Bello OSPs	72.4	Christmas tree farm and chestnut orchard
Saratoga Gap OSP	4.7	Historic fruit orchard
Picchetti and Monte Bello OSPs	4.3	Winery complex
Rancho San Antonio OSP (Deer Hollow Farm)	10	Classes and camps for thousands of schoolchildren covering various themes: farming, edible/native gardening, native peoples, and local history

2.2.2 Forested Lands

Midpen lands encompass approximately 30,000 acres of forest and woodland habitat, including roughly 11,500 acres of redwood and Douglas fir associated coniferous forest and 18,500 acres of other hardwood forest and woodlands. In the past, the redwood and Douglas fir forests of the Santa Cruz Mountains were the center of intense commercial logging activities; however, there are no ongoing commercial timber harvesting activities on Midpen lands today, except for the active Christmas tree farm (approximately 50 acres) at Skyline Ridge OSP. An important goal for Midpen is the preservation and protection of forests and woodlands by promoting late seral conditions on its OSPs.

2.2.3 Natural Resources

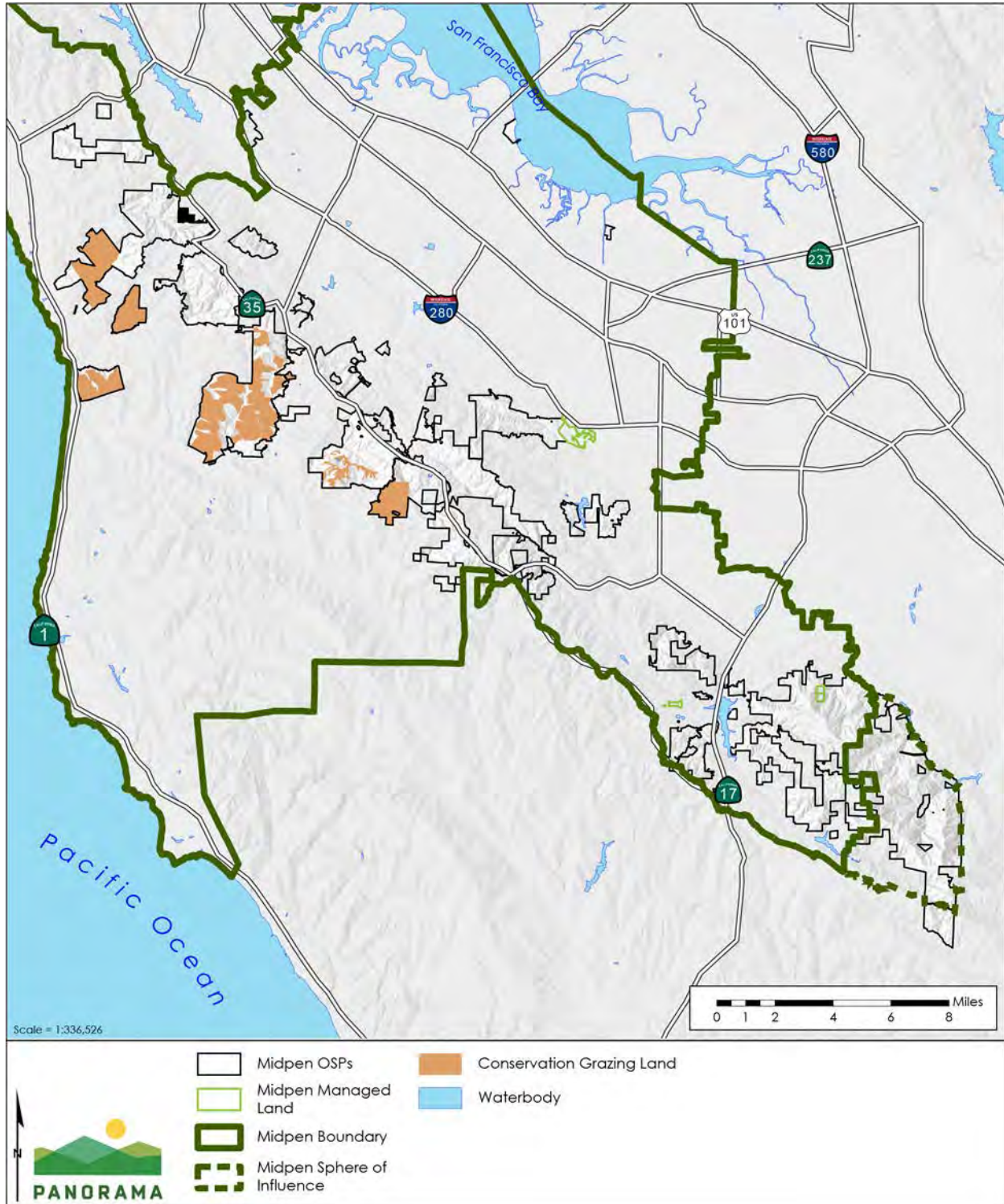
Habitats and Biological Resources

The rich biodiversity on Midpen lands provides vital ecological services (e.g., clean air, clean water, groundwater replenishment), biological resources (e.g., protection of ecological biodiversity), and human health benefits (e.g., physical, social, emotional, psychological health benefits). Midpen lands protect a variety of habitats that support diverse plant and animal species. Midpen lands straddle the eastern and western flanks of the Santa Cruz Mountains and include a diverse mix of oak woodland, grassland, chaparral, coastal scrub, and both evergreen and coniferous forests (Figure 2-6). The eastern portion of Midpen's boundary contains tidal salt marshes adjacent to urban areas on the San Francisco Peninsula. The westernmost portion of Midpen lands is dominated by coastal vegetation communities near areas of low densities. On Midpen lands to the north and south, hardwood and chaparral vegetation communities are found at generally lower elevations with conifer forests and grasslands typically at higher elevations.

Biological resources of special significance or importance are described briefly in Table 2-3. The table identifies species and habitats currently known to occur or listed as sensitive by resource agencies. The numbers and statuses of species may change over the life of this Program, and sensitive species may be present outside of mapped areas.

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Figure 2-5 Conservation Grazing Within Midpen Lands



Source: (USGS, 2013; USGS, 2016; Tele Atlas North America, Inc., 2018; Midpen, 2020b; Midpen, 2019c)

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Geology and Soils

In general, Midpen lands consist of a diverse set of dynamic geological resources characterized by wide variations in elevation (from at sea level to more than 3,400 feet in elevation), variety of aspects and slopes (west-facing, east-facing), earthquake faults, pressure ridges, sag ponds, landslides, high variation of soil types and soil formations, and attractive but fragile rock formations. Midpen lands are located in seismically active areas that could experience significant ground shaking or result in fault rupture, seismic-related ground movement, and/or land sliding.

Hydrology

Midpen lands contain a variety of water resources that include freshwater, estuarine/brackish, and marine habitats. Surface water bodies include reservoirs, ponds, seasonal wetlands, and ephemeral and perennial streams. Groundwater resources within Midpen lands include springs, seeps, and underground aquifers. Salt marshes occur along the edge of San Francisco Bay. Drainages range from ephemeral and intermittent to perennial streams. Runoff from the peninsula flows to the Pacific Ocean to the west and the San Francisco Bay and estuaries to the east.

Midpen OSPs are located within 22 major watersheds extending from the Pacific Ocean in San Mateo County to the bay lands in San Mateo and Santa Clara counties. Many of the OSPs are located within the headwaters or uppermost sections of these watersheds.

Rainfall occurs mostly between November and April with varying seasonal rainfall totals. The greatest rainfall quantities occur along the west facing slopes near the summit of the mountain range where totals can typically reach 40 to 50 inches per year, however, averages around 20 to 30 inches per year are more typical. In the Santa Cruz Mountains, fog accounts for approximately 10 to 20 inches of this precipitation, much of which is delivered in the dry summer months. Many smaller creeks and streams are intermittent, reflecting this seasonal distribution of rainfall. Winter flows are higher, especially during and immediately following storms.

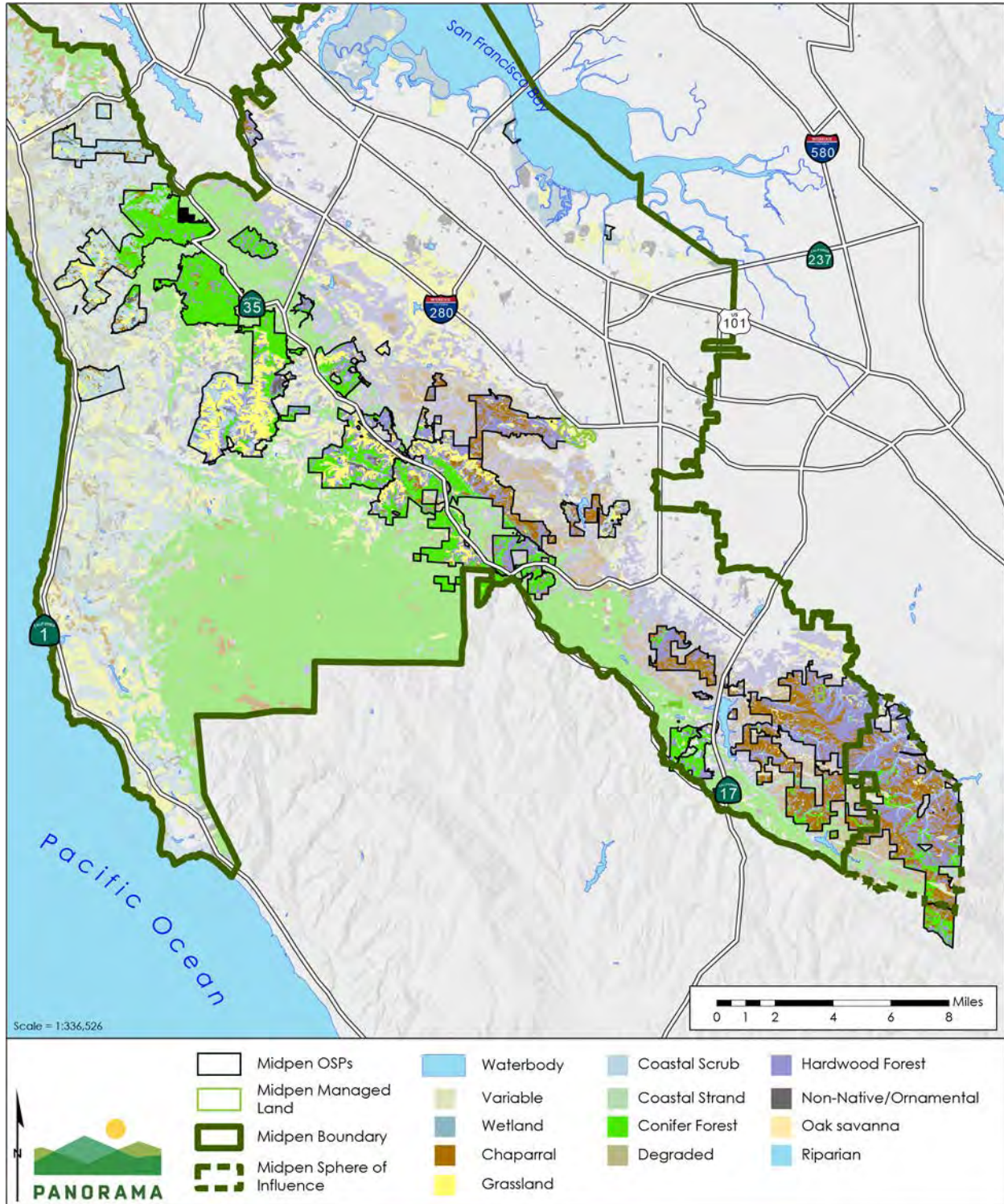
2.2.4 Cultural Resources

The San Francisco Peninsula has a rich and diverse history, including settlement by Native American groups; the Spanish (1776-1821) and Mexican Republican (1821-1848) colonization of the region; the annexation of California by the United States in 1848; and subsequent industrial, agricultural, and residential development. Evidence of these periods remain on Midpen lands, including Native American village sites and bedrock mortars, barns and other ranching features, orchards, wineries, historic homes, sawmill sites, mines, historic roads and trails, and outdoor recreational sites.

This region was home to one of the largest Native American population centers on the continent, with 70 diverse, healthy, economically flourishing tribal units. The Ohlone were the primary Native American people that occupied what is now Midpen lands.

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Figure 2-6 Vegetation Types Within Midpen Lands



Source: (USGS, 2013; USGS, 2016; Tele Atlas North America, Inc., 2018; Midpen, 2018b; Midpen, 2019c)

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Table 2-3 Types of Biological Resources that Occur or May Occur on Midpen Lands

Resource	Description
Sensitive Natural Communities	Most natural communities within Midpen lands are considered sensitive, with a few exceptions such as non-native annual grasslands. Sensitive natural communities within Midpen lands include, but are not limited to redwood forests, California buckeye groves, oak woodlands, bigleaf maple forests, black oak forests, northern maritime chaparral, northern interior cypress forest, California bay forests, riparian woodlands, and wetlands. Serpentine grassland is a highly sensitive natural community that is not mapped in the study area because of the scale of the mapping unit but is present in small patches.
Critical Habitat	Critical habitat is a U.S. Fish and Wildlife Service (USFWS)-designated geographic area that is considered essential for the conservation of a federally threatened or endangered species that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species, but that will be needed for its recovery. A critical habitat designation only applies to activities performed by Federal agencies or that involve a Federal permit, license, or funding, and that are likely to destroy or adversely modify the area of critical habitat. Critical habitat has only been designated for 704 of the more than 1,500 listed species. Critical habitat within Midpen lands has been designated for numerous species, including Franciscan manzanita (USFWS, 2013a), steelhead (USFWS, 2005a), tidewater goby (USFWS, 2013b), California red-legged frog (USFWS, 2010), bay checkerspot butterfly (USFWS, 2008), western snowy plover (<i>Charadrius alexandrinus nivosus</i>) (USFWS, 2012), and marbled murrelet (<i>Brachyramphus marmoratus</i>) (USFWS, 2011). Figure 2-7 shows the critical habitat areas.
Special-Status Species	Special-status species include: • Designated (rare, threatened, or endangered) and candidate species for listing by the California Department of Fish and Wildlife (CDFW). • Designated (threatened or endangered) and candidate species for listing by USFWS. • Species considered to be rare or endangered under the conditions of Section 15380 of the California Environmental Quality Act Guidelines, such as those identified on lists 1A, 1B, and 2 in the 2001 Inventory of Rare and Endangered Plants of California by the California Native Plant Society (CNPS). • And possibly other species which are considered sensitive or of special concern due to limited distribution or lack of adequate information to permit listing or rejection for state or federal status, such as those included on list 3 in the CNPS Inventory or identified as a "California Special Concern" (CSC) species by the CDFW. Species designated as CSC have no legal protective status under the California Endangered Species Act but are of concern to the CDFW. Included in this are 11 plant and 16 animal species that are state and/or federally listed as threatened or endangered.
Special-Status Plants	45 special-status plant species have the potential to be found within Midpen land. Species include but are not limited to: • Santa Clara Valley dudleya • Franciscan onion • Bent-flowered fiddleneck • Robust spineflower • Western leatherwood • Santa Cruz cypress

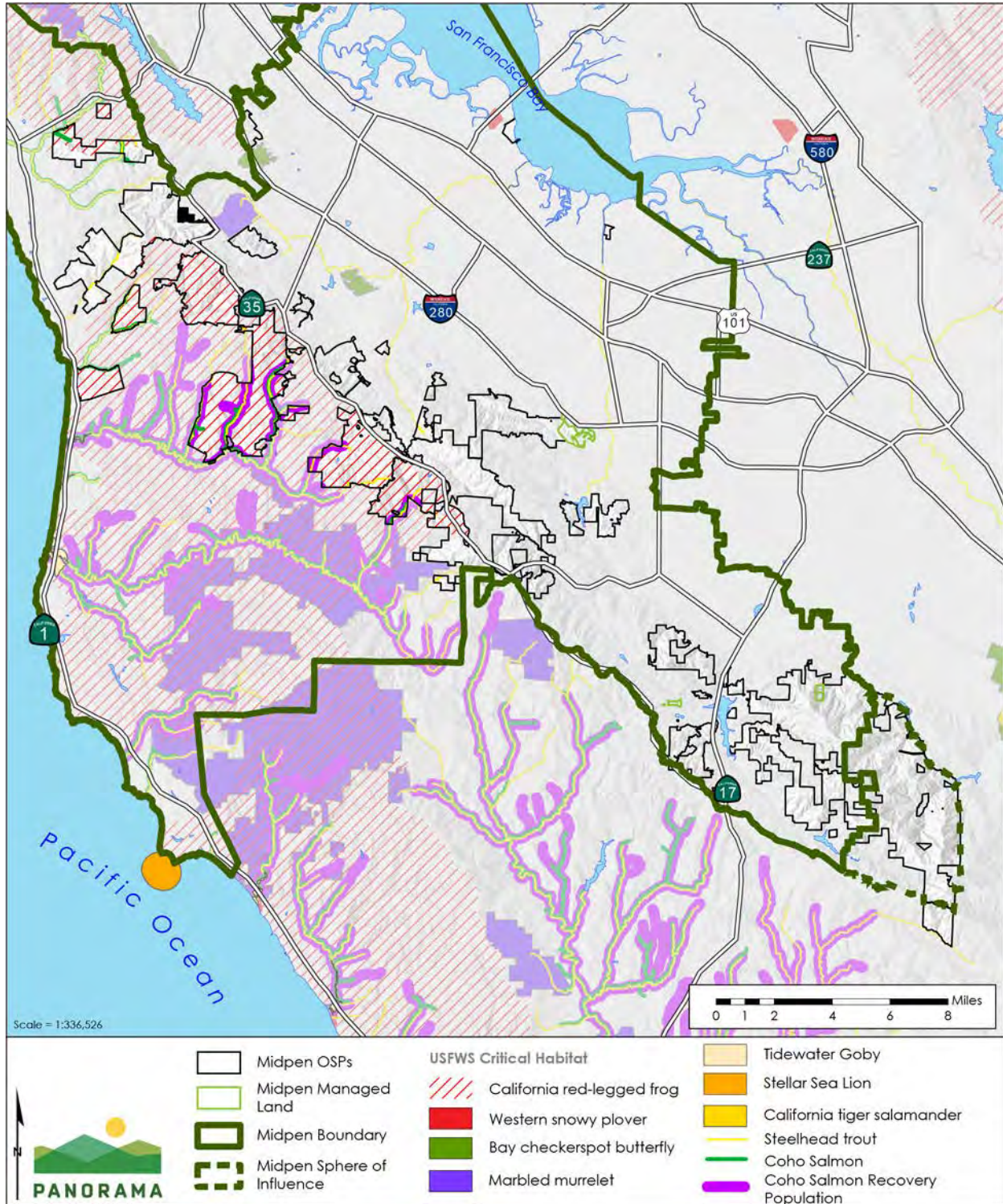
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Resource	Description
Special-Status Invertebrates	Two special-status invertebrates: • Bay checkerspot butterfly • Monarch butterfly
Special-Status Fish	Two special-status fish: • Central California coast steelhead • Central California coast coho salmon
Special-Status Amphibians and Reptiles	Nine special-status amphibians: • California giant salamander • Santa Cruz black salamander • California red-legged frog • Foothill yellow-legged frog • California tiger salamander • Western pond turtle • San Francisco garter snake • Red bellied newt • Coast horned lizard
Special-Status Birds	32 special-status birds have the potential to be found within Midpen land. Species include but are not limited to: • golden eagle • long-eared owl • Vaux's swift • Purple martin • California yellow warbler • Marbled murrelet
Special-Status Mammals	Ten special-status mammals, including six bat species: • Townsend's big-eared bat • Western red bat • Fringed myotis • Hoary bat • Long-eared myotis • Pallid bat • Salt marsh harvest mouse • San Francisco dusky-footed woodrat • Santa Cruz kangaroo rat • American Badger

Source: (Midpen, 2014)

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Figure 2-7 Critical Habitat Within and Surrounding Midpen Lands



Source: (USGS, 2013; USGS, 2016; Tele Atlas North America, Inc., 2018; Midpen, 2019c; USFWS, 2019; NMFS, 2005)

2.3 Past and Present Fire and Fuel Management

2.3.1 History of Wildland Fire

Prior to European contact, Native American tribes actively managed vegetation within their communities and surrounding areas using fire. These fires were lit intentionally at various times of the year to enhance vegetation growth, facilitate food collection, and improve forage for animals they hunted.

In addition, Native American tribes did not actively suppress natural lightning ignitions at a landscape scale, which resulted in fires burning for days, weeks, and even months, shaping the patterns of vegetation cover and composition over the centuries (Anderson, 2013). A detailed fire history study was conducted in the Santa Cruz Mountains, San Mateo County, Huddart Park, and McGarvey Gulch. These studies found that fires burned redwood forests every 12 years, on average. Since 1962, there have been approximately 10 fires on lands that are now owned by Midpen. The vast majority (10,800 acres) of acreage burned by these fires occurred when lands in the area of Sierra Azul OSP were held in private ownership, including the 1961 Austrian Gulch Fire (5,200 acres), 1985 Lexington Fire (4,961 acres), and 2009 and 2016 Loma Fires (530 acres between 2009 and 2016). Aside from these fires, and limited prescribed burning up until 2009, the vast majority of Midpen lands have not burned within the last 30 years.

2.3.2 Fire Suppression

Fire suppression has been implemented by federal and state agencies throughout California for more than a century, significantly altering the fire regime. This policy of fire suppression has reduced biodiversity on lands that Midpen now owns or manages and has facilitated the spread of invasive plant species into grasslands and other plant communities.

Many plant communities in the area are adapted to cyclical fires. As of 2014, an estimated 8,419 acres of fire-dependent communities have been cataloged within the OSPs. Fire suppression allows other plants to outcompete and eventually eliminate fire-adapted and early successional species, including rare species such as Kings mountain manzanita (*Arctostaphylos regismontana*), and can ultimately result in conversion of vegetation communities such as chaparral or grasslands to forest. Additional information on fire suppression history is in Chapter 4: Vegetation Management Plan of this Program.

2.3.3 Current Fire Threats and Risks

Invasive Species

Invasive species are plant species that invade and dominate sufficiently large areas causing a reduction in biodiversity. They proliferate in the absence of natural control and interfere with the natural processes that would otherwise occur on wildlands. Once established, invasive species can become difficult to manage and can eliminate or outcompete rare, sensitive, or otherwise important native species that are important to maintain a species-rich assemblage, habitat, host plants, food, and cover for wildlife. Although the vast majority of invasive species

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are non-native, a disruption in disturbance regimes (e.g., natural fire) or influx of outside influences (e.g., nitrogen deposition from anthropogenic activities such as fossil fuel combustion) can cause native species to act invasive.

Invasive plants are implicated in many natural resource and conservation problems and are considered by most land managers to be a threat to natural resource management goals. Some invasive plants can alter ecosystem processes, such as reducing or changing seasonal food sources for wildlife, hydrological patterns, fire regimes, soil chemistry, or the genetic integrity of other species. The San Mateo County Weed Management Area and the Santa Clara County Weed Management Area set regional priorities for eradication of invasive plants in the San Francisco Bay Area, particularly those for which early action could substantially reduce future risk of ecological impacts.

In 2014, invasive species were mapped as dominating approximately 860 acres (<2 percent) within Midpen OSPs. Not all land within OSPs has been mapped. Prominent non-native invasive species found on the OSPs include yellow star thistle, French broom, jubata grass, and blue gum eucalyptus. ~~French broom has the potential to disrupt fire cycles because broom plants grow in dense stands, with inner stems that die back and create flammable fuels that can carry fire to the tree canopy, potentially increasing, which have the to increase~~ the intensity and severity of wildland fires.

Although many species of non-native annual grasses are ubiquitous throughout California, and not typically considered noxious, management of these grasses are an important part of land stewardship to reduce fuels and maintain or enhance grassland habitat. Without conservation grazing or other forms of vegetation management, non-native annual grass biomass can build up over time as thatch. Thatch increases the flammable fuels in grassland habitats and helps carry fire. If left unmanaged, thatch buildup can negatively impact and suppress native seed germination, prevent water infiltration into the soil, and alter soil dynamics.

Forest Disease

Sudden Oak Death (SOD) is a prevalent disease within forested lands. SOD has killed over one million native oak and tanoak trees and infests many other forest species in one Oregon and 15 coastal California counties. Hundreds of dead tanoak trees and other symptoms of the SOD pathogen, *Phytophthora ramorum*, are commonly seen on Midpen OSPs, contributing to greater fuel loads. No cure is currently available for SOD, and as with other extensive forest diseases, a strategy may take decades to develop. In 2006, Midpen began its efforts to address SOD impacts by adopting a ten-year SOD plan to map oak trees on Midpen OSPs that are potentially resistant to the SOD pathogen, treat a selected number of specimen oak trees, and establish collaborative funding for SOD research to help guide land management decisions (Midpen, 2014a). The plan also included a collaborative study of impacts on wildland ecology and recreation, and development of a restoration strategy for heavily infested forests. The disease threatens to degrade the more than 47,000 acres of hardwood forest in the region, of which 18,000 acres occur in Midpen OSPs (Figure 2-8). Since 2000, SOD has spread from what is believed to be its

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initial core in the Long Ridge, Saratoga Gap, and Skyline Ridge OSPs in a northerly and easterly direction primarily as a result of weather conditions.

To date, Midpen ~~employees~~ staff continue to conduct research, monitor, and manage SOD in accordance with the IPMP. This work occurs on Rancho San Antonio, Monte Bello, El Corte de Madera Creek, Los Trancos, Russian Ridge, Skyline Ridge, Long Ridge and Saratoga Gap OSPs. Because the long-term effects of the disease on California's forests are unknown, Midpen is also currently working with the California Oak Mortality Task Force to further study and monitor the impacts of the disease. Research into SOD treatment options was conducted at Rancho San Antonio, El Corte de Madera, and Los Trancos OSPs. The research evaluated the success of three scenarios: removal of California bay; application of fungicide; and not conducting any treatment. Ongoing treatment is continuing at El Corte de Madera OSP, with one more fungicide application projected to occur in 2020. Midpen educates the public and staff on SOD prevention techniques in addition to supporting outreach and monitoring efforts conducted by University of California Berkeley and Oregon State University.

Fuel Load

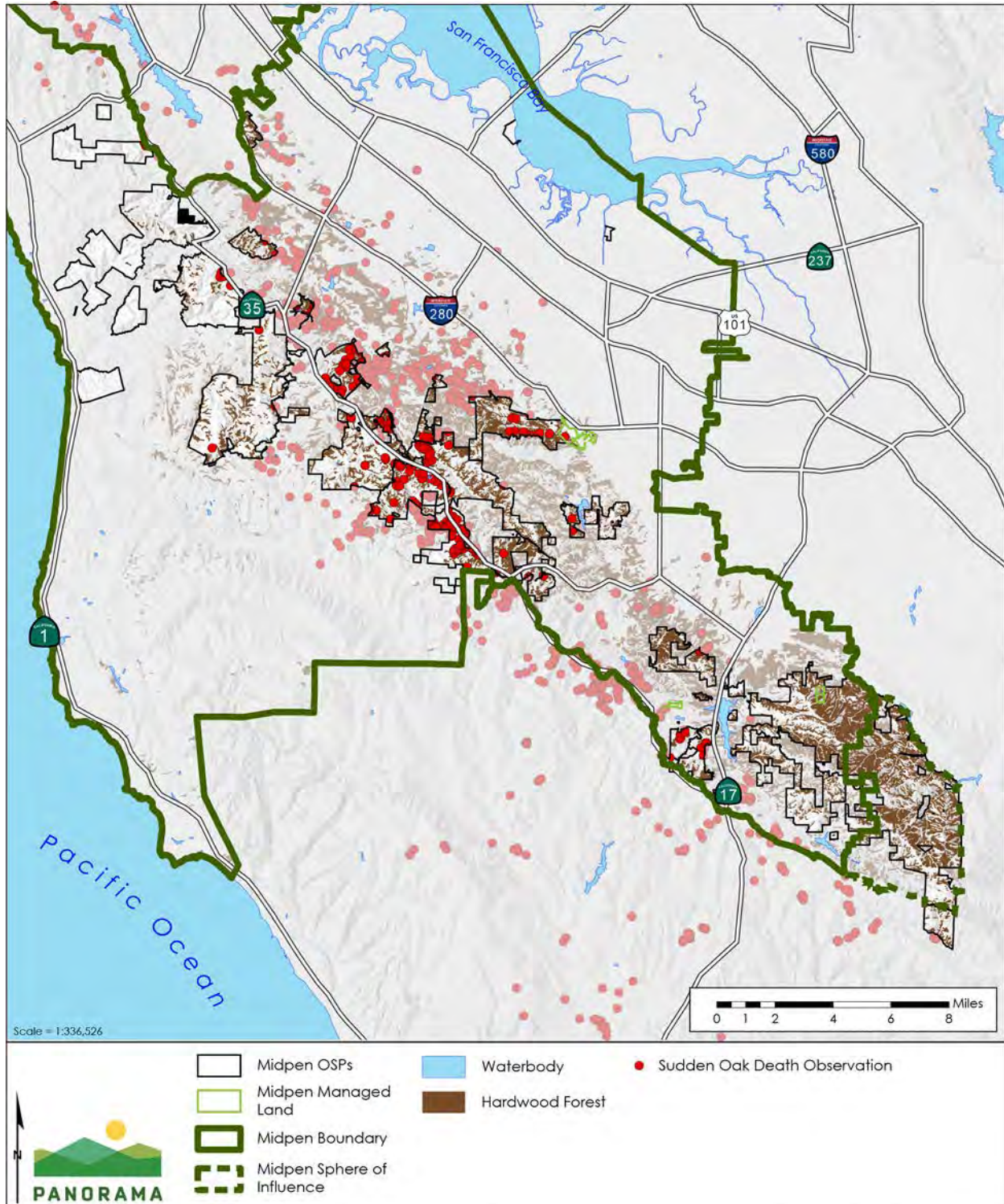
The historic fire regime in the area greatly reduced much of the fuel load on the ground and significantly reduced the severity of fires within these fire-managed landscapes. From 1860 through the early 1920's, unprecedented alterations took place within the forests of the Santa Cruz Mountains. The ancient "old growth" forests were primarily harvested for local home construction, removing the largest, most fire-resistant trees from the forested landscape. The forest that has grown back typically consists of a much higher density of trees, particularly Douglas-fir, that are more susceptible to fire. In addition, due to fire exclusion, fuels have accumulated within oak woodland, chamise, and grassland dominated vegetation types. Coupled with extensive development in the WUI, local fire risk is a critical regional issue.

Climate Change

California is experiencing climate changes with more frequent heat waves, higher temperatures, and successive periods of drought. Temperatures in California are projected to increase 5.6 to 8.8 degrees by 2100. Conversely, the snowpack is anticipated to decline to less than half the historical average. Changes in precipitation patterns and increased temperatures are expected to alter the distribution and character of natural vegetation and associated moisture content of plants and soils. These changes are expected to lead to increased frequency and intensity of large wildland fires and greater fire risk if fuel management activities are not expanded across the state (CNRA, 2018).

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Figure 2-8 Sudden Oak Death Observations in 2016 Within and Surrounding Midpen Lands



Source: (USGS, 2013; USGS, 2016; Tele Atlas North America, Inc., 2018; Midpen, 2018b; Midpen, 2019c; UC Berkeley, 2016)