B. BIOLOGICAL RESOURCES

The parks in the Study Area are home to a wide range of biological habitats and species. This EIR section (1) describes the setting section for biological resources within the Study Area, (2) evaluates the potential impacts to biological resources related to implementation of the Wildfire Hazard Reduction and Resource Management Plan (the proposed project), and recommends appropriate mitigation measures where necessary.

The reader should note that this section focuses on biological resources and conditions that are particularly relevant to the issue of wildfire hazard reduction. In the following developed shoreline parks, wildfire hazards are very low and fuel modification activities are not expected to be undertaken: Point Isabel; Middle Harbor Shoreline Park; Robert W. Crown Memorial State Beach; and Martin Luther King Jr. Regional Shoreline. Vegetation in these shoreline parks is confined to irrigated landscaping, coastal strand, or coastal salt marsh which do not provide highly combustible fuels nor would they be subject to wildfire conditions. Therefore, these parks and coastal habitat types (i.e., coastal strand or coastal salt marsh) are not discussed further in this section. Brooks Island does support wildfire fuels such as coastal scrub, but being isolated from urban habitats by the Bay; a wildfire on the island does not pose a threat to lives or property and therefore is not discussed or considered further in this section. The developed, irrigated and landscaped portions of Point Pinole and Miller/Knox Regional Shorelines, and the tidal mudflats and salt marsh habitats in these parks also do not provide wildfire fuels and are not discussed further. Therefore, it is primarily the undeveloped hillside and/or forested portions of these parks that are considered. The reader should note that most of Eastshore Park is composed of tidal habitats or urbanized developments that do not provide wildfire fuels or threats. However, the District has identified the Berkeley Meadow in Eastshore State Park as a location that includes some potential fuels, coyote brush scrub and grasslands. Although this area is intensively monitored and managed as a habitat and wetland restoration area, it is included and evaluated in this EIR, as necessary. Accordingly, the Berkeley Meadow portion of Eastshore Park is considered part of the Study Area for the evaluation of potential effects on biological resources.

1. Setting

This section begins with a description of the methods used to identify and describe biological resources within the Study Area, followed by an overview of fire and the native landscape ecology, and the regulatory context. The second subsection describes the habitats and special status species within the Study Area. The final subsection describes the regulatory context for biological resources. These three subsections comprise the Study Area's baseline conditions for biological resources.

a. Methods. Information on existing biological resources within the East Bay Regional Park District (EBRPD) East Bay Hills properties (the Study Area) was drawn from multiple sources, including: 1) documents pertaining to biological resources of the various parks); 2) Federal Emergency Management Agency (FEMA) Environmental Assessment for EBRPD;[1] 3) lists of uncommon plant species;[2] 4) searches of the California Natural Diversity Data Base (CNDDB) and

[1] URS Corporation, 2003. Final Environmental Assessment for the East Bay Regional Park District Vegetation Management Projects, Alameda and Contra Costa Counties, California. HMGP #919-515-24. Prepared for the Federal Emergency Management Agency. April.

[2] Lake, D. 2004. *Unusual and Significant Plants of Alameda and Contra Costa Counties*. California Native Plant Society, East Bay Chapter, Oakland, CA.

the California Native Plant Society's electronic inventory;[3] 5) articles on special-status species;[4, 5] 6) field surveys by LSA biologists conducted at various times from 2006 through 2008; and 7) LSA's professional experience with vegetation and wildlife in the East Bay Hills region.

b. Taxonomy and Nomenclature. The taxonomy and nomenclature for the plant and animal species used in this section are from the following sources: vegetation and flora;[6] fishes;[7] amphibians and reptiles[8, 9], birds[10], and supplements; and mammals.[11] Plants that are designated as invasive are those listed as such by the California Invasive Plant Council (Cal-IPC).[12] For animals, subspecies names are used only when a specific subspecies is considered a special-status species by the California Department of Fish and Game (CDFG) or United States Fish and Wildlife Service (USFWS).

Some plant communities are named in accordance with the classification system in the *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Data Base* as outlined in the *Manual of California Vegetation.*[13] Other communities that are locally distinct are named in accordance with vegetation maps and reports provided by EBRPD, because they best describe the unique character of these communities. The term habitat is used interchangeably with plant community in the discussion of wildlife.

[3] California Native Plant Society (CNPS). 2006. *Electronic Inventory of Rare and Endangered Plants of California* (online edition, v7-06b). CNPS, Sacramento, CA. Accessed on Wed. Jun.10, 2006, from http://www.cnps.org/inventory.

[4] Amme, D. and N. Havlik. 1987. *An Ecological Assessment of Arctostaphylos pallida Eastw., Alameda and Contra Costa Counties*. The Four Seasons 7 (4): 28-46. East Bay Regional Park District, Oakland, CA.

[5] Edwards, S.J and A. Galo. 1991. *Rare, Endangered, and Unusual Plants in the East Bay Regional Park District.* The Four Seasons 9(1):59-71. East Bay Regional Park District, Oakland, CA.

[6] Hickman, J. (ed.). 1993. *The Jepson Manual: Higher Plants of California.* University of California Press. Berkeley, CA.

[7] Nelson, J.S., E.J. Crossman, H. Espinosa-Pérez, L.T. Findley, C.R. Gilbert, R.N. Lea, and J.D. Williams, (eds.). 2004. *A List of Common and Scientific Names of Fishes from the United States, Canada, and Mexico.* 6th edition. American Fisheries Society Special Publication 20.

[8] Crother, B. 2000. Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico, With Comments Regarding Confidence, In Our Understanding. Society for the Study of Amphibians and Reptiles. Herpetological Circular No. 29.

[9] Crother, B., J. Bounty, J.A. Campbell, K. De Quieroz, D. Frost, D.M. Green, R. Highton, J.B.Iverson, R.W. McDiarmid, P.A. Meylan, T.W. Reeder, M.E. Seidel, J.W. Sites, Jr., S.G. Tilley, and D.B. Wake. 2003. *Scientific and Standard English Names of Amphibians and Reptiles of North America North of Mexico: Update*. Herpetological Review, 34 (3).

[10] American Ornithologists' Union. 1998. *Check-list of North American Birds*, seventh ed. Washington, D. C. American Ornithologists' Union.

[11] Baker, R. J., L. C. Bradley, R. D. Bradley, J. W. Dragoo, M. D. Engstrom, R. S. Hoffmann, C. A. Jones, F. Reid, D. W. Rice, C. Jones. 2003. *Revised Checklist of North American Mammals North of Mexico, 2003*. Occas. Papers Mus., Texas Tech Univ., 229 pp.

[12] Cal-IPC. 2006. California Invasive Plant Inventory. Cal-IPC Publication 2006-02. California Invasive Plant Council: Berkeley, CA. Available: www.cal-ipc.org

[13] Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society. Sacramento, CA. 471pp.

c. Fire and Landscape Ecology. Vegetation within the East Bay Hills is a mosaic of plant communities, some of which are typically associated with physical characteristics of a particular area, including slope aspect, soil type, and land use. The vegetation has been substantially altered over time by human activities that have included livestock grazing, logging, quarrying, road and trail construction, introduction of non-native species (most notably eucalyptus), and the suppression of wildfires. Recurrent historic fires have greatly influenced ecological processes of shrublands in the coastal region of California (including the East Bay). The rapid recovery of native shrubs after fire is a result of evolutionary adaptations in the form of seed production and germination, and the ability to resprout from stem and root crowns.[14] Many native shrubland plants cannot reproduce without fire to provide a seedbed consisting of unshaded mineral soil. Some of these species also require scarification by fire for seed germination. Fire is generally considered beneficial to shrubland health by recycling nutrients, consuming litter that contains "allelopathic" chemicals that suppress regeneration, scarifying seed for germination, providing unshaded mineral soil for seedling establishment, and reducing plant pests and pathogens. As a result, chaparral and north coastal scrub ecosystems decrease in bio-diversity and productivity as the individual shrubs become old and decadent and the canopy becomes dense.[15] Exclusion of fire in the East Bay has also reduced diversity through loss of grasslands (including native coastal prairie) to invasion by coyote brush.[16],[17]

Wildlife species associated with California shrubland habitats are also adapted to fire. A general consensus among ecologists is that the direct affects of fire on wildlife (such as direct mortality) are less important than indirect fire influences on vegetation and habitat conditions[18]. The direct effects of high intensity wildfires resulting from accumulations of vegetative fuel, however, can substantially affect some wildlife populations. For example, populations of relatively sedentary non-burrowing animals such as woodrat (*Neotoma* spp.) can be eliminated in a wildfire. Low intensity burns are easier for animals to escape and survive direct fire effects.

Fire has a pronounced and long-lasting indirect effect on wildlife populations.[18] Short-term indirect effects of large high intensity wildfires can be detrimental to wildlife due to loss of food and shelter until the vegetation has had time to regenerate. This effect is less detrimental in smaller fires. In the early years of succession after a fire, the flora of burned shrubland reaches a state of maximum diversity and productivity to the benefit of most wildlife species. The ecotones and patchiness resulting from fire further increases wildlife diversity as discussed below. Accordingly, ecologists generally believe that optimum shrubland wildlife habitat consists of a fire-induced mosaic of different age classes of native brush interspersed with patches of native grassland and forest.

[14] Keeley, J.E., and Keeley, S.C. 1984. *Postfire recovery of California coastal sage scrub.* The American Midland Naturalist. 111(1):105-117.

[15] Keeley, J.E., and P.H. Zedler. 1978. *Reproduction of Chaparral Shrubs After Fire: A Comparison of Sprouting and Seeding.* Am. Mid. Nat. 89 or 88:142-161.

[16] McBride, J.R. and H.F. Heady. 1968. Invasion of grassland by Baccharis pilularis DC. J. Range Management 21:106-108.

[17] McBride, J.R. 1974. Plant succession in the Berkeley Hills, California. Madroño 22 (7):317-329.

[18] Nichols, R. and J. Menke. 1984. Effects of chaparral shrubland fire on terrestrial wildlife. Pp: 74-97 In: DeVries [ed.] Shrublands in California: Literature Review and Research Needed for Management. California Water Resources Center. University of California, Davis Contribution No. 191.146 pp.

On the landscape level, this "patchiness" often results in higher wildlife species diversity than in landscapes supporting uniform habitats. Many wildlife species forage along habitat edges or ecotones where they find a variety of prey species and nearby shelter from the elements and their predators. Ecotones are transitional zones between two plant communities and typically support plant and animal species associated with both communities. Ecotones are therefore biologically significant areas with high levels of structural and biological diversity.

Some species, however, prefer large habitat patches and become rare or disappear in areas where their habitats are reduced in size, become fragmented, or isolated from areas of similar habitat. If a landscape becomes too patchy, the majority of species will be edge species and the species that have become specialized for specific habitats will become rare or absent. In managed landscapes, it is important to maintain connectivity between large patches of specific habitat types so species specialized for these habitats have corridors to aid in dispersal between large habitat patches.

d. Plant Communities and Common Wildlife Species. This section provides information about the Study Area's plant communities that provide habitat and the typical wildlife species that inhabit them. The following plant communities are present in the park units within the Study Area, and their locations are shown in Figures IV.B-1.a, IV.B-1.b, IV.B-1.c, and IV.B-1.d. Plant communities have been organized by their wildfire hazard rating and fuel characteristics and identified as "vegetation types" in Chapter V. Vegetation Management Program of the Plan:

Grasslands and Herbaceous Vegetation

- Coastal prairie (native perennial grassland)
- Serpentine bunchgrass grassland (native perennial grassland)
- California annual grassland (non-native grassland)

Scrub Vegetation

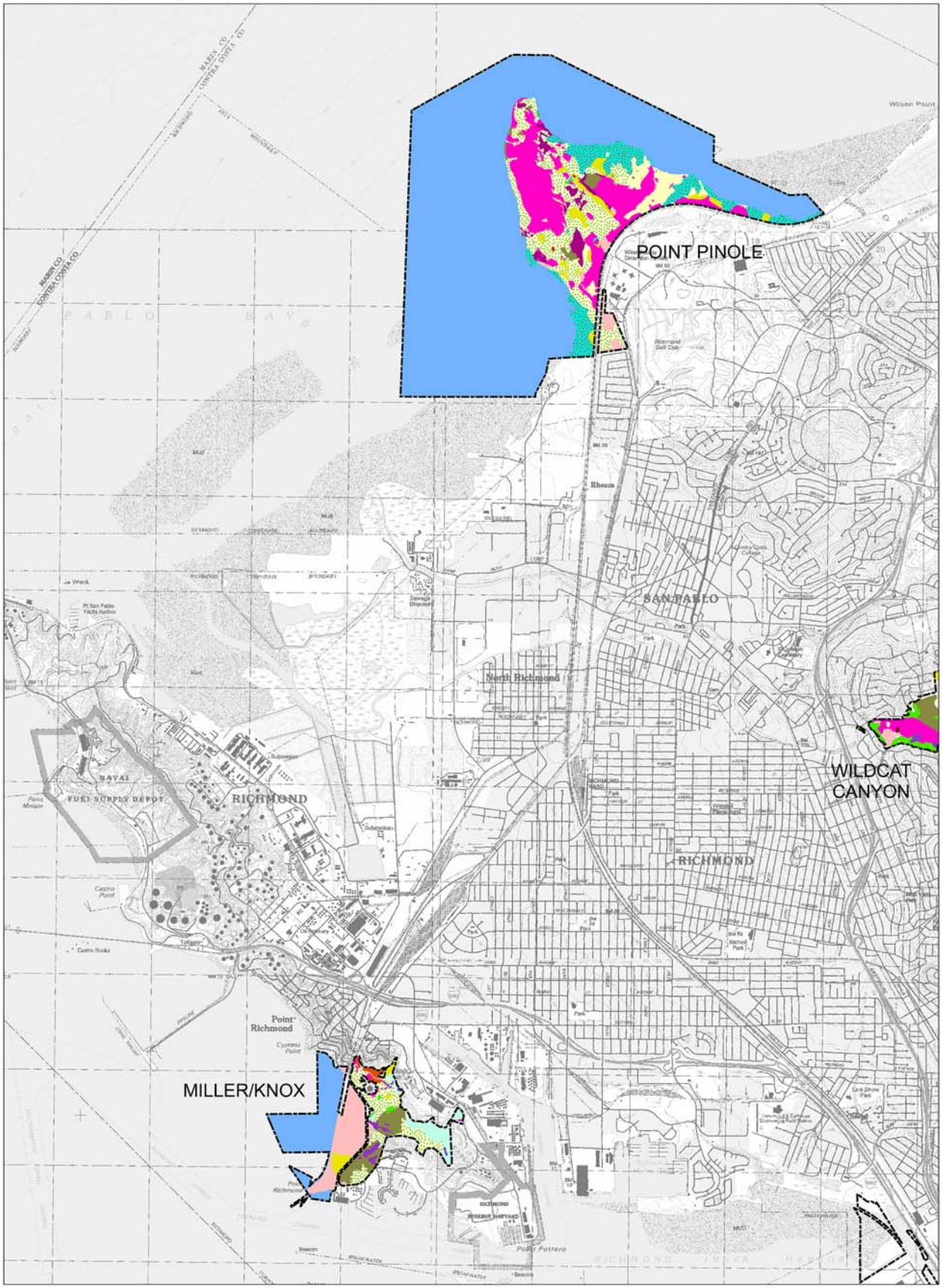
- Maritime chaparral (manzanita-chinquapin chaparral)
- North coastal scrub (mesic - moist)
- North coastal scrub (xeric - dry)
- Coyote brush scrub
- Broom scrub (denoted as "non-native" scrub in the Plan)

Woodlands and Forest Plantations

- Eucalyptus forest/plantation
- Monterey pine forest/plantation
- Oak-Bay mixed woodland
- Redwood forest
- Riparian woodland

Other Habitat Types

- Coastal strand and coastal salt marsh (shown as "Salt Marsh" on Figure IV.B-1a)



LSA

FIGURE IV.B-1a

EBRPD Wildfire Hazard Reduction and Resource Management Plan EIR
Vegetation Types

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Back of Figure 1a

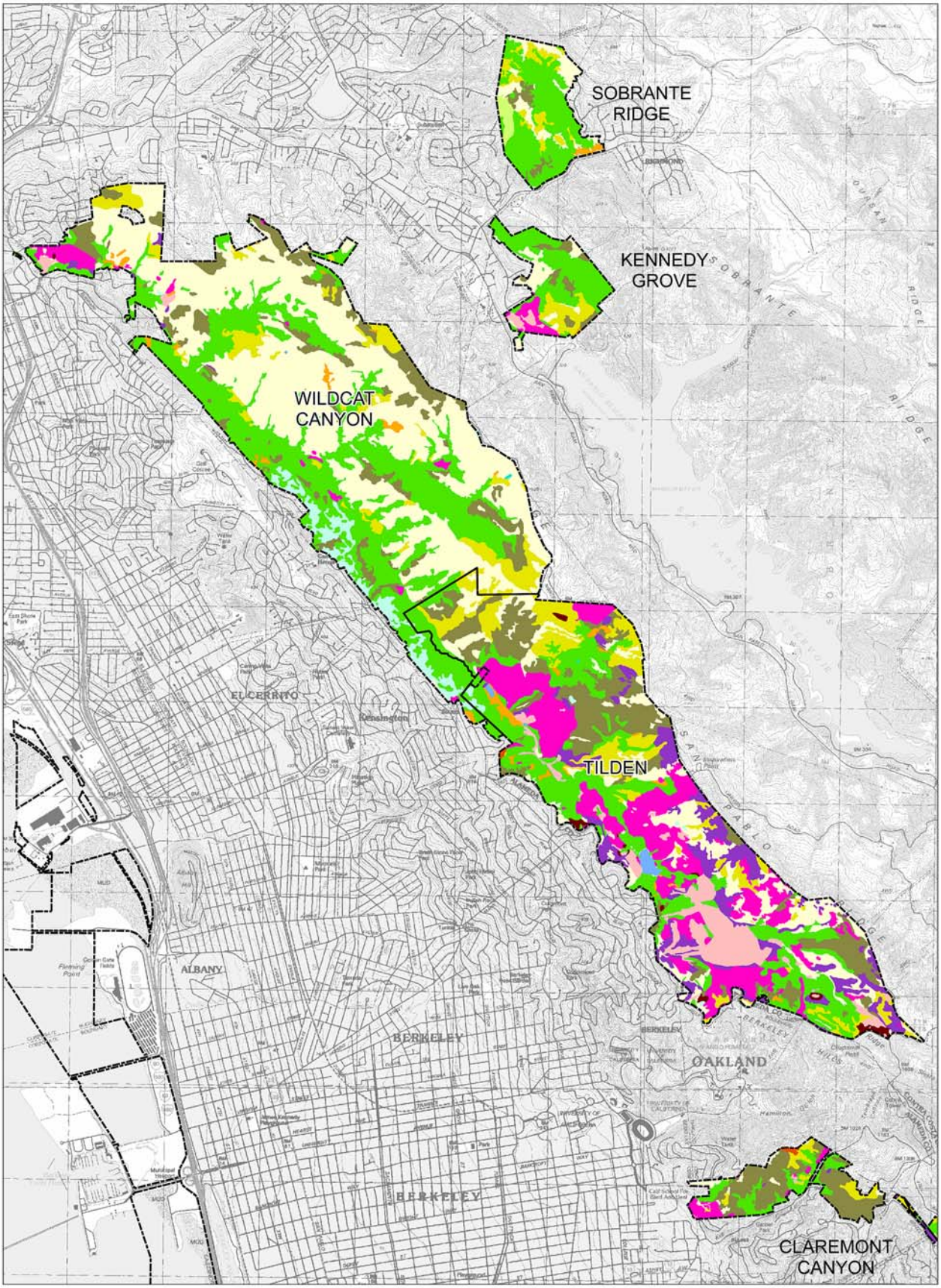

FIGURE IV.B-1b

EBRPD Wildfire Hazard Reduction and Resource Management Plan EIR
Vegetation Types

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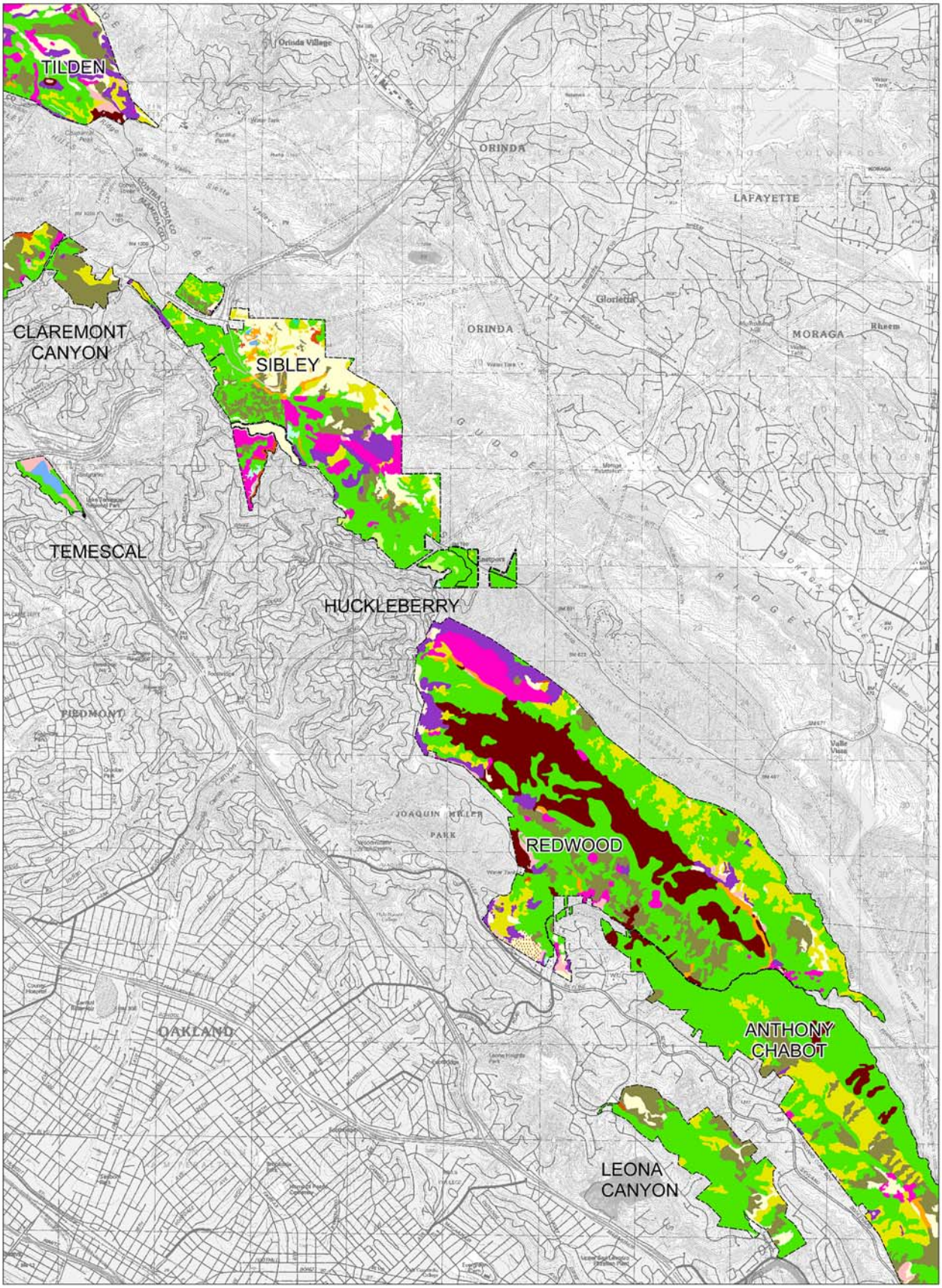
Back of Figure 1b



LSA

0 1,600 3,200
FEET

- Coyote Brush Scrub
- Coastal Scrub (Mesic)
- Coastal Scrub (Xeric)
- Redwood Forest
- Riparian Woodland
- Freshwater Marsh
- Aquatic/Open Water
- Non-Native Scrub
- California Annual Grassland
- Serpentine Bunchgrass Grassland
- Maritime Chaparral
- Oak-Bay Woodland/Forest
- Coniferous Forest/Plantation
- Eucalyptus Forest/Plantation
- Ruderal Vegetation
- Developed/Disturbed/Landscaped
- Project Area

FIGURE IV.B-1c

EBRPD Wildfire Hazard Reduction and Resource Management Plan EIR
Vegetation Types

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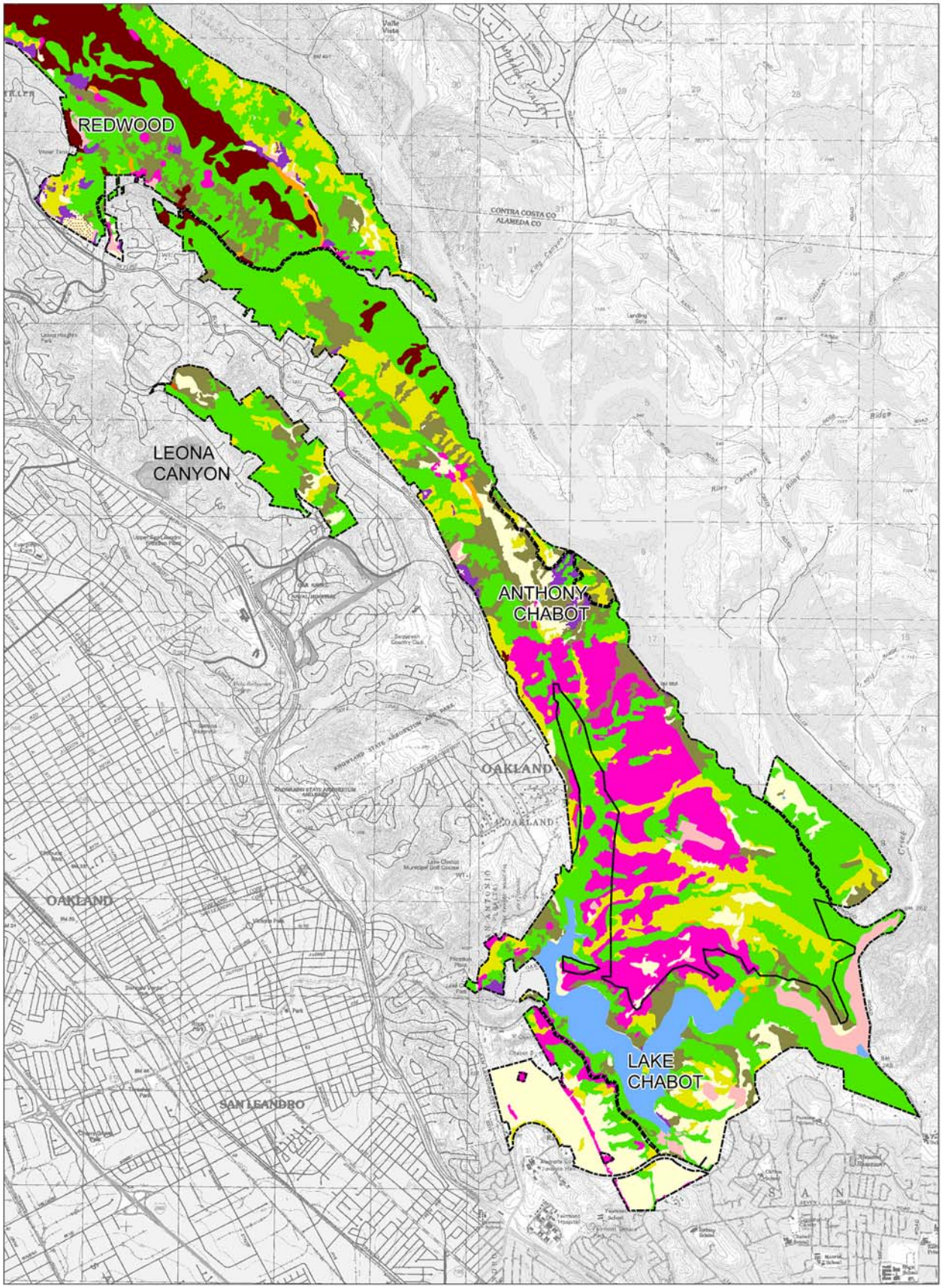

LSA

0 1,600 3,200
FEET

- Coyote Brush Scrub
- Coastal Scrub (Mesic)
- Coastal Scrub (Xeric)
- Redwood Forest
- Riparian Woodland
- Freshwater Marsh
- Aquatic/Open Water
- Non-Native Scrub
- California Annual Grassland
- Serpentine Bunchgrass Grassland
- Maritime Chaparral
- Oak-Bay Woodland/Forest
- Coniferous Forest/Plantation
- Eucalyptus Forest/Plantation
- Ruderal Vegetation
- Developed/Disturbed/Landscaped
- Project Area

FIGURE IV.B-1d

EBRPD Wildfire Hazard Reduction and Resource Management Plan EIR
Vegetation Types

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The following sections describe the structure and characteristic plant species of these communities and the typical wildlife species that occur in them.

(1) Grassland. The following describes the various types of grassland communities within the Study Area.

Coastal Prairie. This community is a remnant of the original native perennial grasslands that covered the hills and valleys throughout the central coast, Bay Area and north coast of California. Although similar in species composition to the more extensive valley grasslands, coastal prairie is more productive due to higher moisture levels and limited in occurrence to areas influenced by coastal and marine weather patterns (e.g., "fog belt"). The most mesic (moist) areas of coastal prairie were dominated by California oatgrass (*Danthonia californica*), which is classified as a facultative wetland indicator species in California by the U.S. Fish and Wildlife Service.[19] This community is noted by the high diversity of other native perennial bunchgrasses[20],[21],[22]) which include California brome (*Bromus carinatus*), purple needlegrass (*Nassella pulchra*), tufted hairgrass (*Deschmpsia caespitosa*), coastal bentgrass (*Agrostis pallena*), California melic (*Melica californica*), one-sided bluegrass (*Poa secunda*), junegrass (*Koeleria micrantha*), squirreltail (*Elymus multisetus*), and red fescue (*Festuca rubra*). Common forbs (herbaceous broadleaved plants) in the coastal prairie include California buttercup (*Ranunculus californicus*), Douglas iris (*Iris douglasiana*), soap plant (*Chloragulum pomeridianum*), suncups (*Oenethera ovata*), lupines (*Lupinus* spp.), and farewell-to-spring (*Clarkia* spp.).

Coastal prairie has been largely displaced by non-native annual grasslands and by north coastal scrub as described below. Non-native annual grasses, introduced from the Mediterranean area, have displaced native grasses and forbs since European settlement in the early 19th century. The introduction of these highly competitive annuals combined with historic continuous heavy livestock grazing, prolonged periods of drought, and tillage for dry farming resulted in a type conversion from native perennial grasslands to non-native annual grasslands throughout California including the East Bay Hills.[23,24,25] Additional areas of former coastal prairie have been displaced by coyote brush scrub because of lack of disturbance from fire and livestock grazing in areas such as Tilden Regional Park. In the absence of fire and grazing, grasslands in the East Bay Hills tend to succeed to coyote brush

[19] Reed, P.B., Jr. 1996. National List of Vascular Plant Species That Occur in Wetlands: 1996 National Summary. U.S. Fish and Wildlife Service. 209 pp.

[20] Amme, D. 2004. *Grassland Heritage: Stewardship of a Changed Landscape*. Bay Nature April-June 2004. Available online: http://www.baynature.com/2004apriljune/v04n02_grassland.html

[21] Ford, L.D. and G.F. Hayes. 2007. *Northern Coastal Scrub and Coastal Prairie*. pp. 180-207 In: Barbour, M.G., T. Keeler-Wolf, and A.A. Schoenherr [eds.] Terrestrial Vegetation of California. Third Edition. University of California Press. Berkeley and Los Angeles, CA.

[22] Havlik, N. (1984). Effects of Urban-Industrial Land Use on Vegetation and Flora in the Potrero Hills, Richmond, California. PhD. Dissertation Wildland Resource Science, University of California, Berkeley. 141 pp.

[23] Burcham, L.T. 1956. *Historical Backgrounds of Range Use in California.* Journal of Range Management 9:81-86.

[24] Heady, H.F., J.W. Bartolome, M.D. Pitt, G.D. Savelle, and M.G. Stroud. 1992. *California Prairie*. Pp. 313-335, in R.T. Coupland (ed.) Natural Grasslands, Ecosystems of the World, Volume 8A. Elsevier Scientific Publication Co., Amsterdam, The Netherlands.

[25] Stromberg, M.R. and J.R. Griffin. 1996. *Long-term Patterns in Coastal California Grasslands in Relation to Cultivation, Gophers, and Grazing*. Ecological Applications 6:11890-1211

scrub.[26,27] On some sites succession proceeds without disturbance from coastal prairie to coyote brush scrub to north coastal scrub and eventually (after 50 years or more) to oak-bay woodland.[28] Accordingly, grasslands tend to be more common in regional parks that have active grazing leases such as Wildcat Canyon, Sibley and Anthony Chabot.

It is difficult to separate the existing remnants of coastal prairie from California annual grassland in the Study Area because of the patchiness and small size of native grass stands. In addition, even the most intact stands of coastal prairie support an element of non-native grasses, and there is no recognized standard for the amount of native cover required to designate coastal prairie from annual grassland. Accordingly, coastal prairie has not been mapped separately from California annual grassland in most areas on Figures IV.B-1.a, IV.B-1.b, IV.B-1.c, and IV.B-1.d. However, it should be recognized that coastal prairie is considered a sensitive plant community by the California Department of Fish and Game[29] and it is a component of grasslands in the Study Area, especially along ridgelines of Wildcat Canyon Regional Park and Miller/Knox Regional Shoreline. Coastal prairie is mapped separately per site reconnaissance visits by LSA biologists conducted in Spring of 2008 based on dominance by native perennial grasses for the Point Pinole Regional Shoreline (Figure IV.B-1.a).

Many wildlife species forage in grasslands (including coastal prairie), but may use other adjacent habitats such as woodland, scrub, or water bodies for nesting, breeding, shelter, or other aspects of their natural history. In the East Bay Hills, predators that often forage in grasslands include gopher snake *(Pituophis catenifer)*, northern harrier *(Circus cyaneus)*, red-tailed hawk *(Buteo jamaicensis)*, and coyote *(Canis latrans)*. Mule deer *(Odocoileus hemionus)*, the largest native herbivore in the East Bay Hills, frequently forage in this habitat. Botta's pocket gopher *(Thomomys bottae)* and western fence lizard *(Sceloporus occidentalis)* are also closely associated with grasslands.

Serpentine Bunchgrass Grassland. Serpentine grassland, dominated by native perennial bunchgrasses, is rare within the Study Area, occurring only at the Skyline Serpentine Prairie in Redwood Regional Park. Native species adapted to the unique chemical composition of the serpentine-derived clay soils are able to thrive, due to less competition from non-native species, which are poorly adapted to this substrate. Serpentine soils often support endemic species that are restricted to this community. The plant community at the Skyline Prairie is unusually diverse, supporting at least 15 species of native grasses.[30, 31] The dominant native grass species is purple needlegrass, with other native grasses present including Torrey's melicgrass (*Melica torreyana*), Idaho fescue (*Festuca idahoensis*), slender wheatgrass (*Elymus trachycaulus*), blue wildrye, California brome, and junegrass. The community also supports an abundance of native wildflowers such as yellow mariposa lily (*Calochortus luteus*), Ithuriel's spear (*Tritelia laxa*), harvest brodiaea

[26] Edwards, S.W. 1990. The East Bay's Richest Grassland: A Pleistocene Relict? Four Seasons 8(4):23-31.

[27] McBride, J.R. and H.H. Heady. 1968. Invasion of Grassland by *Baccharis pilularis* D.C. Journal of Range Management 21(2):106-108.

[28] McBride, J.M. 1974. Plant succession in the Berkeley Hills. Madroño 22(3):317-329.

[29] California Department of Fish and Game (CDFG). 2003. *List of California Natural Communities Recognized by the California Natural Diversity Data Base.* The Vegetation Classification and Mapping Program. CDFG, Sacramento, CA.

[30] Ibid.

[31] EBRPD Planning and Stewardship, 2007. *Serpentine Prairie Restoration Plan: Redwood Regional Park.* September.

(*Brodiaea elegans*), and sticky calycadenia (*Calycadenia multiglandulosa*). Serpentine bunchgrass grasslands would support a lower fuel volume than non-native grassland because of lower productivity, and because they are perennial, would retain moisture later in the season.

Two special-status species are known to occur on the Skyline Serpentine Preserve. Presidio clarkia (*Clarkia franciscana*) is listed as endangered by the State and federal governments and is known only from serpentine soils at this location, and the San Francisco Presidio. A CNPS List 3 species, Tiburon buckwheat (*Eriogonum luteolum* ssp. *caninum*), occurs at several locations on serpentine soils in the Bay Area. The serpentine bunchgrass community is considered sensitive and is included in *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Data Base*.[32]

Areas of soil disturbance from past grading and trail building on the Skyline Preserve have been invaded by many of the non-native annual grasses described above. These areas also support invasive non-native forbs such as yellow star-thistle and fennel.

The serpentine bunchgrass grassland is expected to support many of the same wildlife species typical of annual (non-native) grasslands (see below).

California Annual Grassland. The California annual grassland community, also known as non-native grassland, is typically composed of a dense cover of introduced annual grasses and ruderal (weedy) forbs (broad-leaved plants) adapted to colonizing and persisting in disturbed upland habitats. Because of the factors discussed above, grasslands within the Study Area support primarily non-native grasses. Although grassland fires are usually of low intensity compared to other communities due to low fuel volumes, grasses can ignite easily and spread fire rapidly, thus act as a vector to ignite other plant communities.

Non-native grasses in this community in the Study Area include wild oats (*Avena* spp.), ripgut brome (*Bromus diandrus*), hare barley (*Hordeum marinum* ss*p. leporinum*), and annual fescue (*Vulpia* spp.). Common non-native forbs include burclover (*Medicago polymorpha*), rose clover (*Trifolium hirtum*), and filarees (*Erodium* spp.). Non-native grassland also supports invasive non-native annual forbs such as yellow star thistle (*Centaurea solstitialis*), fennel (*Foeniculum vulgare*), and Italian thistle (*Carduus pycnocephalus*). The rate of their colonization is increased where the soils have been disturbed by residential development, road and trail construction, and fuel reduction treatments. Of particular concern in the East Bay Hills is the relatively recent invasion in disturbed areas by golden spurge (*Euphorbia oblongata*). This non-native perennial species has spread rapidly in the last ten years throughout various plant communities, but is especially common in disturbed grasslands in Tilden Regional Park and along Grizzly Peak Drive.[33]

Native grasses, including purple needlegrass, blue wildrye (*Elymus glaucus*), and creeping wildrye (*Leymus triticoides*), may occur sparingly as relicts of the coastal prairie in this community. Native forbs may also be present, including California poppy (*Eschscholzia californica*), yarrow (*Achillea*

[32] California Department of Fish and Game (CDFG). 2003. op.cit.

[33] Case, Robert. Contra Costa County Department of Agriculture. Personal Communication with LSA Associates, 2007.

millefolium), California buttercup, clovers (*Trifolium* spp.), owl's-clovers (*Triphysaria pusilla*; *Castilleja exserta*), and blue-eyed grass (*Sisyrinchium bellum*).

Special-status plant species associated with grasslands (and some woodlands) reported to occur in the Study Area (discussed below in subsection 1.e, Special-Status Species) include fragrant fritillary (*Fritillaria liliaceae*) and most beautiful jewelflower (*Streptanthus albidus* ssp. *peramoenus*). Santa Cruz tarplant (*Holocarpha macradenia*) was planted by EBRPD staff in several locations in grasslands of Wildcat Canyon Regional Park.

Avian species that forage for insects in the air over grasslands include western bluebird (*Sialia mexicana*), violet-green swallow (*Tachycineta thalassina*) and barn swallow *(Hirundo rustica)*. The western bluebird and violet-green swallow require old woodpecker or flicker holes or other tree cavities for nesting and thus favor grasslands adjacent to wooded habitat. Barn owls (*Tyto alba*) forage for small mammals over grasslands. Pallid bat (*Antrozous pallidus*), several myotis bats (*Myotis* spp.), and big brown bat (*Ephesicus fiscus*) forage in grasslands at night for large terrestrial arthropods but nest in tree cavities or abandoned structures.

Pacific tree frog (*Pseudacris regilla*) often occurs in stock ponds or in pools of stream courses within grasslands, and the California newt (*Taricha torosa*) can be abundant in stock ponds in grasslands during the winter wet season. Rough-skinned newt (*T. granulosa*) occurs in similar habitats in Tilden Park.

Typical reptiles species in East Bay grasslands include gopher snake, western skink (*Eumeces skiltonianus*), common kingsnake (*Lampropeltis getula*), and racer (*Coluber constrictor*). Other species that occur in grasslands but are associated with rock outcrops include the western fence lizard and western rattlesnake (*Crotalus oreganus*). The Alameda whipsnake (*Masticophis lateralis euryxanthus*) also occurs in grassland along the edge of xeric coastal scrub, chaparral and rock outcrops.

California ground squirrel *(Spermophilus beecheyi)* is often common in grasslands throughout California but is sparse or absent in most of the East Bay Hills, probably due to past eradication efforts and urbanization. The California vole (*Microtus californicus*), Botta's pocket gopher and black-tailed jackrabbit *(Lepus californicus)* are important small mammals in East Bay grasslands. These species provide prey for a wide variety of predators, and pocket gopher burrows are used as shelter for many arthropods and amphibians.

Some typical grassland species, such as the California ground squirrel, also occur in open disturbed landscapes such as agricultural fields, road edges, or fuel breaks. Relatively few wildlife species in the East Bay Hills are completely restricted to grasslands, but several bird species, such as the grasshopper sparrow *(Ammodramus savannarum)*, savannah sparrow *(Passerculus sandwichensis)* and western meadowlark *(Sturnella neglecta)* are grassland specialists.

The Callippe silverspot *(Speyeria callippe callippe)*, an endangered species, occurs in this habitat type, but requires large patches of its larva host plant, Johnny jump-up (*Viola pedunculata*). There are no known populations of this butterfly in the Study Area currently, although it was documented to occur in Joaquin Miller Park historically.

(2) Scrub Vegetation. The following section describes the scrub and chaparral habitat within the Study Area.

Maritime Chaparral (Manzanita-Chinquapin Chaparral). Maritime chaparral (also referred to as manzanita-chinquapin chaparral) is a type of "hard" chaparral that is uncommon in the East Bay Hills. It occurs patchily in relatively dry areas, including the Huckleberry Botanical Preserve and portions of Sobrante Ridge, on soils derived from the Claremont shale/chert formation. Like serpentine-derived soils, Claremont formation soils (which are extremely low in water holding capacity) support a unique assemblage of native shrubs that are able to thrive due to less competition from other species. Like other "hard" chaparral communities, this community is fire adapted (stump-sprouting or developing from seed after a fire). As a result of its xeric nature and heavy fuel loads, this chaparral may burn with great intensity.

This community is dominated by native shrubs, including brittle-leaf manzanita (*Arctostaphylos tomentosa* ssp. *crustacea*) and chinquapin (*Castanopsis chrysophylla* var. *minor*). Other common shrubs include jimbrush (*Ceanothus sorediatus*), toyon (*Heteromeles arbutifolia*), ocean-spray (*Holodiscus discolor*), black huckleberry (*Vaccinium ovatum*), sticky monkey-flower, and osoberry (*Oemleria cerasiformis*). The herbaceous flora is well developed in openings and may include Douglas' iris, wild pea (*Lathyrus vestitus*), climbing bedstraw (*Galium porrigens*), deerweed (*Lotus scoparius*), and goldback fern (*Pentagramma triangularis*).

Manzanita-chinquapin chaparral is known to support the state and federally-listed endangered plant species pallid (Alameda) manzanita (*Arctostaphylos pallida*) as described below in subsection 1.e., Special-Status Species. This species is highly adapted to fire and requires fire disturbance and the resulting occurrence of unshaded mineral soil to regenerate.[34],[35] The maritime chaparral community itself is considered sensitive and is included in *List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Data Base.*

This habitat generally supports an assemblage of wildlife species similar to that of coastal scrub. Typical species of amphibians and reptiles include ensatina, arboreal salamander, California slender salamander, fence lizard, southern alligator lizard, and western rattlesnake. The Alameda whipsnake also occurs in stands of maritime chaparral. Typical bird species include Anna's hummingbird, western scrub-jay, bushtit *(Psaltriparus minimus)*, Bewick's wren, wrentit, California thrasher, spotted towhee, and California towhee. The ash-throated flycatcher *(Myiarchus cinerascens)* is occasionally present in this habitat if trees are found nearby. The hermit thrush *(Catharus guttatus)* and fox sparrow *(Passerella iliaca)* are frequent winter visitors to this habitat. Mammals include gray fox, coyote, mountain lion, desert cottontail, brush rabbit, California mouse, and dusky-footed woodrat. The large and beautiful ceanothus silk moth *(Hyalophora euryalus)* is associated with this habitat.

North Coastal Scrub (Mesic). The mesic ("moist") phase of the north coastal scrub community occurs on northeast-facing slopes in the East Bay Hills, where moisture levels are higher

[34] Amme and Havlik. 1985. *An Ecological Assessment of Arctostaphylos pallida Eastw., Alameda and Contra Costa Counties*. The Four Seasons 7(4):28-46. East Bay Regional Park District, Oakland, CA.

[35] Van Dyke, Eric, Karen D. Holl, James R. Griffin. 2001. *Maritime chaparral community transition in the absence of fire*. Madroño. 48(4):221-229. [41368]

than on south and west- facing slopes. Consisting of tall shrubs, it supports a high level of diversity because of complex structure and an abundance of berries and nuts for wildlife forage. Although this community supports relatively high fuel loads, the associated fire hazard is lower than xeric ("dry") coastal scrub because of higher moisture levels and reduced amounts of dead fuels.

The dominant plant species in coastal mesic scrub are shrubs adapted to shaded and moist conditions including California blackberry (*Rubus ursinus*), thimbleberry (*Rubus parviflorus*), blue elderberry (*Sambucus mexicanus*), salal (*Gaultheria shalon*), and California hazelnut (*Corylus cornuta*). Special-status species associated with mesic scrub include western leatherwood (*Dirca occidentalis*). Cow parsnip (*Heracleum lanatum*) is a common herbaceous component of these stands. Open, disturbed areas in this community are often dominated by poison hemlock (*Conium maculatum*), an invasive non-native species.

Scattered saplings or small trees of coast live oak (*Quercus agrifolia*), California bay (*Umbellularia californica*), madrone (*Arbutus menziesii*), and bigleaf maple (*Acer macrophyllum*) occur in some areas of mesic coastal scrub. This condition implies that certain stands of this community may represent a successional stage that could eventually become oak-bay forest in the absence of fire or other disturbances.

This habitat supports many of the same wildlife species typically found in other scrub and chaparral habitats in the East Bay Hills. Such species include California quail (*Callipepla californica*), Anna's hummingbird *(Calypte anna)*, Allen's hummingbird *(Selasphorus sasin)*, western scrub-jay *(Aphelocoma californica)*, Bewick's wren *(Thryomanes bewickii)*, California thrasher *(Toxostoma redivivum)*, spotted towhee *(Pipilo maculates)*, lazuli bunting *(Passerina amoena),* dusky-footed woodrat (*Neotoma fuscipes*), and California mouse (*Peromyscus californicus*). Salamanders such as ensatina *(Ensatina eschscholtzii)*, arboreal salamander *(Aneides lugubris)*, and California slender salamander *(Batrachoseps attenuatus)* occur in this habitat. Along stream corridors in this habitat, the California newt may be present. Reptiles that prefer mesic conditions, such as the northern alligator lizard *(Elgaria coerulea)* and ring-necked snake *(Diadophis punctatus)* also occur in this habitat.

Species that generally occur in moist rank vegetation, willow thickets, and other thickly vegetated habitats associated with wetlands are also found in this habitat. Such species include MacGillivray's warbler *(Oporornis tolmiei)*, Wilson's warbler *(Wilsonia pusilla)* and song sparrow *(Melospiza melodia)*. Stands of coastal scrub with coast live oak and big-leaf maple support songbirds more typical of woodlands, such as the warbling vireo *(Vireo gilvus)*, Hutton's vireo *(V. huttoni)*, black-headed grosbeak *(Pheucticus melanocephalus)*, and purple finch *(Carpodacus purpureus*).

North Coastal Scrub (Xeric). The xeric ("dry") phase of north coastal scrub (also called coyote brush-sagebrush scrub or "soft" chaparral) occurs mainly on drier, southwest-facing slopes in the East Bay Hills. Due to the dense growth, low moisture levels and significant amount of dead branches and leaves in stands of coyote brush, the fire hazard associated with this community is high.

Coyote brush (*Baccharis pilularis*) is the dominant shrub in this community, but California sagebrush (*Artemisia californica*), silver bush lupine (*Lupinus albifrons*), poison oak (*Toxicodendron diversilobum*), black sage (*Salvia mellifera*), and sticky monkey-flower (*Mimulus aurantiacus*) can occur as co-dominants. Scattered small trees or saplings of coast live oak and California bay may also be present.

Xeric coastal scrub is less favorable to most amphibian species than moister habitat types, but salamanders such as the California slender salamander and arboreal salamander may occupy this type of scrub. Due to its generally southern exposure and relatively open structure, dry coastal scrub provides ideal habitat for many species of reptiles, such as fence lizards, southern alligator lizard *(Elgaria multicarinata)*, and western rattlesnake. Xeric north coastal scrub is also the primary habitat of the Alameda whipsnake, a state and federally-listed endangered species known to occur in the Study Area (see subsection 1.e, of this section).

This community supports many of the same bird species that occur in mesic coastal scrub, except for species requiring moist habitats such as the MacGillivrary's warbler, Wilson's warbler, and song sparrow. Bird species typical of more arid scrub habitats such as the rufous-crowned sparrow *(Aimophila ruficeps)*, house finch *(Carpodacus mexicanus)*, and lesser goldfinch *(Carduelis psaltria)* are frequently present in xeric coastal scrub. The California thrasher and the California quail also occur in this habitat; both these species also occur in mesic coastal scrub and chaparral. Wrentit *(Chamaea fasciata)* is closely associated with xeric coastal scrub.

Typical mammals include deer mouse *(Peromyscus maniculatus),* brush rabbit (*Sylvilagus bachmani*), desert cottontail *(Sylvilagus audubonii)*, gray fox *(Urocyon cinereoargenteus)*, coyote, and mountain lion (*Felis concolor*). Dusky-footed woodrats occur in dense stands of xeric coastal scrub and mule deer are also frequently observed in this habitat.

Coyote Brush Scrub. This community differs from north coastal scrub as it supports a predominance of coyote brush with few if any associated shrubs such as California sagebrush. Coyote brush scrub represents a successional stage from grassland to scrub and commonly occurs where grazing or fire has been discontinued or suppressed. After the exclusion of livestock grazing in some parks such as Tilden in the 1950s, coyote brush began to actively invade the grasslands. Currently, several areas within the Study Area support almost pure stands of coyote brush including parts of the west-facing slopes of Wildcat Canyon, Tilden, Claremont Canyon, and Chabot Regional Parks. This community produces a heavy fuel load as a result of slope aspect, vegetation structure, and the tendency to accumulate dry, flammable material (dead branches) as the stands mature in the absence of periodic burning or other disturbances.

Because of the high density of coyote brush, little or no understory is present except along edges or in openings where herbaceous species such as purple needlegrass, soaproot (*Chlorogalum pomeridianum*), and bracken fern (*Pteridium aquilinum*) may occur. French broom (*Genista monspessulana*), an invasive non-native shrub, is commonly present in disturbed areas in this community.

Large stands of coyote brush scrub tend to support fewer wildlife species than coastal scrub and chaparral. This condition is likely due to the lower plant diversity and less diverse structure in coyote brush scrub. Wildlife species that are found in coyote brush scrub include many of the species that occupy coastal scrub and maritime chaparral described above.

Broom Scrub (identified as Non-native Scrub in the Plan). French broom, Scotch broom (*Cytisus scoparius*), and Canary Island broom (*C. striatus*) are invasive species that are native to the Mediterranean region. These introduced species occur throughout the East Bay Hills, especially where the native vegetation has been removed and/or the substrate has been disturbed. French broom

is the most common of the three species, occurring in large stands along roads, trails, housing developments, and in areas that have been previously managed for fuel reduction. Because of its fast growth and high rate of reproduction, French broom may form monocultures that out-compete all native (and other non-native) species. Scotch broom and Canary Island broom are less common in the East Bay Hills, but are equally invasive where they have taken hold. Associated herbaceous species are mostly non-native and include poison hemlock (a very invasive weed in the East Bay Hills), Italian thistle, wild radish (*Raphanus sativus*), and black mustard (*Brassica nigra*). Other shrubs, especially coyote brush, may be present at some sites. Broom is highly flammable and may present a serious wildfire threat to nearby native communities if ignited.

Many of the wildlife species that occur in coastal scrub, chaparral, and coyote brush scrub can be expected to occasionally occur in stands of broom, but the large monotypic stands provide habitat for relatively few species of native wildlife.

(3) Woodlands and Forest Plantations. The following section describes the woodland and forest plantation communities within the Study Area.

Eucalyptus Forest Plantation. Eucalyptus trees were introduced from Australia in the early 1900s and widely planted throughout the East Bay Hills. Blue-gum eucalyptus (*Eucalyptus globulus*) is the dominant species, but red gum eucalyptus (*Eucalyptus camaldulensis*) stands are also common. The rapid growth to a height of 80 to 140 feet and high rate of reproduction of eucalyptus trees have resulted in their complete dominance in large portions of the East Bay Hills. These invasive trees out-compete native species by shading and by producing a dense leaf- and bark-litter on the ground. This litter, which contains allelopathic oils, prevents most other plants from becoming established.

Because they were planted at different times and have spread from the original plantations, a continuum of different age classes of eucalyptus forest occurs in the East Bay Hills. To characterize the different age classes, this section provides a description of mature stands, 20-year old stands, and 1 to 5-year old stands, recognizing that other age classes occur in between those classes. Mature eucalyptus forest has never been logged and typically has a sparse understory of eucalyptus seedlings and saplings, poison oak, and various non-native grasses and forbs. The understory of closed-canopy mature eucalyptus often supports few if any other species of plants, except near the forest edge, because of deep layers of downed bark and leaves. Twenty-year eucalyptus forest consists of second-growth trees originating from stump-sprouts in the original plantations that were harvested in the last 20 years. One- to 5-year eucalyptus forest consists of stump-sprouts from trees that were cut in the last 5 years. The latter two forest types support mixed understories of eucalyptus seedlings and saplings and mostly non-native shrubs and herbaceous plants, including cotoneaster (*Cotoneaster* sp.), brooms, bedstraw (*Galium aparine*), Robert's geranium (*Geranium robertianum*), periwinkle (*Vinca major*), and erect veldtgrass (*Ehrharta erecta*). Golden spurge may occur in openings within the eucalyptus forest. Natives such as toyon, coyote brush, and poison oak often grow in this community as well.

Eucalyptus stands pose a serious wildfire hazard due to the high volumes of litter produced, the volatile-oil content of the leaves, and the high potential for crown-fires and lofting of embers and firebrands that start new fires downwind. The leaf- and bark-litter is not eaten or readily broken down in the normal decomposition process characteristic of native woodlands and the accumulated material produces high fuel loads.

Larger eucalyptus trees are frequently used as cover, perch sites, or nest sites by various species of raptors, including red-tailed hawk, red-shouldered hawk, and great horned owl *(Bubo virginianus*). A great blue heron (*Ardea herodias*) rookery is located in a eucalyptus grove near Lake Chabot. Various species of migratory songbirds, such as yellow-rumped warblers *(Dendroica coronata)*, cedar waxwings (*Bombycilla cedrorum*), and hummingbirds, are attracted to the flowers for their nectar; however, the sticky nectar often fouls their feathers, bills, and nostrils and can even lead to the death of the birds. Dark-eyed juncos often forage on the forest floor. Common reptile species that occur in a wide variety of wooded habitats (such as the California slender salamander, southern alligator lizard, and deer mouse), can occur in the understory of eucalyptus groves.

Monarch butterflies *(Danaus plexippus)* overwinter in eucalyptus groves at favored locations along the California coast from Mendocino County south to Ensenada, Baja California, Mexico. The trees where traditional overwintering aggregations of monarchs occur are often referred to as butterfly trees. A grove of butterfly trees is known to occur on Point Pinole Regional Shoreline. No other butterfly trees are known to occur in the eucalyptus groves within the Study Area.

Monterey Pine Forest. Monterey pine was planted in the East Bay Hills in the early 1900s and presently occurs as mature groves of varying densities throughout the Study Area. Some stands of Monterey pine have naturalized and likely spread from plantings by seed. Many of the planted and naturalized stands are declining and trees are dying due to age and disease. This pine, which is native only in discrete areas of San Mateo, Monterey, and San Luis Obispo Counties, has been widely planted in parks and other urban areas throughout coastal California. Monterey pine forests present a high fire hazard because of high fuel volumes and volatile oils contained within the trees and needles.

The understory of this forest type varies with the density of the tree canopy. In dense plantations, where the trees are closely spaced and little light penetrates to the forest floor, understory vegetation is sparse and the ground is mostly covered by pine needles. As the forest matures and the canopy becomes more open due to natural thinning, native and non-native shrubs and herbaceous plants become established. Monterey pine commonly occurs mixed with eucalyptus trees.

Even though Monterey pines are not native to the East Bay Hills they attract a variety of bird species that forage in coniferous trees including the hairy woodpecker *(Picoides villosus)* and pygmy nuthatch *(Sitta pygmaea)*. Many migratory birds that feed on insects and other arthropods can be found foraging in Monterey pines during their passage through the Bay Area. Raptors such as the Cooper's hawk, red-tailed hawk, and red-shouldered hawk may use these pines as nest sites.

The understory of open Monterey pines groves is expected to provide habitat for a number of small vertebrates that are typical of woodland habitats in the East Bay Hills, but groves of these trees do not support the diverse wildlife assemblages associated with native oak and riparian woodlands.

Oak–Bay Woodland. This woodland community consists of a mix of trees that reach 30 to 50 feet in height. Coast live oak and California bay are co-dominant species, but other native trees such as California buckeye (*Aesculus californica*), bigleaf maple, California black oak (*Quercus kelloggii*), and madrone may also be present. Arroyo willow (*Salix lasiolepis*) and blue elderberry constitute a large component of the woodland on the mesic, northeast-facing slopes of the East Bay Hills. Monterey pine (*Pinus radiata*) and eucalyptus (*Eucalyptus* spp.) have invaded some disturbed areas

in the oak-bay woodland. Fuel conditions in the oak-bay woodland vary with the slope aspect, as well as the age, height, canopy closure, and depth of the crown of the trees, and the density of the understory shrub cover. Horizontal fuels may be continuous and "ladder fuels" are present where the vertical distribution of foliage is continuous. These communities generally present a relatively low fire hazard, due to higher moisture levels and lesser fuel-loads as compared to eucalyptus and Monterey pine woodlands (see below).

The understory is sparse under the oak-bay woodland canopy, especially where California bay provides a closed canopy. In such situations, poison oak and various ferns such as woodfern (*Dryopteris arguta*) and swordfern (*Polystichum munitum*), may be the only species present. Where light penetrates to the ground, a variable and species-rich understory of shrubs and herbaceous plants may be present, including California blackberry*,* the invasive non-native Himalaya blackberry (*R. discolor*), wood-rose (*Rosa gymnocarpa*), California hazelnut, salal, toyon, and currants (*Ribes* spp.). Herbaceous plants may include hound's-tongue (*Cynoglossum grande*), alumroot (*Heuchera micrantha*), starflower (*Trientalis latifolia*), and slim Solomon's seal (*Smilacena stellata*). Forget-me-not (*Myosotis latifolia*), a non-native weed, competes with native plants in some areas, including the Huckleberry Botanical Preserve.

The oak-bay woodland is especially well developed on the cooler, more mesic, north-facing slopes and in canyons on the east side of the East Bay Hills. However, these communities are also present on west-facing slopes primarily within drainages where coast live oak is typically the dominant tree.

Special-status plants associated with this plant community include western leatherwood and Diablo helianthella (*Helianthella castanella*) and are described below in subsection 1.e., Special-Status Species. Depending on the canopy closure, other special-status species such as those listed under grassland and xeric coastal scrub communities (see above) may occur in the oak – bay woodland.

This habitat supports the most diverse wildlife assemblages in the East Bay Hills. Many of the wildlife species that occur in coastal scrub and chaparral will also use coast live oaks for foraging, particularly along edges where scrub habitats are adjacent to oak woodlands. Amphibians such as ensatina, arboreal salamander, and California slender salamander can be particularly common in this habitat, due to the abundance of surface cover such as leaf-litter and dead-falls and the shady mesic conditions that typically prevail under the canopy. In areas where streams flow through this habitat California newts may add to the amphibian diversity.

Some of the characteristic birds found in this habitat include Nuttall's woodpecker *(Picoides nuttallii)*, western scrub-jay, Steller's jay *(Cyanocitta stelleri)*, Hutton's vireo, chestnut-backed chickadee *(Poecile rufescens)*, oak titmouse *(Baeolophus inornatus)*, orange-crowned warbler *(Vermivora celata)*, and dark-eyed junco *(Junco hyemalis)*. The red-shouldered hawk *(Buteo lineatus)*, Cooper's hawk *(Accipiter cooperii)*, and band-tailed pigeon *(Patagioenas fasciata)* also typically occur in oak-bay woodlands. Northern flicker (*Colaptes auratus*) excavates large cavities in trees for nesting which are used by a variety of other animal species.

Many of the mammal species that occur in chaparral, such as the California mouse and dusky-footed woodrat, also use oak-bay woodlands. A characteristic mammal of oak woodlands in California is the western gray squirrel *(Sciurus griseus)*, but this species is no longer present in the East Bay Hills because it was eradicated by an outbreak of mange. It has since been replaced by the larger, non-

native eastern fox squirrel *(S. niger*). The dusky-footed woodrat builds nests of woody litter that alter the physical structure and provide habitat for many invertebrates and other wildlife species.

Large and spectacular insects associated with this habitat include the California sister butterfly *(Limenitis bredowii)*, polyphemus moth *(Antherace polyphemus)*, and California prionus *(Prionus californicus)*, a large cerambycid beetle.

Redwood Forest. Coast redwood is found in a discontinuous pattern from southern Oregon to Monterey County, in areas where coastal fog provides moisture during the dry periods of the year. The tall trees (averaging about 125 feet) usually grow on shallow, well-drained soils on north-facing slopes and in canyon bottoms. The redwood forest plant community occurs naturally in the Study Area in Redwood Regional Park and small areas of Chabot Regional Park. Groves of redwoods have been planted in Claremont and Tilden Regional Parks.

Compared to the old-growth forests along the Pacific Coast, the redwood forest community in the East Bay Hills has few species plants typical for this habitat;[36] however, wild ginger (*Asarum caudatum*), western trillium (*Trillium ovatum*), and violets (*Viola glabella*; *V. sempervirens*) are abundant in places. Where the canopy allows light to penetrate to the forest floor, shrubs such as huckleberry and poison oak may be present. Western swordfern, which tolerates low light intensities, is widespread on the forest floor.

The redwood forests in the East Bay also do not support the diversity of wildlife species that occur in the more extensive stands of this habitat along the outer coast. Many of the animal species that favor mesic forest habitat in the East Bay Hills, such as oak-bay woodland, are also present in redwood forest. Examples include the various species of salamanders discussed above, but in general dense stands of redwoods do not support the high wildlife diversity of oak or riparian woodlands. Typical bird species in East Bay redwood forests include band-tailed pigeon, Steller's jay, brown creeper *(Certhia americana),* winter wren *(Troglodytes troglodyties)*, golden-crowned kinglet *(Regulus satrapa),* and varied thrush *(Ixoreus naevius)*. California condors (*Gymnogyps californianus*) were historically known to roost in the East Bay redwoods. In the East Bay Hills there are no mammals that are restricted to this habitat, but some of the species that occur in oak-bay forest habitats also occur in redwoods, particularly along forest edges or stands that are traversed by streams.

Riparian Woodland. Riparian communities occur along streams and on the edges of seeps, ponds and freshwater marshes. Riparian woodland in the Study Area may range from relatively open to impenetrable stands of shrubs or trees, usually dominated by arroyo willow, but also including other willows and alders (*Alnus* spp.). In the East Bay Hills, California bay is commonly found in riparian woodland as it grades into adjacent oak-bay woodlands.

Northern California black walnut (*Juglans hindsii*) is considered a special-status species where it occurs in three natural stands in California.[37] No natural stands of this species are known from the East Bay Hills. It occurs in the Study Area as a naturalized species that has spread from plantings into riparian and other mesic woodlands.

[36] Slack, Gordy. 2004. In the Shadow of Giants; The Redwoods of the Oakland Hills. Bay Nature, July-September 2004.

[37] California Native Plant Society (CNPS). 2001. *Inventory of Rare and Endangered Plants of California* (sixth edition). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. CNPS, Sacramento, CA.

Willow riparian woodlands can support diverse assemblages of breeding birds; typical species in the East Bay Hills include warbling vireo, downy woodpecker *(Picoides pubescens)*, chestnut-backed chickadee, Swainson's thrush *(Catharus ustulatus)*, Wilson's warbler, black-headed grosbeak, and song sparrow. The Pacific-slope flycatcher *(Empidonax difficilis)* is another characteristic breeding species (it also occurs in the shady understory of oak woodlands, particularly near stream corridors). Many bird species occur in this habitat during migration and winter. Riparian woodlands with large trees also provide nesting sites for various species of raptors, including Cooper's hawk and red-shouldered hawk.

Dusky-footed woodrats occur in riparian woodlands, and a variety of other mammals forage in this habitat. Raccoons *(Procyon lotor)* frequently forage along streams in riparian woodland. Riparian woodlands that form corridors along stream courses in grasslands or other open habitats are especially attractive to wildlife, due to the availability of perch sites, shelter, foraging, or dispersal habitat. Riparian woodlands provide shade along streams, thus moderating water temperatures and improving aquatic habitat of native fishes and amphibians, including native rainbow trout *(Oncorhynchus mykiss)*.

(4) Other Habitat Types. This section describes other habitats within the Study Area that have very low wildfire hazards.

Springs and Seeps. Springs and seeps are especially common on the north-facing slopes of the East Bay Hills. These wetlands may be permanent (remaining wet or moist year-round) or intermittent (dry during part of the year). Springs and seeps are often the only source of water for wildlife in the East Bay Hills during the dry season. Riparian woodland and aquatic habitat supporting wetland vegetation is often closely associated with seeps. Springs and seeps can provide habitat for native amphibians, including many of the salamander species noted above.

Developed/Disturbed/Landscaped Areas. Developed or landscaped areas are those that that have been developed or otherwise disturbed by human activities, are covered with structures and pavement, or support non-native trees, shrubs, grasses, and forbs. Disturbed conditions may also be created by natural landslides or human activities and typically support the early successional stage of adjacent habitats. Such areas, however, are highly susceptible to invasion by non-native species. Some of the most invasive, non-native weeds that occur in disturbed areas within the Study Area are French broom, golden spurge, poison hemlock, yellow star-thistle, Italian thistle, and forget-me-not.

Landscaped areas include highly managed ornamental plantings and turf associated with golf courses and other recreational features and urban developments. Landscaped areas provide habitat for a variety of native wildlife species, depending on the type of vegetation that is present, its maturity, and the distance from areas supporting native habitat.

Older landscaped areas in the East Bay Hills with large mature trees can support many native bird species such as mourning dove *(Zenaida macroura)*, Anna's hummingbird, Nuttall's woodpecker, black phoebe *(Sayornis nigricans)*, downy woodpecker, chestnut-backed chickadee, Bewick's wren, American robin *(Turdus migratorius)*, northern mockingbird *(Mimus polyglottos)*, house finch, and California towhee. Cooper's and red-shouldered hawks nest in landscaped areas with stands of large trees. Populations of California slender salamanders, arboreal salamanders, and southern alligator lizards are frequently present in older landscaping in the East Bay Hills.

Aquatic Habitats. The aquatic habitats of the Study Area include water features such as ponds, perennial streams and reservoirs created by impounding various streams. Riparian woodland is often closely associated with aquatic habitats. Freshwater marsh (wetland) vegetation such as cattails (*Typha* spp.), bulrushes (*Scirpus* spp.), rushes (*Juncus* spp.) and sedges (*Scirpus* spp.) are also considered as a vegetated type of aquatic habitat. Perennial streams in the Study Area vary widely in the amount of surface flow depending on the season. Winter storms in the East Bay hills can result in high flows and flooding but during the summer dry season some creeks can become intermittent in their lower reaches. Most of the streams that drain the Study Area flow to San Francisco Bay, but Wildcat Creek flows north-northwest to San Pablo Bay (see section IV.D Hydrology and Water Quality). These streams provide a source of surface water to many terrestrial species, but their primary importance is the habitat they provide to native aquatic species particularly amphibians and fishes. The California newt is a characteristic species breeding in the deeper pools or other areas with slowly flowing water. Sacramento perch *(Archoplites interruptus)*, a special-status native sunfish, is present in Jewel and Anza Lakes in the Wildcat Creek drainage.[38] Steelhead *(Oncorhynchus mykiss)*, an anadromous rainbow trout that migrated seasonally to the Bay and ocean, historically occurred and spawned in many of the streams that drain the East Bay Hills. Their migration routes have since been blocked by dams and other barriers, but populations of native rainbow trout derived from steelhead still occur in Wildcat Creek and the upper reaches of the San Leandro drainages above Lake Chabot.[39]

e. Special-Status Species. For the purpose of this EIR analysis, special-status species that might be present within the Study Area are defined as follows:

- Plants and animals that are listed or proposed for listing as rare, threatened, or endangered under the California Endangered Species Act (Fish and Game Code 1992 Sections 2050 et seq.; 14 CCR Sections 670.1 et seq.) and/or the Federal Endangered Species Act (50 CFR 17.12 for plants; 50 CFR 17.11 for animals);
- Plants and animals that are candidates for possible future listing as threatened or endangered under the Federal Endangered Species Act (50 CFR 17, Federal Register 69(86): 24876-24904, May 4, 2004);
- Plants and animals that meet the definition of rare or endangered under CEQA (14 CCR Section 15380), which includes species not found on State or Federal Endangered Species lists;
- Plants occurring on List 1A, List 1B, and List 2 of the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Vascular Plants of California. The California Department of Fish and Game (CDFG) recognizes that Lists 1A, 1B, and 2 of the CNPS inventory contain plants that, in the majority of cases, would qualify for State listing, and CDFG requests their inclusion in EIRs as necessary;
- Animals that are designated as "Species of Special Concern" by CDFG; and Animal species that are "fully protected" in California (Fish and Game Code, Sections 3511, 4700, 5050, and 5515).

[38] Moyle, P.B. 2002. Inland Fishes of California. (Revised and expanded). University of California Press. Berkeley, California.

[39] Leidy, R.A., G.S. Becker, B.N. Harvey. 2005. Historical distribution and current status of steelhead/rainbow trout *(Oncorhynchus mykiss)* in streams of the San Francisco Estuary, California. Center for Ecosystem Management and Restoration, Oakland, California.

Table IV.B-1 lists 17 special-status plant species that are addressed in the evaluation for the Study Area. Species for which habitat is not known or likely to be present within the East Bay Hills have been excluded from Table IV.B-1. Figures IV.B-2a, IV.B-2b, and IV.B-2c show the location of known occurrences of special-status plants. Table IV.B-2 lists 20 special-status animal species, and their known occurrences are shown in Figures IV.B-3a, IV.B-3b, and IV.B-3c. These lists and the information contained in these tables were assembled based on:

- Records in the *California Natural Diversity Data Base* that show occurrences within or near the Study Area;
- Information in the California Native Plant Society's *Inventory of Rare and Endangered Plants of California* (Electronic version);[40]
- Occurrences mapped by EBRPD based on their surveys and on location records provided by the East Bay Chapter of the CNPS (plants); Other sources including the resource analyses for the various parks in the Study Area (Wildcat, Tilden, Claremont Canyon, Robert Sibley, Huckleberry, Redwood, Anthony Chabot Regional Parks/Preserves).
- The on-line specimen data base at the Museum of Vertebrate Zoology, University of California Berkeley;
- Professional local knowledge of EBRPD staff and East Bay field experience of LSA biologists.

(*Text resumes on page 157)*

[40] California Native Plant Society. 2006. *Inventory of Rare and Endangered Plants of California* (Electronic version).

Table IV.B-1: Special-Status Plant Species Evaluated in EBRPD Study Area

Species	Status[a] Federal/State/CNPS	Habitat Requirements Blooming Period	Existing Occurrence Records within Study Area (Regional Park, Regional Preserve)	Notes on Occurrence Records
Amsinckia lunaris Bent-flowered fiddleneck	--/--/List 1B.2	Cismontane woodland, grassland. March-June	Near Tilden but on EBMUD lands only. No occurrences on EBRPD parks are known.	Records near Tilden are specifically recorded as occurring "on EBMUD land" in the CNDDB. Redwood, and Anthony Chabot records have as an "only source" a 1932 collection with the "exact location unknown" in the CNDDB. A CNDDB record from 1995 is recorded from Carriage Hills east of Kennedy Grove and is mapped "as a best guess."
Arctostaphylos pallida Pallid (Alameda) manzanita	FT/SE/List 1B.1	Broadleaf upland forest; closed-cone coniferous forest; cismontane woodland, chaparral, coastal scrub; on uplifted marine terraces on siliceous shale or thin chert. December-March	Tilden (planted) Sibley Volcanic Huckleberry Botanic Redwood (planted) Sobrante Ridge	
Balsamorhiza macrolepis var. *macrolepis* Big-scale balsamroot	--/--/List 1B.2	Grassland, cismontane woodland. March-June	Anthony Chabot	
California macrophylla (Erodium macrophyllum) Round-leaved filaree	--/--/List 1B.1	Cismontane woodland, grassland; in clay soils. March-June	Unknown	A CNDDB occurrence in Redwood is based solely on a 1891 collection by W. C. Blasdale. The specimen label records the location as "Oakland Hills," and CNDDB describes the mapped location as "a wild guess."
Cirsium andrewsii Franciscan thistle	--/--/List 1B.2	Coastal bluff scrub, broadleaved upland forest, coastal scrub; sometimes in serpentine seeps. March-July	Unknown	An occurrence is currently mapped by CNDDB east of Tilden along Wildcat Canyon Road. This occurrence had previously been mapped within Tilden along Wildcat Canyon Road.
Clarkia franciscana Presidio clarkia	FE/SE/List 1B.1	Coastal scrub, grassland; in serpentine outcrops. May-July	Redwood (Skyline Serpentine Prairie)	

Table IV.B-1 *Continued*

Species	Status[a] Federal/State/CNPS	Habitat Requirements Blooming Period	Existing Occurrence Records within Study Area (Regional Park, Regional Preserve)	Notes on Occurrence Records
Dirca occidentalis Western leatherwood	--/--/List 1B.2	Broadleaved upland forest, closed-cone coniferous forest, N coast coniferous forest, riparian woodland and forest, cismontane woodland, chaparral; on brushy, mesic slopes. January-April	Wildcat Canyon Tilden Claremont Canyon Sibley Volcanic Huckleberry Redwood Anthony Chabot	
Eriogonum luteolum var. *caninum* Tiburon buckwheat	--/--/List 1B.2	Chaparral, grassland/serpentinite June-September	Redwood (Skyline Serpentine Prairie)	
Fritillaria liliacea Fragrant fritillary	--/--/List 1B.2	Coastal scrub, grassland, coastal prairie; in various soils, including serpentine but usually clay. February-April	Near Wildcat Canyon Anthony Chabot Lake Chabot[b]	A CNDDB occurrence within Tilden is described as a "historical record…, but no longer there." CNDDB occurrences in Sibley and Huckleberry are described as "mapped as best guess," "unconfirmed," and "ID very questionable." A CNDDB occurrence in Miller/Knox, from a collection in 1900, concludes "it is unlikely that suitable habitat remains."
Helianthella castanea Diablo helianthella	--/--/List 1B.2	Chaparral, cismontane woodland, coastal scrub, grassland; usually in ecotone between chaparral and oak woodland, in partial shade. April-May	Sobrante Ridge Tilden Lake Chabot	
Hoita strobilina Loma Prieta hoita	--/--/List 1B.1	Chaparral, cismontane woodland, riparian woodland; on mesic, serpentine sites. May-October	Unknown	CNDDB includes an 1865 collection by Torrey in the Oakland Hills. "Mapped as best guess in vicinity of Redwood."
Holocarpha macradenia Santa Cruz tarplant	FT/SE/List 1B.1	Coastal prairie, grassland; in sandy or sandy clay soil. June-October	Wildcat Canyon Sobrante Ridge	
Juglans hindsii Northern California black walnut	--/--/List 1B.1	Riparian forest and woodland. April-May	Lake Chabot	Whether the Lake Chabot occurrence is native, rather than planted or naturalized, has not been fully answered.
Meconella oregana Oregon Meconella	--/--/List 1B.1	Coastal prairie, coastal scrub; on open, moist sites. March-April	On EBMUD lands only near Sibley Volcanic	

Table IV.B-1 *Continued*

Species	Status[a] Federal/State/CNPS	Habitat Requirements Blooming Period	Existing Occurrence Records within Study Area (Regional Park, Regional Preserve)	Notes on Occurrence Records
Monardella villosa ssp. *globosa* Robust monardella	--/--/List 1B.1	Broadleaved upland forest, cismontane woodland, chaparral, grassland; in openings. June-July	Tilden	CNDDB includes an 1892 collection west of Redwood and northwest of Leona. The identification of this plant is uncertain and may be a common species.[c]
Potamogeton filiformis Slender-leaved pondweed	--/--/List 2.2	Marshes and swamps; shallow clear water of lakes and drainage channels. May-July	Sibley Volcanic	
Streptanthus albidus ssp. *peramoenus* Most beautiful jewelflower	--/--/List 1B.2	Cismontane woodland, chaparral, grassland; in serpentine outcrops on ridges and slopes. April-June	Sibley Volcanic	CNDDB includes an 1892 collection from serpentine soil northwest of Leona. It is likely that this plant is no longer present. [c]

[a] FE – Federally-endangered species
FT – Federally-threatened species
SE – State-endangered species
List 1B – California Native Plant Society (CNPS): Plant considered rare, threatened or endangered in California and elsewhere.
List 2 – CNPS: Plant considered rare, threatened or endangered in California but more common elsewhere.
[b] According to Wilde Legarde, EBRPD Botanist, this plant was extirpated when the condominiums were built in the 1990s. Personal communication LSA Associates, Inc. 2009.
[c] Wilde Legarde, EBRPD Botanist. Personal communication LSA Associates, Inc. 2009.

Source: LSA Associates Inc. 2009.

Table IV.B-2: Special-Status Animal Species Evaluated in EBRPD Study Area

Species	Status[a] Federal/State	Habitat	Potential of Occurrence
Euphydryas editha bayensis Bay checkerspot butterfly	FT/--	Sparse grassland or scrub. Larval host plant is primarily California plantain *(Plantago erecta)*, but in many years the larvae require denseflowered indian paintbrush *(Castilleja densiflora)* or purple owl's-clover *(C. exerta)*.	No currently known populations in the East Bay Hills. Unlikely to be present in the Study Area.
Speyeria callippe callippe Callippe silverspot butterfly	FE/--	Grasslands with populations of larval host plant, Johnny jump-up *(Viola pedunculata*	No currently known populations in the East Bay Hills. Formerly known from Joaquin Miller Park, but this population appears to be extirpated. Unlikely to be present in the Study Area.
Oncorhynchus mykiss Steelhead (Central California Coast ESU[b])	FT/--	Clear cool riffles with gravel or cobble substrate for spawning; clear, cool riffles and pools as rearing habitat	Within the Study Area there are no steelhead runs. Rainbow trout (land-locked) currently are present in Wildcat Creek, San Leandro Creek and Redwood Creek and tributaries.
Archoplites interruptus Sacramento perch	--/CSC	Pools and slow flowing portions of creeks and rivers and with aquatic vegetation, also occurs in lakes and ponds	Populations of this species occur in Jewel Lake and Lake Anza in the Wildcat Creek drainage in Tilden Regional Park.
Rana boylii Foothill yellow-legged frog	--/CSC	Sunny, rocky stream banks adjacent to pools and riffles. Often breeds in clear pools off the main river channel.	There are no known populations of this species within the Study Area.
Rana aurora draytonii California red-legged frog	FT/CSC	Ponds and streams, generally with areas of still water 20 or more inches deep.	There are historical records of this species in the Study Area, and this species may be present where suitable habitat occurs. Recent identifications in Tilden Park in the EEC interpretive ponds area.
Actinemys marmorata Pacific pond turtle	--/CSC	Deep (> 2 feet) pools along creeks, ponds, and marshes. Basking sites and suitable upland areas for egg laying are important aspects of pond turtle habitat.	This species is known to occur in Jewel Lake and likely is present in Lake Anza as well. It is also expected to be present in other aquatic habitats within the Study Area including the deeper pools along Wildcat Creek, upper tributaries of San Leandro Creek, and Lake Chabot.
Masticophis lateralis euryxanthus Alameda whipsnake	FT/ST	Broken scrub and chaparral, and grassland edges, often in the vicinity of rock outcrops.	This species is present within the Study Area where suitable habitat occurs.

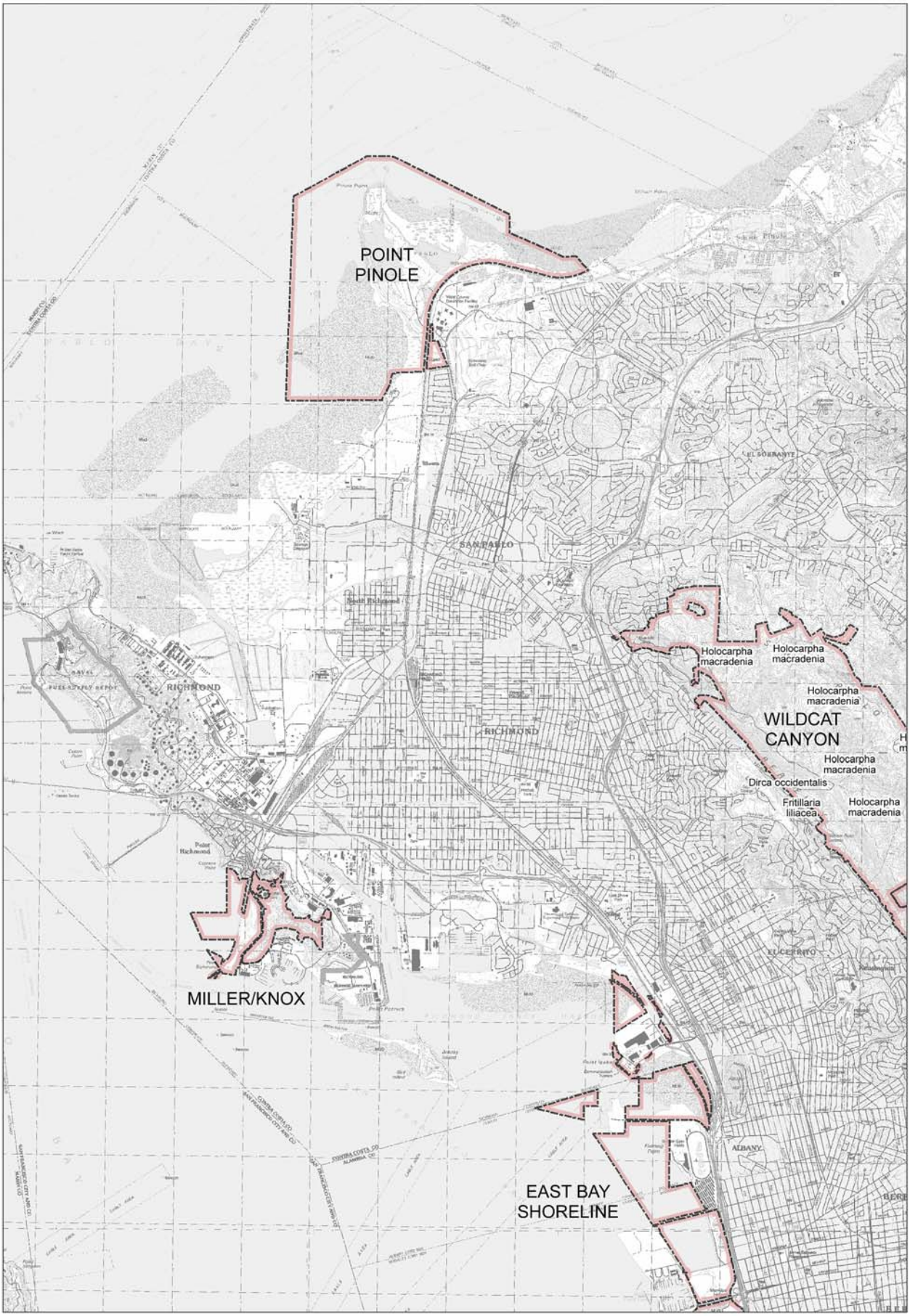
Table IV.B-2 *Continued*

Species	Status[a] Federal/State	Habitat	Potential of Occurrence
Ardea herodias Great blue heron	--/CSC (rookery site)	Fresh and salt water wetlands and shore lines, including lakes, streams, bays, marshes, and during the winter wet season upland grasslands. Nests in colonies (rookeries) in tall trees.	A great blue heron rookery is located in Chabot Regional Park in a large isolated blue gum along the shore of the northernmost arm of Lake Chabot.
Aquila chrysaetos (nesting) Golden eagle	BGEPA/--	Large trees or remote cliffs for nesting; open grassland and woodland for foraging.	This species is known to nest in the East Bay Hills (Round Top in Sibley Volcanic Preserve) and could potentially nest at other locations in the Study Area in large trees such as eucalyptus.
Circus cyaneus (nesting) Northern harrier	--/CSC	Grasslands, open grassy scrublands, and mashes.	This species is unlikely to nest in the Study Area due to the lack of suitable nesting habitat. In the Bay Area this species nests in fresh and salt marshes along the Bay shore and in moist grasslands along the outer coast.
Elanus leucurus (nesting) White-tailed kite	--/CP	Trees and shrubs in grasslands, pasturelands and savannahs	This species could potentially nest in the Study Area in trees adjacent to grasslands. Has nested at Point Pinole.
Athene cunicularia (burrow sites) Burrowing owl	--/CSC	Grassland/pastureland; with ground squirrel burrows for shelter and	This species has greatly declined in the Bay Area. Most recent nesting and wintering areas are to the east of the Study Area or in the South Bay.
Asio otus (nesting) Long-eared owl	--/CSC	Nests in dense oak or riparian woodland and forages over open habitats for small mammals.	There are old nesting records from the Bay Area, but this owl currently is either rare or extirpated as a breeder in the East Bay Hills. Not expected as a nesting species, but could occur as a migrant or winter visitor.
Asio flammeus (nesting) Short-eared owl	--/CSC	Nests on the ground in grasslands and marshes and forages over open habitat for small mammals.	This species is unlikely to nest in the Study Area due to the lack of suitable nesting habitat. In the Bay Area this species has nested in fresh and salt marshes and moist grasslands along the Bay shore during years of high vole abundance.
Lanius ludovicianus (nesting) Loggerhead shrike	--/CSC	Open country for foraging; dense shrubs for nesting	This species is uncommon in the Study Area, but could nest in shrubs in or adjacent to grasslands such as those in Wildcat Canyon.
Dendroica petechia brewsteri (nesting) Yellow warbler	--/CSC	Nests in willow and/or cottonwood dominated riparian woodlands, neotropical migrant.	This species occurs as a migrant in a variety of wooded habitat within the Study Area and is a sparse nester in riparian habitats.
Antrozous pallidus Pallid bat	--/CSC	Roosts in rock crevices, under bridges, and in abandoned buildings; forages for terrestrial arthropods in wide variety of open habitat habitats.	This species is likely to occur within the Study Area, but the presence of maternity colonies or wintering sites is unknown.
Plecotus townsendii townsendii Townsend's big-eared bat	--/CSC	Roosts in caves, mines, and abandoned buildings; forages over variety of habitats	This species may occur in the Study Area, but presence of maternity colonies or wintering sites is unknown. The lack of caves, mine shafts, and unoccupied buildings would limit the likelihood of occurrence.

Table IV.B-2 *Continued*

Species	Status[a] Federal/State	Habitat	Potential of Occurrence
Dipodomys heermanni berkeleynsis Berkeley kangaroo rat	--/CSC	Open chaparral, xeric north coastal scrub, and grassland/scrub edges	This subspecies has not been documented in many years and is believed to be extirpated in the Study Area. Therefore it is very unlikely to be present.
Microtus californicus sanpabloensis San Pablo vole	--/CSC	Marshes at the mouth of San Pablo Creek	This subspecies is restricted to marsh habitat at the creek mouth.
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	--/CSC	Coast scrub and chaparral, oak and riparian woodlands	This species is present in the Study Area in woodland and scrub habitats.

[a] Status: FE = federally listed as "endangered;" FT = federally listed as "threatened;" BGEPA = Bald and Golden Eagle Protection Act; SE = State listed as "endangered;" ST = State listed as "threatened;" CP = California fully protected; CSC = California species of concern. [b] ESU = Evolutionary Significant Unit.
Source: LSA Associates, Inc. and EBRPD, 2009.



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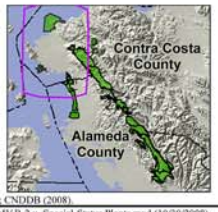

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FEET

Project Area

Source: EBRPD (2007); CNPS (2007); CNDDB (2008).
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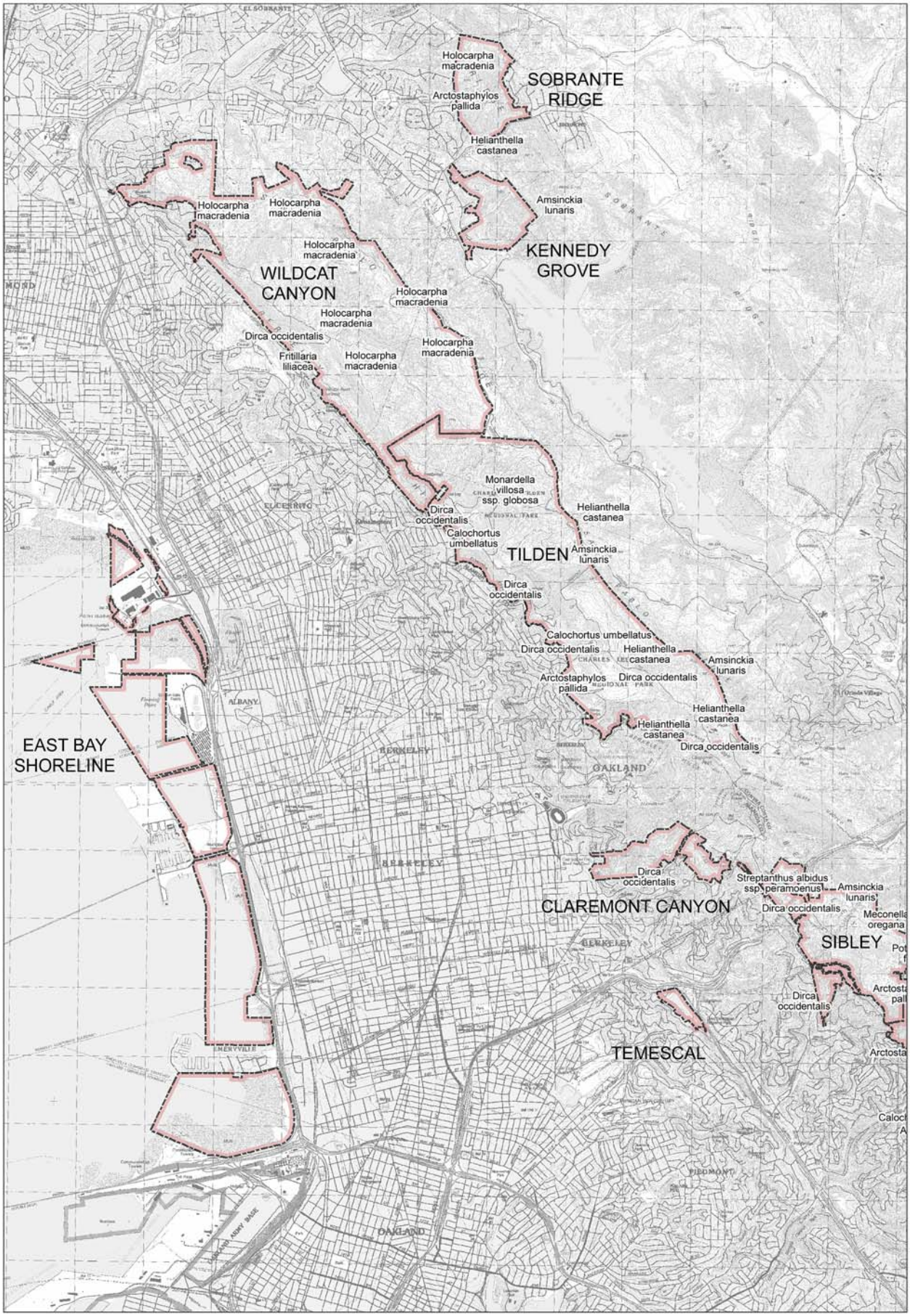
FIGURE IV.B-2a

EBRPD Wildfire Hazard Reduction and Resource Management Plan EIR
Special-status Plant Occurrences

Back of 2a



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FEET

Project Area

FIGURE IV.B-2b

EBRPD Wildfire Hazard Reduction and Resource Management Plan EIR
Special-status Plant Occurrences

Source: EBRPD (2007); CNPS (2007); CNDDB (2008).
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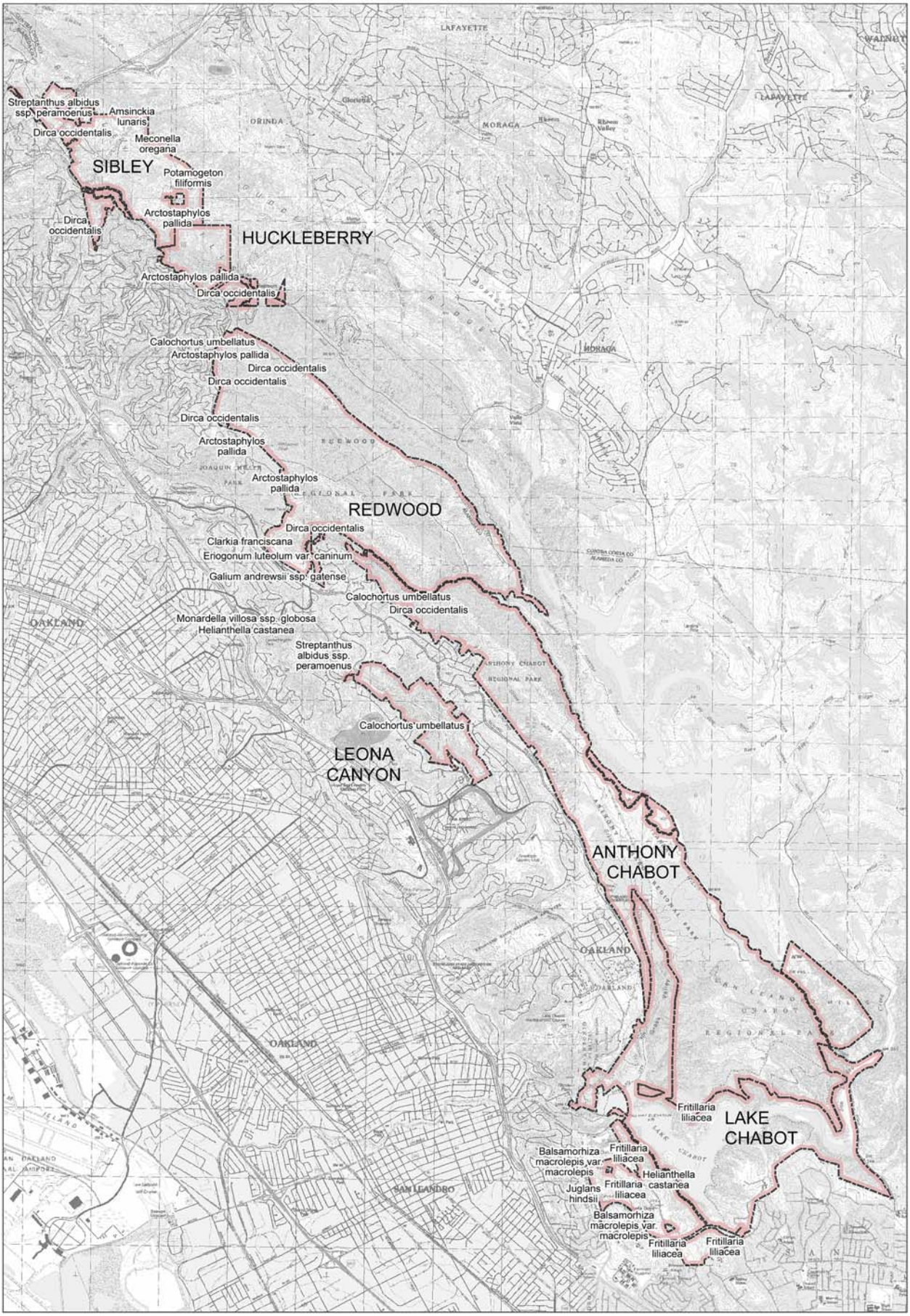

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Project Area

FIGURE IV.B-2c

EBRPD Wildfire Hazard Reduction and Resource Management Plan EIR
Special-status Plant Occurrences

Source: EBRPD (2007); CNPS (2007); CNDDB (2008).
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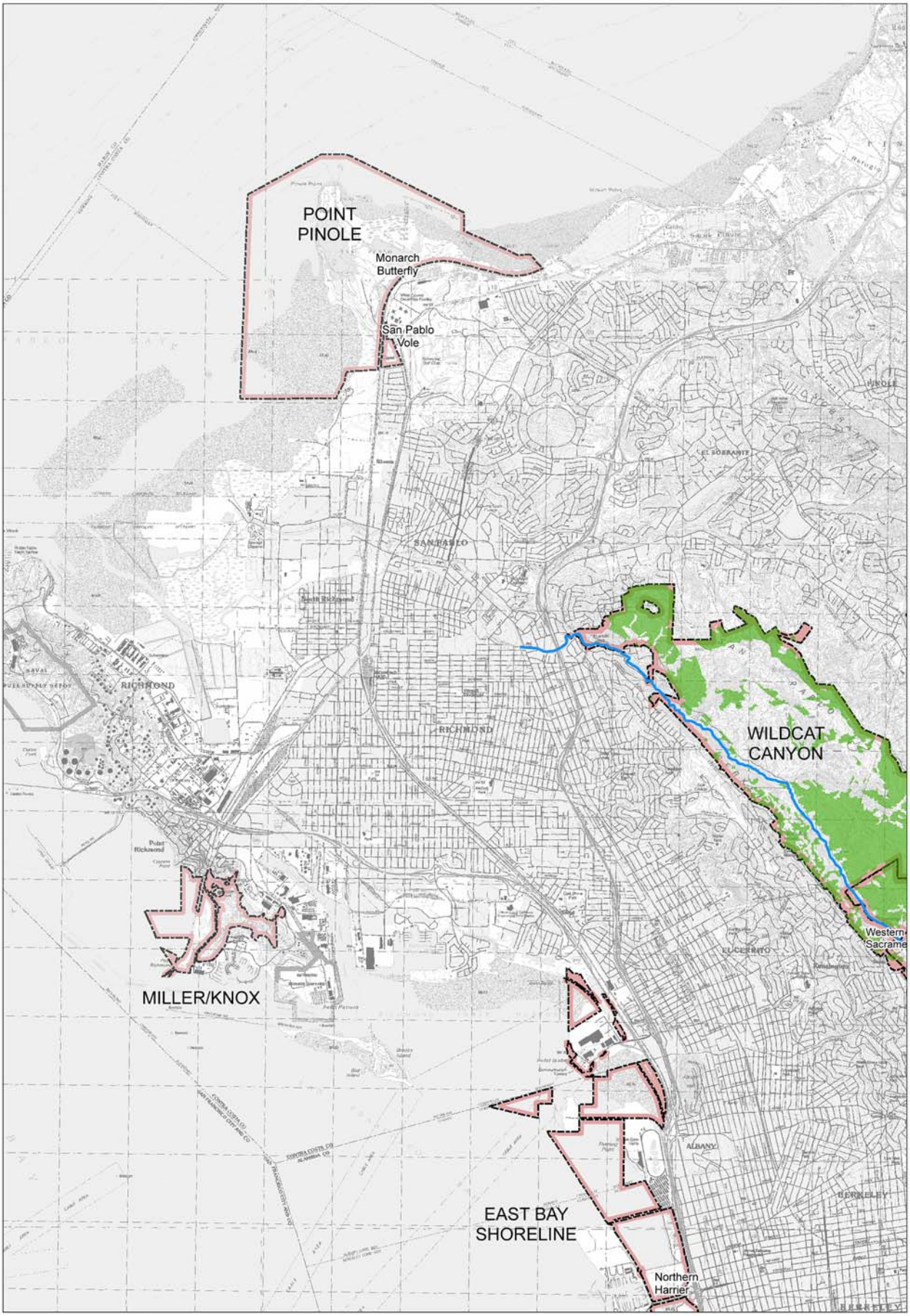

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0 2,000 4,000
FEET

- Alameda Whipsnake Occurrence
- Potential Alameda Whipsnake Habitat
- Land-locked Rainbow Trout Population
- Project Area

Source: CDFG-CNDDB (2008); EBRPD (2007, 2008); CEMAR (2005); Swaim Bio. (2007).
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FIGURE IV.B-3a

EBRPD Wildfire Hazard Reduction and Resource Management Plan EIR
Special-status Animal Occurrences

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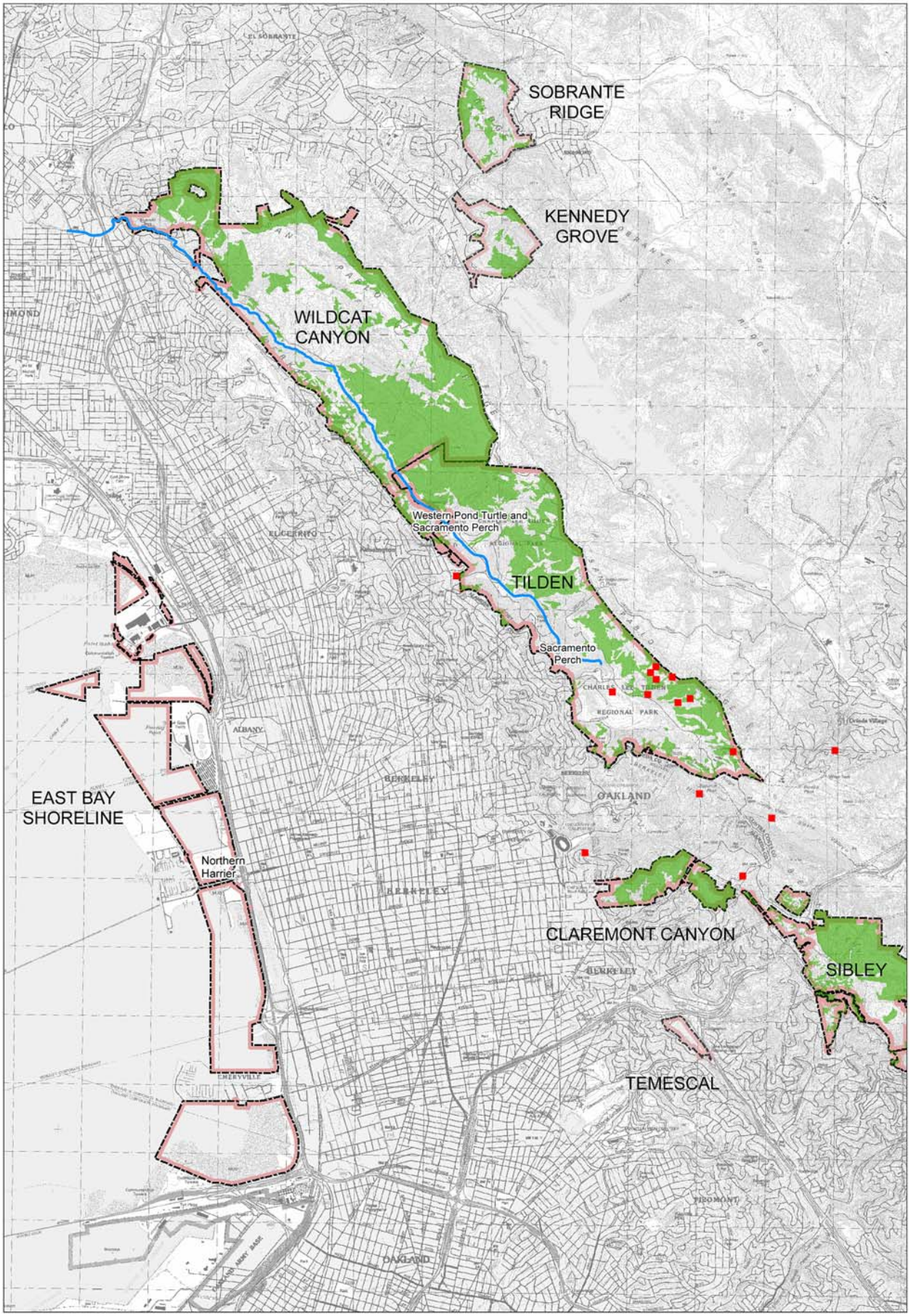

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- Alameda Whipsnake Occurrence
- Potential Alameda Whipsnake Habitat
- Land-locked Rainbow Trout Population
- Project Area

Source: CDFG-CNDDB (2008); EBRPD (2007, 2008); CEMAR (2005); Swaim Bio. (2007).
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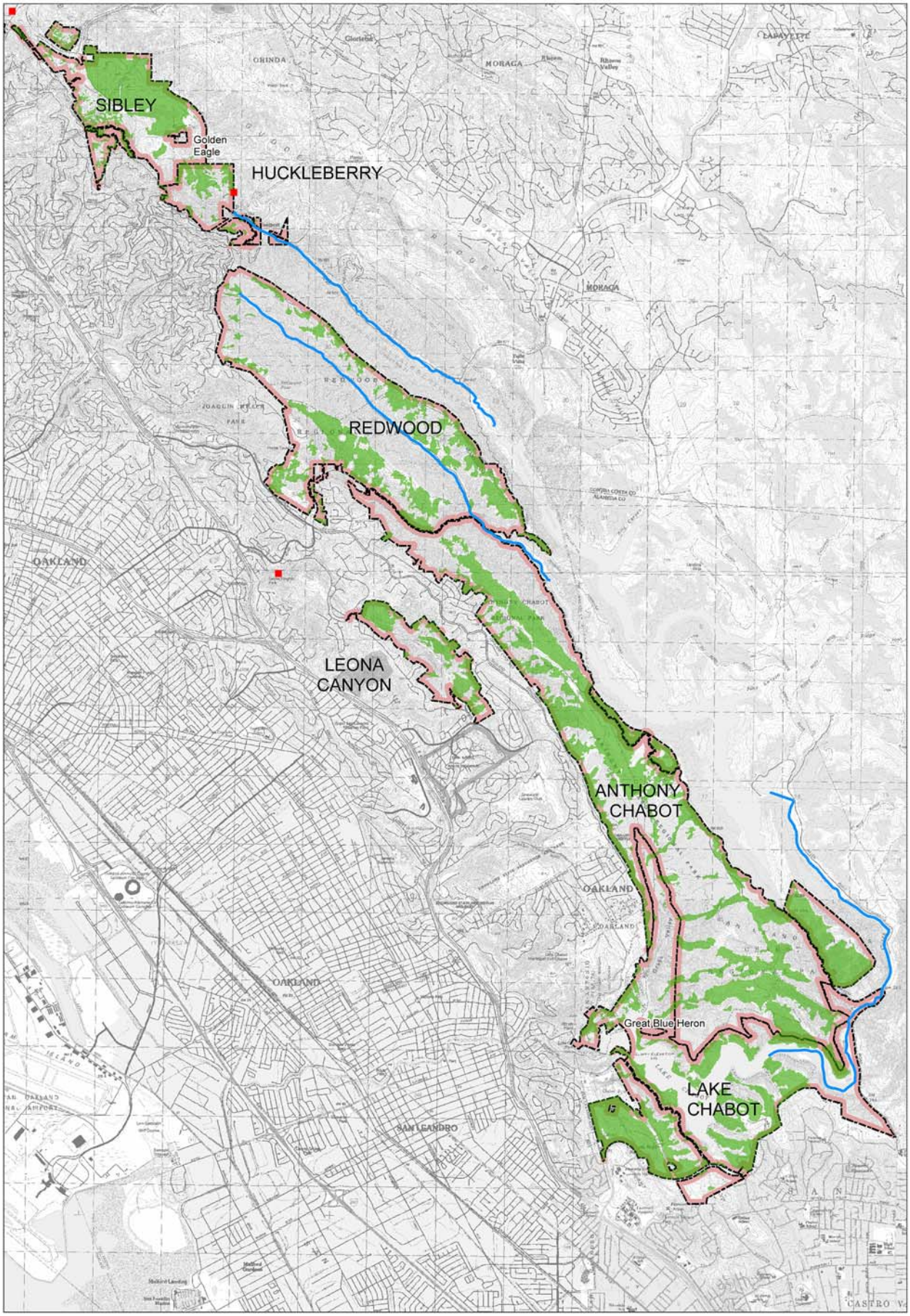
FIGURE IV.B-3b

EBRPD Wildfire Hazard Reduction and Resource Management Plan EIR
Special-status Animal Occurrences

Back 3b



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FEET

- Alameda Whipsnake Occurrence
- Potential Alameda Whipsnake Habitat
- Land-locked Rainbow Trout Population
- Project Area

Source: CDFG-CNDDB (2008); EBRPD (2007, 2008); CEMAR (2005); Swaim Bio. (2007).
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FIGURE IV.B-3c

EBRPD Wildfire Hazard Reduction and Resource Management Plan EIR
Special-status Animal Occurrences

Back 3c

f. Regulatory Context. The following section describes the regulatory context for biological resources of the Study Area.

(1) U.S. Fish and Wildlife Service (USFWS). USFWS has jurisdiction over species that are formally listed as threatened or endangered under the federal Endangered Species Act. The Endangered Species Act protects listed wildlife species from harm or "take." The term "take" is broadly defined as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." An activity is defined as a "take" even if it is unintentional or accidental. An endangered plant or wildlife species is one that is considered in danger of becoming extinct throughout all, or a significant portion of its range. A threatened species is one that is likely to become endangered within the foreseeable future.

In addition to endangered and threatened species, which are legally protected under the federal Endangered Species Act, the USFWS has a list of proposed and candidate species. Proposed species are those for which a proposed rule to list them as endangered or threatened has been published in the Federal Register. A candidate species is one for which the USFWS currently has enough information to support a proposal to list it as a threatened or endangered species. Proposed and candidate species are not afforded legal protection under the federal Endangered Species Act. However, substantial study-related impacts to federally-listed, proposed, and candidate species or their habitats are considered "significant" under *CEQA Guidelines* (discussed below).

USFWS also enforces the federal *Migratory Bird Treaty Act* (16 U.S.C., Sec. 703, Supp. I, 1989) which prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. The federal Bald and Golden Eagle Protection Act prohibits persons within the United States (or places subject to U.S. jurisdiction) from "possessing, selling, purchasing, offering to sell, transporting, exporting or importing any bald eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof."

(2) California Department of Fish and Game (CDFG). CDFG has jurisdiction over rare, threatened and endangered species (rare only applies to plants) that are formally listed by the State under the California Endangered Species Act. The California Endangered Species Act is similar to the federal Endangered Species Act both in process and substance; it is intended to provide protection to rare, threatened and endangered species listed by CDFG. The California Endangered Species Act prohibits the "take" of any plant or animal listed (or officially proposed) as threatened, endangered, or rare. The California Endangered Species Act does not supersede the federal Endangered Species Act, but operates in conjunction with it. Species may be listed as threatened or endangered under both acts (in which case the provisions of both State and federal laws would apply) or under only one act.

CDFG also maintains informal lists of "species of special concern." These species are broadly defined as plants and wildlife that are of concern to CDFG because of population declines and/or restricted distributions, and/or they are associated with habitats that are declining in California. Substantial project-related impacts to species on the State endangered or threatened lists and lists of species of special concern are considered "significant" under the *CEQA Guidelines* (discussed below). CDFG also exerts jurisdiction over the bed and banks of watercourses, ponds, and lakes according to the provisions of Section 1602 of the Fish and Game Code. The CDFG requires a Streambed Alteration Permit for the fill or removal of any material from any natural drainage, pond or lake. The jurisdiction

of CDFG over streams, ponds, and lakes extends to the top of the bank and often includes the adjacent riparian vegetation canopy cover.

Active bird nests (excepting English sparrow and starling) are protected in California under Section 3503 of the State Fish and Game Code. In addition, Section 3503.5 protects birds of prey. Section 3503.5 states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

Disturbance that causes nest abandonment and/or loss of reproductive effort by raptors is considered taking by DFG, and any loss of fertile eggs or nestlings, or any activities resulting in nest abandonment would constitute a significant impact.

(3) U.S. Army Corps of Engineers. Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers (Corps) is responsible for regulating the discharge of fill material into "waters of the U.S.", including streams that are tributary to navigable waters. The lateral limits of Section 404 jurisdiction over waters of the U.S. are defined in 33 Code of Federal Regulations (CFR) Part 328.3(a) to include wetlands that are adjacent to tributaries of navigable waters. Wetlands that are not adjacent or connected to waters of the U.S. are termed "isolated wetlands" and are not subject to Corps jurisdiction based on legal precedents.

In general, a Corps permit must be obtained before placing fill in waters of the U.S. The type of permit required depends on the acreage and the purpose of the proposed fill, and is subject to discretion from the Corps. There are two categories of Corps permits: nationwide (general) permits and individual permits. To qualify for a nationwide permit, a project must demonstrate that it has no more than a minimal adverse effect on an aquatic ecosystem. The Corps typically interprets this condition to mean that there will be only a small area of impact on jurisdictional waters of the U.S. and no net loss of either acreage or habitat value. This usually results in the need to provide mitigation for project-related fill of jurisdictional wetlands.

An individual permit is required where a nationwide permit is not applicable. The consideration of an individual permit includes a public interest review of factors such as biological or other unique values, and acreage of wetland or length of watercourse affected. Individual permits require review of the project by the public, evidence that wetland impacts have been avoided or minimized to the extent possible, and provision of appropriate compensatory mitigation for unavoidable impacts.

(4) Regional Water Quality Control Board. Pursuant to Section 401 of the Clean Water Act, projects that apply for a Section 404 (Corps) permit for discharge of dredge or fill material into wetlands or other waters of the U.S. must also obtain water quality certification from the Regional Water Quality Control Board (RWQCB). This certification ensures that the project will uphold State water quality standards. Alternatively, the RWQCB may elect to notify an applicant that the State may issue Waste Discharge Requirements in lieu of a Section 401 certification for a project, RWQCB review is usually required for discharges into isolated wetlands that are not subject to Section 404 jurisdiction.

(5) CEQA Guidelines Section 15380. Although only listed rare, threatened, and endangered species are protected by the federal and State Endangered Species Acts, *CEQA Guidelines* section

15380(b) provides that other species may be considered rare or endangered if they can be shown to meet certain specified biological criteria. These criteria have been modeled after the definition in the federal Endangered Species Act and the section of the California Fish and Game Code dealing with rare or endangered species. Section 15380(b) was included in the guidelines primarily to deal with situations in which a public agency is reviewing a project that may have a significant effect on a species that has not yet been listed by either the USFWS or CDFG. Thus, CEQA provides a lead agency with the ability to protect a species from a project's potential impacts until the respective government agencies have an opportunity to designate the species as protected, if warranted.

(6) California Native Plant Society. CNPS, a non-governmental conservation organization, has developed lists of plants of special concern in California. A CNPS List 1A plant is a species, subspecies, or variety that is considered to be extinct. A List 1B plant is considered rare, threatened, or endangered in California and elsewhere. A List 2 plant is considered rare, threatened, or endangered in California but is more common elsewhere. A List 3 plant is a species for which CNPS lacks necessary information to determine if it should be assigned to a list or not. A List 4 plant has a limited distribution in California.

Plant species on List 1 and List 2 typically meet the requirements of Section 1901, Chapter 10 (Native Plant Protection Act) or Sections 2062 and 2067 (California Endangered Species Act) of the CDFG Code, and are eligible for State listing. Therefore, plants appearing on Lists 1 or 2 are considered to meet CEQA's Section 15380 criteria and substantial adverse effects to these species are considered "significant." Species on CNPS' List 3 and List 4 may also meet those criteria.

(7) Other Statutes, Codes, and Policies. The District's Wildland Management Policies and Guidelines[41] states that the primary goal of the program is "to conserve and enhance important resource values such as soil, vegetation, wildlife, and water to ensure that natural parkland ecosystems are maintained in a healthy and productive condition." To achieve this goal, the following program elements are prescribed:

- **Vegetation Management.** Wildland vegetation management will conserve and enhance natural communities, promote the restoration of indigenous vegetation, preserve and protect populations of rare, threatened, endangered, and sensitive plant species and their habitats, reduce fire hazard conditions, and, consistent with the above objectives, limit the encroachment of selected shrub species, such as coyote brush, poison oak, and broom. Management alternatives used to achieve these goals will include grazing, prescribed burning, mechanical treatment, integrated pest management, and/or habitat protection and restoration.
- **Grazing Management.** Scientific management practices will be used to determine appropriate forage utilization levels and achieve desired conditions on individual grazing units. Monitoring will be conducted to insure conformity to lease provisions, to verify compliance with established standards for grazing on park land, and to evaluate whether management goals are being met. Grazing animals will be excluded from areas otherwise suitable for grazing when exclusion is dictated by the need to protect other resource and recreational values. Site-specific unit management plans will be developed for all park wildlands. These plans will identify management issues, define objectives, prescribe actions to resolve conflicts with other resource and recreational uses, and provide recommendations for achieving more effective management of

[41] EBRPD. 2001. Wildland Management Policies and Guidelines. Oakland, CA. 27pp.

the units. Site-specific plans will be evaluated in accordance with the District's land use planning process and applicable State laws.

2. Impacts and Mitigation Measures

The following section presents a discussion of potential impacts to biological resources that could result from implementation of the proposed project, the Wildfire Hazard Reduction and Resource Management Plan (Plan). This section first lists the criteria by which a significant impact is determined followed by a discussion of impacts and mitigation measures, as necessary.

a. Significance Criteria. Implementation of the Plan would have a significant impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or listed as rare, threatened, or endangered by the California Department of Fish and Game or U.S. Fish and Wildlife Service.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Game (CDFG) or U.S. Fish and Wildlife Service (USFWS).
- Have a substantial adverse effect on federally and state protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan.
- Result in a substantial conversion of oak woodlands.

b. Potentially Significant Biological Resources Impacts. Impacts on biological resources related to the implementation of the Wildfire Hazard Reduction and Resource Management Plan are described below. Implementation of the proposed Plan would potentially impact sensitive habitats, special-status plant and animal species and wetland resources within the Study Area. The following discussion describes and evaluates potentially significant impacts to sensitive plant communities and their special-status plant and animal species associated with Plan implementation activities. To address potential impacts to biological resources, the Plan includes Best Management Practices, performance criteria, and resource considerations and guidelines for fuel reduction actions within vegetation communities to avoid and minimize potential impacts on biological resources. The measures included in the Plan to address specific impacts are identified below and described by topic. If necessary, mitigation measures have been identified in this EIR to reduce potential impacts to a less-than-significant level. It is important to note that the potential impacts associated with vegetation

treatment activities to reduce fuel loads are generally temporary in their nature as vegetation and habitats change and develop over time.

EBRPD recognizes that the control of invasive, non-native plant species on park lands before, during, and after treatment activities that are undertaken to reduce fuel loads is an important issue because of these species rapid proliferation in disturbed areas, their contribution to fuel loads and fire hazards, and their ability to adversely affect native and special-status plants and habitats. To reduce the potential impacts associated with invasive, non-native plant species, the Plan contains specific objectives and detailed guidelines and prescriptions for the control of invasive plant species common to the Study Area in Chapter V. Vegetation Management Program, Section B. Invasive Plants, and more specifically in the Plan Appendix G: Prescriptions for the Control of Invasive Plant Species and Noxious Weeds. Additionally, for each vegetation type addressed in the Vegetation Management Program, the Plan includes Best Management Practices, considerations and guidelines for controlling non-native and invasive plants while undertaking fuel reduction activities. Implementation of the invasive plant control guidelines and prescriptions in the Plan are intended to reduce the potential adverse effects related to the spread of invasive plant species associated with the fuel reduction actions recommended in the Plan to a less-than-significant level.

(1) Area of Potential Impact. To evaluate the potential impacts to sensitive habitats, the potential "area of impact" was considered to be the total acreage of that habitat type in all of the11 recommended treatment areas, plus the maximum area that may be treated along the defined strategic fire routes (taking a conservative approach this was defined as a 30 feet maximum treatment width along 78.4 miles; see also Chapter III. Project Description). This approach is very conservative as the actual area of sensitive habitat that may ultimately be directly impacted by fuel reduction activities is likely to be much less once the area has been evaluated by trained EBRPD personnel, a treatment prescription is identified, and the area to actually be treated is carefully defined. Therefore this assessment is based on a conservative assessment of the area of impact. It should be noted that only the areas within the recommended treatment areas are evaluated in this EIR, should fuel treatment activities be conducted in sensitive habitats outside of the designated recommended treatment areas, those areas may need to undergo additional environmental assessment under CEQA.

(2) Less-than-Significant Effects of Fuel Reduction Activities on Specific Vegetation Types. The focus of the Plan is the removal of high hazard fuels to protect life and property from a catastrophic, Diablo-wind driven wildfire. During implementation of the Plan, high hazard fuels, especially invasive non-native vegetation such as ruderal herbaceous, non-native perennial grassland, broom scrub, acacia, eucalyptus, and Monterey pine, would be treated to reduce the fire hazards associated with these vegetation types. Other than potential Alameda whipsnake in broom scrub and nesting raptors in eucalyptus or pine trees (see subsection 11. Nesting Birds below) these communities are not known to support special-status species. Therefore, potential impacts to non-native plant communities in the Study Area associated with fuel treatment activities that would be undertaken to implement the Plan are considered to be less-than-significant.

Although small areas of redwood forests occur in the identified recommended treatment areas (see Table III-1 of Chapter III, Project Description) or adjacent to existing strategic fire routes and trails, these habitats have inherently low fuel characteristics and pose low wildfire hazards. As noted in Chapter V. Vegetation Management Program of the Plan (see Section 3.f. Redwood Forest), redwood forests are not generally proposed for fuel reduction treatment activities except possibly for pruning

or litter removal and potential impacts to redwood forests related to implementation of the Plan would be less-than-significant.

Although small portions of existing freshwater marshes occur in recommended treatment areas (see Table III-1 of Chapter III, Project Description) or adjacent to existing strategic fire routes and trails, these habitats have inherently low fuel characteristics and pose low wildfire hazards. As noted in Chapter V. Vegetation Management Program of the Plan (see section A.1. Vegetation Management Program Vegetation Types), freshwater marshes are not proposed for fuel reduction treatment activities, and there would not be any direct significant impacts to freshwater marshes associated with fuel treatment activities. Freshwater marshes could however be impacted indirectly through erosion, sedimentation or hazardous materials associated with fuel treatment activities taking place in areas adjacent to the marshes. This potential impact is discussed and identified below under subsection 10. Aquatic Habitat.

(3) Wildlife Movement. Wildlife may be temporarily displaced from treatment sites during management activities and move to adjacent habitat. In many cases they will reoccupy the disturbed areas or other common species will colonize the treatment areas as new vegetative cover establishes. Where the vegetation management goal is to treat the area to move from a high wildfire hazard vegetation type (e.g., dense eucalyptus, dense Monterey Pine forest) to a low wildfire hazard type (managed eucalyptus grove, oak-Bay woodland with grassland), wildlife associated with the pre-treated vegetation type may move to another area where that habitat type is available. Potential impacts and obstruction of wildlife movement associated with fuel treatment activities would be less-than-significant because movement of wildlife would only be obstructed for a short-term during the actual fuel reduction treatment process. There is sufficient open space available for wildlife to avoid the fuel treatment areas, and unobstructed movement will be possible at all other times. This impact is less-than-significant because of the temporal nature of the impact and the relatively small areas that would be treated at any one time compared with the large adjacent areas of natural habitat that will continue to provide opportunities for wildlife.

(4) Grasslands. Plan-related fuel reduction treatments (e.g., hand labor, mowing, grazing, chemical, mechanical) in recommended treatment areas and along strategic fire routes could potentially impact up to 298.5 acres of California annual grassland (including small unmapped areas of coastal prairie), 174.8 acres of coastal prairie, and 0.1 acres of serpentine bunchgrass grassland.

Approximately 415 acres of grasslands in the recommended treatment areas, or 16 percent of the 2,652 acres of grasslands in the Study Area, may be adversely affected by fuel reduction activities to implement the Plan. This impact is considered potentially significant because coastal prairie and serpentine bunchgrass grassland are designated by CDFG as sensitive habitats; grasslands support known and potential occurrences of special-status plant and animal species, and grasslands provide wildlife movement corridors. In addition, the treatments prescribed in the VMP for non-native habitats such as broom scrub, eucalyptus and Monterey pine encourage portions of these vegetation types with high hazard fuel characteristics adjacent to neighboring communities to be converted to grasslands where appropriate and to reduce the potential for reinvasion by exotic species. If this goal were to be achieved in certain locations, there may be a resulting net gain of grassland habitat.

To reduce potential impacts to grasslands to a less-than-significant level the District shall implement the following guidelines, best management practices and considerations as detailed in Chapter V. Vegetation Management Program (VMP) of the Plan, as follows:

Plan Chapter V. Vegetation Management Program Section C.1.c. Grasslands Fuel Reduction

- To minimize impacts and maximize benefits on biological resources, grazing leases and management plans should incorporate performance standards that address:
    - Management goals
    - Range improvements (e.g., existing/proposed fences and water sources)
    - Kind and class of livestock
    - Livestock carrying capacity and stocking rate
    - Grass height and RDM related to slope
    - Season of use
    - Special management pastures and limitations (e.g., desirable plants, riparian corridors, wetlands)
    - Invasive plant control programs
    - Monitoring program and frequency
    - Supplemental feeding standards, including locations with regard to streams and ponds, that will reduce undesirable livestock concentrations in sensitive areas.
- For grazing programs, special considerations to reduce re-introduction of non-native invasive plant species may include feed restrictions and seasonal use restrictions.
- Treatment of areas with a high ignition potential (e.g., adjacent to roadsides or turnouts) may include conversion to low fuel volume landscaping material that maintains a high moisture content.
- Grasslands will need to be treated every year in areas near structures; however treatment may be as infrequent as 3 to 5 years if a primary goal is to reduce or slow shrub encroachment.

Plan Chapter V. Vegetation Management Program Section C.1.c. Grasslands Resource Considerations

The following guidelines shall be taken into account when identifying fuel reduction treatments for grassland habitats:

- Prior to conducting fuel reduction treatments, use the GIS database and a site reconnaissance to locate potential habitat for special-status plants and animals and nesting birds, and identify and include pre-treatment protection measures in the Action Plan for fuel reduction.
- Coastal prairie and non-native grasslands in the Study Area are known to support several plant species of special concern such as bent-flowered fiddleneck, big-scale balsamroot, Oregon meconella, Diablo helianthella, and fragrant fritillary. Grasslands with the potential to support these species should be surveyed prior to treatment during appropriate blooming periods. Occurrences of these plant species should be flagged and avoided, if possible, especially during treatment methods with high potential for ground disturbance. Avoidance may not be necessary during treatments that do not disturb surface soils, such as prescribed burning, mowing, or some grazing regimens if they are carefully managed to minimize impacts and maximize resource benefits for a particular species.
- The Skyline Serpentine Prairie in Redwood Regional Park supports a native perennial grassland with a diversity of species including many special-status plants (such as the federal- and State-listed endangered Presidio clarkia). EBRPD will perform fuel reduction treatments in accordance with the Serpentine Prairie Restoration Plan prepared by EBRPD in 2008.
- Both early and late season mowing and grazing can be beneficial for native perennial grasses. Early (March-April) mowing and grazing can be timed to defoliate immature (unripe) seed heads of non-native annual grasses, reducing competition with native perennial grasses (see Tables IV-2 and -3). Fuel reduction activities should take advantage of

different seeding and curing rates between annual and perennial grasses. However, occasional late mowing or grazing in the early summer after native seeds have set can help minimize adverse impacts and maximize benefits in areas supporting native grasses. Defoliation later in the season allows the native perennial grasses to grow and store root reserves, and to set and disperse seed. The timing of treatments will need to be determined on a case by case basis as part of the pre-treatment considerations.

- Mowing heights for grasslands should not be lower than 4 inches to prevent "scalping" of native perennial bunchgrasses and desirable forbs. Mowing heights may need to be adjusted on a site-specific basis but generally should range from 4 to 6 inches above ground level to favor native plants while removing non-native annual seedheads.
- Ruderal herbaceous communities are less likely to support special-status species and native grasses, but pre-treatment surveys should be conducted to confirm this. Mowing ruderal areas should be timed to defoliate invasive plant species prior to seed ripening. Equipment should be cleaned of mud and accumulated material that could carry weed seeds prior to moving to a non-invaded site, and debris should be contained in a method that prevents spread of ripe seed of invasive plants into other areas.
- Nesting surveys should be conducted within 15 days prior to mowing if performed during the nesting season (February-July) to locate and avoid destruction of native bird ground nests if deemed necessary by the pre-treatment survey in compliance with the Federal Migratory Bird Treaty Act and State Fish and Game Code. There are currently no known special-status ground-nesting birds in the vicinity of the recommended treatment areas.
- The timing of treatment will need to be determined on a case-by-case basis to balance seed set and breeding concerns with mowing of annual grasses to reduce fire ignitions and invasive plant encroachment.
- Individual trees within grasslands likely hold some measure of aesthetic and/or wildlife habitat value, but these widely-spaced trees will not cause an active crown fire because of the discontinuity of tree crowns. They could, however, provide a seed source for invasion of grassland habitats by woodland species and should be considered for removal to maintain desirable and declining grassland habitat. Removal would more likely be required for eucalyptus or pines near ridgelines or homes. If not removed, the lower limbs of trees in grassland habitat may need to be pruned and/or grass under the tree canopy mowed to prevent torching.
- Treatment start dates should be based on field and weather conditions in the year that treatment will be undertaken. Mowing too early in a season with late rains may require additional treatment after non-native grasses re-grow then fully cure, and may be detrimental to desirable native species.
- Follow-up monitoring of treatments should be conducted.

(5) Maritime Chaparral. Approximately 7.7 acres of maritime chaparral in the recommended treatment areas, or about 30 percent of the 26 acres of this community in the Study Area, may be adversely affected by fuel reduction activities to implement the Plan. This impact would be considered potentially significant because maritime chaparral is designated by CDFG as a sensitive habitat, it supports known occurrences of special-status plant species such as pallid manzanita and western leatherwood, provides habitat for special-status animals (including Alameda whipsnake) and potentially provides wildlife movement corridors and nursery sites. To reduce potential impacts to maritime chaparral habitat to a less-than-significant level, the District shall implement the following guidelines, best management practices and considerations from Chapter V. Vegetation Management Program (VMP) in the Plan.

Plan Chapter V. Vegetation Management Program Section C.2.a. Maritime Chaparral Fuel Reduction

- The following are recommended treatment performance standards for maritime chaparral stand structures where mosaic thinning is used for fuel modification:
    - *Height:* Thin or selectively remove exotic species and shrubs to break up vertical and horizontal continuity.
    - *Clump Size:* Create clumps that are natural in appearance including specimens of variable age classes.
    - *Spacing:* Distance between clumps should be greater than approximately twice the height of tallest shrub crown.

- *Crown Cover:* Retain approximately 25 to 50 percent shrub crown cover as determined by shrub height and island distribution.
- *Dead to Live Ratio:* The dead to live fuel ratio should be less than 20 percent in shrub canopy.[42, 43]
- *Preferential Removal of Species:* Preferentially cut back to the burl the most flammable sprouting species first, such as chamise. Keep less flammable sprouting species such as oak, coffeeberry, snowberry, rose, iris, and salal. Remove or thin huckleberries where they are likely to shade out pallid manzanita. The removal of brush should be based on the following criteria which are listed in approximate descending order of importance to fuel management objectives:
  - Listed species – retain all healthy and vigorous individual specimens of pallid manzanita.
  - Sprouting capability – remove species with sprouting capacity first.
  - Plant vigor – remove shrubs of low vigor, and all dying or dead shrubs, including pallid manzanita.
  - Effects of plant species on soils – i.e., retain ceanothus and other shrubs with slope-holding capacity that increase soil nutrients.
  - Value for wildlife food and cover.
  - Aesthetic values.
  - Diversity of species.
  - Encourage and protect obligate "seeders" (such as some species of manzanita and ceanothus).
  - Remove exotic species.
  - Favor chaparral community by removing oak, bay, madrone, buckeye, and other trees under 8 inches diameter at breast height (dbh) that are encroaching upon the maritime chaparral.
  - Consider the conversion of shrubs to lighter fuel types, e.g., grass, especially in maintained fuel reduction zone areas.
  - Chipping/mulch depth should be between approximately 2 and 5 inches following treatment. Use caution when allowing chips to be spread on the ground, as this could lead to suppression of desirable species and favor weeds.
- Set the following standards for areas where chaparral plants are cut or pruned:
  - Cut to a maximum height of 1.5 feet; allow maximum growth to 4 feet (total plant height) before re-treatment
  - Remove shrubs surrounding trees to the dripline; prune trees of lower branches
  - Debris to remain in place as mulch below shrub.
- Anticipate a 5 to 7 year treatment cycle to manage treated areas to standards of Chaparral (Fuel Model #4) with young brush, short mature brush, or patchy islands.

[42] There is no nationally-recognized standard for dead-to-live ratio in maritime chaparral. However, with a higher ratio of dead material in the shrub canopy these areas are more likely to experience a fire traveling through the full complex. A larger proportion of live material will hamper fire spread because a higher amount of moisture will need to be driven out of the fuel particles before ignition can occur.

[43] *Fire Protection Training Procedures Handbook 4300 – Vegetation Fires*. California Department of Forestry and Fire Protection, Sacramento, CA.

Plan Chapter V. Vegetation Management Program Section C.2.a. Maritime Chaparral Resource Considerations

- Maritime chaparral is a sensitive plant community in the Study Area. It also supports pallid manzanita (a State- and federally-endangered species), leatherwood (CNPS List 1B), and Shreve's oak (CNPS List 3). Low impact, site-specific treatments such as hand cutting and pile burning are warranted in maritime chaparral, although pile burning would require additional measures to ensure seeds and seedlings would not be consumed. Goat grazing and mechanical treatments are not appropriate for this plant community, as these treatments are not selective and would result in unacceptable levels of damage to special-status and listed species.
- Many of the dominant shrubs (including pallid manzanita) in this plant community are obligate seeders that reproduce only by seed and will not stump sprout. These species (primarily ceanothus and pallid manzanita) need protection during treatments in their areas. In order to sustain populations, suitable conditions must be present for seedling germination and establishment. Suitable conditions may mean clearing to bare mineral soil for some species, or the selective removal of eucalyptus stands that choke out pallid manzanita.
- Bird nesting surveys should be conducted within 15 days prior to cutting shrubs if treatments are to be conducted during the nesting season (February to July) to locate and avoid nesting birds if deemed necessary by pre-treatment surveys. Treatment after approximately July 1 of any year will reduce the potential for disturbance of songbird nesting activities.
- Treatment after seed set (typically April or May) will reduce disruption to seed production of native obligate seeder shrubs, including pallid manzanita.
- Conduct follow-up monitoring of treatments. Monitoring the response to management practices needs to consider chaparral structure and composition, as well as fuel loading.
- There is a potential for fuel reduction treatments to spread a pathogen fungus, *Phytophthora cinnamoni*, which can kill pallid manzanita and other desirable native shrubs. The following procedures[44] shall be implemented when conducting treatments in maritime chaparral:
    - Trim lower branches of shrubs that have died to provide sunlight, and remove smaller flammable fuels.
    - If dead or severely diseased shrubs are removed, avoid hauling material off of the site. If this is not possible, move it directly upslope without lateral movement and avoid any contact with maritime chaparral offsite. Clean equipment, vehicles and shoes that could spread infected soil when entering or leaving a maritime chaparral treatment area.
    - Conduct treatments when the soil is dry if possible.
    - If seed is collected for replanting, collect seed from high up on the shrub and ensure that it does not touch the soil. The disease is not spread by seed, but could be spread by soil attached to the seed.

(6) North Coastal Scrub (Mesic and Xeric). Plan-related fuel reduction treatments (hand labor, goat grazing, chemical, mechanical) in recommended treatment areas and along strategic fire routes could potentially impact up to 34.6 acres of mesic north coastal scrub habitat and 278.0 acres of xeric north coastal scrub habitat.

Approximately 312.6 acres of north coastal scrub (xeric and mesic combined) in the recommended treatment areas and along the strategic fire routes, or about 18 percent of the 1,699 acres of coastal scrub in the Study Area, may be adversely affected by fuel reduction activities to implement the Plan. This impact would be considered potentially significant because coastal scrub supports occurrences of

[44] Danielsen, Charli. 2008. Personal communication with EBRPD Stewardship staff

special-status plant species, provides habitat for special-status animals including the listed Alameda whipsnake, and potentially provides wildlife movement corridors and nursery sites.

To minimize impacts on north coastal scrub habitat and associated resources to a less-than-significant level, the District shall implement the following guidelines, best management practices, and considerations from Chapter V. Vegetation Management Program (VMP) in the Plan:

Plan Chapter V. Vegetation Management Program Section C.2.b. North Coastal Scrub Fuel Reduction

The following guidelines are recommended for treatment actions in north coastal scrub to create clumps of scrub in grasslands, uniformly shorten shrubs, or convert treatment areas to grasslands:

- Monitor and report the effects of treatments in north coastal scrub. Monitoring species responses to management practices should consider shrubland structure and composition, animal abundance, and fuel loading and measurement of residue.
- Create north coastal scrub islands two times as wide as the height of tallest shrub through mosaic thinning or patch retention thinning. Clumps should be natural in appearance and ¬include specimens of variable age classes.
- Within 100 feet of structures, grass between shrub islands should be mowed or grazed when cured.
- Retain approximately 30 to 50 percent of brush areas in brush crown cover.
- Prioritizing plant species for removal will change according to local conditions, such as the relative abundance of each species. (For example, where coffeeberry is not abundant, it may be prioritized highly for retention.) Species which are generally a high priority for removal are: coyote bush; poison oak; and Himalayan blackberry. Attempts should be made to maintain a diversity of species.
- Brush removal should be based on the following criteria, which are listed in approximate order of importance to fuel management objectives:
    - Relative flammability - remove the most flammable species first. Maintain less than 20 percent dead material in the shrub canopy.
    - Plant vigor - remove shrubs of low vigor, dying or dead shrubs.
    - Sprouting capability – cut sprouting species first and treat resprouts with herbicide, as necessary.
    - Effects of plant species on soils - Retain shrubs with slope-holding capacity, or those that increase soil nutrients (e.g., ceanothus).
    - Value for wildlife food and cover.
    - Aesthetic values.
- The following standards for debris to remain in place should be used:
    - Chipping/mulch depth should be between approximately 2 and 5 inches.
    - Standing stems should be no higher than 18 inches for those species that are cut (shrubs that readily resprout and have many stems at the base of plants).
- The following standards for areas where shrubs are shortened should be used:
    - Plants should be cut to maximum height of 18 inches; growth to 4 feet (total plant height) before re-treatment occurs.
    - Debris can remain as unchipped mulch.

- The following standards for pile burning should be used:
    - Stationary fires may be fed from piles too large to qualify for pile burns.
    - Let fire spread between piles.
    - Locate burn piles at a sufficient distance from retained vegetation to prevent scorching damage. Radiant heat can damage and even kill thin-barked trees.
- Initial treatment is the most time-, resource-, and cost-intensive operation. Follow-up maintenance is likely to include annual treatment.
- Repeated treatments occurring every two to three years are generally more effective than single treatments.

Plan Chapter V. Vegetation Management Program Section C.2.b. North Coastal Scrub Resource Considerations.

The following are resource considerations and guidelines for coastal scrub:

- The north coastal scrub community is dominated by native plants and animals, and the dry phase is potentially the best habitat for the Alameda whipsnake, which may occur even in small pockets of scrub.
- The following measures are proposed to avoid and minimize any potential direct effects on the Alameda whipsnake:
    - Prior to treatment implementation, the locations of potential Alameda whipsnake habitat to be retained or managed, as mapped by the District, would be clearly indicated on treatment plans.
    - Vegetation clearing activities should be scheduled, insofar as possible, to avoid the breeding period for the Alameda whipsnake. (March 15 through June 15).
    - A qualified biological monitor would monitor all activities that involve vegetation removal and ground disturbance, or other activities that may result in the take of the Alameda whipsnake. The biological monitor would have the authority to stop any work that could result in the unauthorized take of an Alameda whipsnake or any other listed species. The monitor would be allowed sufficient time to move the animals from the site before work activities begin or resume, if necessary. The individuals would be relocated to the closest suitable habitat that would not be affected by treatment activities. Only individuals of listed species that are at risk of injury or death by treatment activities would be moved by the biologist; any others would be left undisturbed.
    - The biological monitor would be on site to monitor the initial vegetation removal and/or ground-disturbing activities. The monitor would perform a clearance survey for listed species immediately prior to the initial ground disturbance. Safety permitting, the biological monitor would also investigate areas of disturbed soil for signs of listed species within 30 minutes following the initial disturbance. The monitor would inspect the treatment area for Alameda whipsnake before activities begin each day by checking under standing equipment before it is moved and checking any debris piles.
    - If the biological monitor observes whipsnake in the work area, he/she would stop work, move the individual to the closest suitable habitat that would not be affected by treatment activities or, if possible, the Alameda whipsnake would be allowed to disperse on its own.
    - Prior to treatment implementation, all contractors, their employees, and agency personnel involved in vegetation removal and earth-disturbing activities would complete an employee education program on the Alameda whipsnake. The presentation would be conducted by a qualified biologist and would include an explanation of endangered species issues, a description of the Alameda whipsnake and its habitat needs, an explanation of their status under the federal Endangered Species Act, associated consequences of noncompliance with the USFWS Biological Opinion, and a description of minimization and conservation measures being taken to reduce effects to these species during treatment implementation.

- If any on-site contractors find what they believe to be a listed species, work or activities that may result in injury, death, harm, harassment, or capture of the individual would immediately cease and the biological monitor would be immediately notified. The biological monitor would record the location of the species and would handle the situation as described above.
- Plastic monofilament netting (e.g., erosion-control matting) or similar material would not be used at treatment sites because Alameda whipsnakes may become entangled or trapped in it. Acceptable substitutes include coconut coir matting with a minimum mesh size of one inch square or tackified hydroseeding compounds.
- The biological monitor would be contacted regarding any employee or contractor who might inadvertently kill or injure an Alameda whipsnake; or anyone who finds a dead, injured, or entrapped individual. In the case of an injured or dead animal, the biological monitor will collect the animal and transfer it to an approved facility for rehabilitation or preservation. The biological monitor will be responsible for reporting the take to the USFWS and CDFG within 24 hours of the discovery.
- Sensitive habitat areas, other than those identified as recommended treatment areas in this Plan, that require protection from potential project impacts would be identified and delineated with high visibility, temporary, orange-colored fence at least 4 feet in height, flagging, or another type of barrier. Such fencing would be inspected by the biological monitor and maintained daily until completion of the treatment. The fencing would be removed only when all construction equipment is removed from the site. No treatment activities would occur inside the delineated sensitive habitat. Where necessary, a snake-proof fence may be erected to prevent Alameda whipsnakes from entering the project zone. This fence would be at least 18 inches high, staked vertically and buried underground to a minimum depth of two inches.
- Native understory plant species would be protected to the extent practical.
- The District would identify and limit to the maximum extent possible all access roads and skid trails. Outside of the recommended treatment areas, these access roads and skid trails would avoid scrub habitat, primary constituent elements for the critical habitat of the Alameda whipsnake, and stream and riparian habitats.
- All material stockpiling and staging areas would be located within designated areas that are outside of sensitive habitat areas as determined by the biological monitor, CDFG, and/or the USFWS.
- Vehicle and equipment refueling and lubrication would only be permitted in areas where accidental spills can be immediately contained. All equipment would be regularly maintained to avoid fluid leaks (e.g., gasoline, diesel fuel, hydraulic fluid). All leaking fluid would be stopped or captured in a container until such time that the equipment can be immediately moved off site and repaired. Storage of hazardous materials and refueling of equipment would not occur within 500 feet of any pond or active creek drainage. The District and/or its contractors would prepare a plan for immediate containment and cleanup of hazardous material spills within or adjacent to each project site.
- To avoid or minimize attracting predators of the Alameda whipsnake, all food-related trash items, such as wrappers, cans, bottles, and food scraps, would be disposed of in a securely covered container.

- North coastal scrub in the Study Area is known to support several plant species of special concern such as Oakland star tulip, Franciscan thistle, western leatherwood, fragrant fritillary, and Diablo helianthella. Shrublands with the potential to support these species should be surveyed prior to treatment during appropriate blooming periods. Occurrences should be flagged and avoided, if possible, or treatments devised to minimize impacts and maximize benefits.
- Nest surveys should be conducted within 15 days prior to mechanical treatment (typically mowing) if performed during the nesting season (February through July) to locate and avoid special-status nesting birds if deemed necessary by the pre-treatment survey.
- The timing of treatment will need to be determined on a case-by-case basis to balance seed set (July-August for most desirable native shrubs) and wildlife breeding concerns. Treatment start dates should be based on the field and weather

conditions of any given year. Treatment after July 1 will generally reduce disturbance to seed set of plants and nesting song birds, although nesting could continue until August and pre-treatment nest surveys may be appropriate. Greater limitations to treatments may be required if species of special concern are found to occur in treatment areas.

- Maintain species diversity. The order of priority for species retention will change according to local conditions such as the relative abundance of each species. For example, where coffeeberry is not abundant, it may be placed high in priority to retain.
- Some shrubland communities can be converted to grass, especially where devoid of special-status species in fuel reduction zones or where soils and/or historic aerial photos indicate historical grassland.
- Where vegetation management actions focus on conserving brush habitat, tree and shrub removal should be conducted as necessary to restore Alameda whipsnake habitat and attain approximately 35 percent canopy closure.
- If goat grazing is used in predominantly native habitat, a program should be explored to consider goat quarantine prior to grazing for at least three days to prevent dispersal of invasive plant seeds from offsite. Goat grazing should be monitored by a District representative to ensure they are moved frequently to prevent overgrazing. (LTS)

(7) Coyote Brush Scrub. Approximately 309.7 acres of coyote brush scrub in the recommended treatment areas and along strategic fire routes, or about 21 percent of the 1,455 acres of this community in the Study Area, may be adversely affected by fuel reduction activities (e.g., hand labor, mowing, grazing, chemical, mechanical) to implement the Plan. Although coyote brush scrub is a common and often invasive plant community (as discussed previously, coyote brush invasion is a major cause of the loss of grasslands in the East Bay Hills), this impact would be considered potentially significant because coyote brush scrub provides habitat for special-status animals, specifically the listed Alameda whipsnake.[45] To reduce impacts to coyote brush scrub, associated resources and whipsnake to a less-than-significant level, implement the guidelines, best management practices, and considerations from Chapter V. Vegetation Management Program (VMP) in the Plan as described above for north coastal scrub.

(8) Oak-Bay Woodland. Approximately 399.7 acres of oak-bay woodland habitat in the recommended treatment areas and along strategic fire routes, or about 8 percent of the 4,799 acres of this community in the Study Area, may be adversely affected by fuel reduction activities (e.g., hand labor, mowing, grazing, chemical, mechanical) to implement the Plan. This impact would be considered potentially significant because oak-bay woodland supports potential occurrences of special-status plant species, provides habitat for special-status animals and potentially provides wildlife movement corridors and nursery sites. The Plan prescribes treatments and recommendations non-native habitats such as broom scrub, eucalyptus and Monterey pine that encourage these habitat types to be allowed to recover to oak-bay woodlands where appropriate, potentially resulting in a net gain of this habitat. To reduce potential impacts to oak-bay woodland habitat to a less-than-significant level, implement the following guidelines, best management practices, and considerations from Chapter V. Vegetation Management Program (VMP) in the Plan, as follows:

Plan Chapter V. Vegetation Management Program Section C.3.e. Oak-Bay Woodland Fire Hazard Reduction and Resource Management Goals

The following resource management goals should be considered during vegetation management actions for oak-bay woodland:

[45] The potential whipsnake habitat was defined and mapped by EBRPD as shown in Figures IV.B-3a –c and includes coyote brush vegetation. The reader should note that the District intends to use the guidelines and BMPs within the Plan to have a beneficial effect and provide additional whipsnake habitat within the Study Area through the actions undertaken as part of the Plan.

- Treatment of oak-bay woodlands should be limited to understory thinning of scrub vegetation (see especially considerations for north coastal scrub), thinning dense stands of young native trees and saplings, removing invasive non-native vegetation, and replanting these areas with native vegetation.

- Bay trees have been discovered as a vector/host for Sudden Oak Death. Young bays that touch oaks should be selected for removal.

Plan Chapter V. Vegetation Management Program Section C.3.e. Oak-Bay Woodland Resource Considerations

The following resource considerations and guidelines pertain to oak-bay woodland: (See also the resource considerations and guidelines for grasslands and brush and shrub vegetation types).

- A number of special-status plant species occur in the understory of oak-bay woodlands and forests, including western leatherwood. Other special-status plants occur at the edges bordering brush and grassland. Pre-treatment surveys to locate occurrences of special-status plant species should be conducted in woodland and forest areas prior to fuel management, especially prior to the initial treatment activities and follow-up seasonal surveys should be conducted, as necessary.
- Animal species of concern, such as the San Francisco dusky-footed woodrat, occur in oak-bay woodland and forest habitats. A wildlife biologist should conduct a pre-treatment survey to determine the potential impact on animal species of concern and provide recommendations for mitigation prior to implementation of any vegetation management actions.
- Nesting surveys should be conducted within 15 days prior to any treatment performed during the nesting season to locate and avoid special-status nesting birds and all nesting raptors. Treatment near active nests of special-status birds and raptors should be delayed until after the nestlings have fledged.
- Plan-related fuel reduction treatments activities in oak-bay woodland habitat could spread a pathogen fungus *Phytophthora ramorum* or sudden oak death (SOD) from treated areas to areas not yet infected. SOD can impact oaks and other desirable native trees and shrubs. Alameda County, Contra Costa County, and other Bay Area Counties are under quarantine restrictions for SOD. Oak and other host plant material (as defined by the statute cited) may not be moved outside of the quarantine region without specific written certification from the California Department of Agriculture or other authorized agricultural officials (e.g. County Agricultural Commissioners).[46] The following measures shall be followed when working in oak-bay woodland to reduce the spread of SOD:
    - District staff shall consult with the appropriate County Agricultural Commissioners, and implement Best Management Practices (BMPs) for treatments in infected oak-bay woodlands to minimize the risk of spreading this fungus to uninfected areas.
    - Personnel should be informed of the presence of SOD and instructed to prevent unauthorized movement of host plant debris, soil, or mud.
    - If dead or diseased host plants are removed from a treatment area, infected plant material shall be contained and moved for disposal off-site within the quarantine region in an area where SOD would not contact uninfected woody vegetation as specified by a permit issued by the authorizing agricultural compliance officer.
    - No host plant material shall be moved outside of the quarantine region which includes Contra Costa and Alameda County.
    - If cut trees are to be left onsite for chipping or burning, they should be felled in a manner that minimizes subsequent transport, disturbance, and contact with adjacent oak-bay woodlands.
    - Clean equipment, vehicles and shoes of host plant debris, soil or mud that could spread infected soil when entering or leaving an infected oak-bay woodland treatment area. Shoes should be cleaned with Lysol or bleach. Vehicles should be inspected to ensure they are clean prior to leaving an infected area.
    - Conduct treatments when the soil is dry (June-October). Avoid treatments in wet weather when soils are saturated (November-May).

[46] California Department of Food and Agriculture. 2008. Plant Quarantine Manual Section 3700. Oak Mortality Disease Control. State Miscellaneous Ruling.

(9) Riparian Woodland. Approximately 19.0 acres of willow riparian woodland habitat in the recommended treatment areas and along strategic fire routes, or about 17 percent of the 109 acres of this community in the Study Area, may be adversely affected by fuel reduction activities (e.g., hand labor, mowing, grazing, chemical, mechanical) to implement the Plan. This impact would be considered potentially significant because willow riparian habitat is considered sensitive, supports potential occurrences of special-status plans, supports habitat for special-status animals (nesting raptors) and potentially provides wildlife movement corridors and nursery sites. To reduce potential impacts on willow riparian woodland and associated resources to a less-than-significant level, implement the following guidelines, best management practices, and considerations from Chapter V. Vegetation Management Program (VMP) in the Plan, as follows:

Plan Chapter V. Vegetation Management Program Section C.3.g. Riparian Woodland Fuel Reduction

In open or previously disturbed riparian forest, the following treatment performance guidelines should be applied:

- Encourage a closed canopy in all riparian woodlands and minimize understory growth.
- Maintain canopy closure where it has already occurred.
- Maintain and encourage native species diversity within riparian woodlands.
- Protect individual native tree specimens and other desirable species from browse and girdling during grazing treatments.
- Anticipate a 10 to 15 year treatment cycle, although additional treatments may be required following storms or other events that create large amounts of dead material in riparian woodlands.

Plan Chapter V. Vegetation Management Program Section C.3.g. Riparian Woodland Resource Considerations

The following resource considerations and guidelines pertain to riparian woodland:

- Riparian forest is an important natural community valued for its productivity, as valuable wildlife habitat, as an important buffer and filter for aquatic and fish habitat, and for its intrinsic aesthetic value. As such, treatments should be avoided in healthy stands (i.e., those with closed canopy and minimal understory shrubs) that meet the standards of Closed Canopy Oak Woodland (Fuel Model #8) or Hardwood Litter (Fuel Model #9). Pre-treatment surveys should be conducted by resource professionals to ensure litter removal or other activities do not impact special-status species such as the San Francisco dusky-footed woodrat.
- Great care must be taken to avoid adverse impacts to this vegetation type as well as to any adjacent streams, wetlands or other water bodies. BMPs should be employed to avoid indirect impacts to aquatic habitat and associated special-status species (specifically steelhead salmon) from erosion, sedimentation, or other forms of pollution (see Chapter IV. Fuel Treatment Methods). These BMPs should include minimizing soil disturbance resulting from trampling, establishing a temporary protective buffer zone between treatment areas and aquatic habitat, installing erosion control barriers such as straw wattles, requiring spill prevention practices and measures for all equipment and vehicles, and confining activities to the driest periods to minimize potential impacts to surrounding areas.
- The California red-legged frog is known to occur in the Study Area, therefore, ground applications of certain herbicides in designated critical habitat (limited in the Study Area to a one square mile section that includes a portion of Robert Sibley Volcanic Regional Preserve) and in areas where the California red-legged frog has been identified (Tilden Regional Park) will only be applied in compliance with the 2006 U.S. District Court Order.[47] This order generally prohibits the use of 66 specified pesticides within varying distances of aquatic habitat, and restricts pesticide use, but not any other forms of habitat alteration that may otherwise occur. An exception to the injunction states that it does not apply to pesticide use if all of the following conditions are met:

[47] U.S. District Court, Northern District of California. 2006. Case No. 02-1580-JSW, *Center for Biological Diversity v. Johnson, et. al.* (http://www.epa.gov/espp/litstatus/stipulated-injunction.pdf)

a. The pesticide is applied for control of state-designated invasive species and noxious weeds under a program administered by a public agency;

b. The pesticide is not applied within 15 feet of aquatic breeding habitat, non-breeding aquatic critical habitat areas, or within 15 feet of aquatic features within non-critical habitat sections subject to the injunction;

c. Application is limited to localized spot treatments using hand-held devices;

d. Precipitation is not occurring or forecast to occur within 24 hours;

e. Application is conducted by a certified applicator or under the direct supervision of a certified applicator; and

f. Only the amine formulations of 2,4-D or triclopyr are used.

(10) Aquatic Habitat. Implementation of the proposed Plan could cause indirect impacts to aquatic habitat (streams, lakes, and freshwater marsh wetlands). Lands bordering aquatic habitats play important roles in maintaining water quality and providing habitat for wildlife. Vegetation removal upslope and adjacent to aquatic habitats could cause indirect impacts to water quality through the deposition of excess silt. Implementation of the guidelines, best management practices, and considerations from Chapter V. Vegetation Management Program (VMP) in the Plan as described above for riparian woodland habitat and associated resources would generally minimize impacts on aquatic habitat related to treatment activities to a less-than-significant level.

However, there is a potential impact to aquatic habitats related to the necessary replacement of substandard culverts at creek crossings on designated Strategic Fire Routes to allow evacuation in case of emergencies and access to recommended treatment areas.

Impact BIO-1: Activities to replace degraded, rusted, and substandard culverts in stream corridors where necessary along Strategic Fire Routes to allow emergency vehicle access, and trucks to cross streams, access the parks and conduct fuel reduction treatments could result in disturbance to aquatic habitats. (S)

The following mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure BIO-1: The District staff shall implement Best Management Practices when conducting work in and around creeks and streams to replace substandard culverts as required by the Corps, USFWS, NMFS, CDFG, and RWQCB in a way that minimizes disturbances to prevent erosion, degradation of soils and riparian vegetation, increased sedimentation, and to reduce overall impacts. Additionally, the District shall obtain the appropriate State and federal permits authorizing the fill of wetlands that are waters of the State and U.S., and conduct required consultation, as necessary. (LTS)

(11) Nesting Birds. Any vegetation type, including urban landscapes has the potential to support nesting birds. Ground nesting birds occur in grasslands, and other birds nest in trees and/or shrubs. As discussed below, federal and state laws protect most bird nests and young, so their destruction would be considered a significant impact.

Impact BIO-2: Implementation of the proposed Plan has the potential to result in disturbance to nesting raptors and songbirds (including special-status and protected species). (S)

The grassland, scrub and woodlands of the East Bay Hills provide foraging and nesting habitat for several species of raptors and a variety of passerines. Fuel reduction activities could cause nest abandonment and/or loss of eggs or young. The abandonment of nests and/or loss of eggs or young due to fuel reduction activities, such as removing trees, would be considered a significant impact to native wildlife nursery sites. It would also be considered a significant impact because it conflicts with the federal Migratory Bird Treaty Act (16 U.S.C., Sec. 703, Supp. I, 1989), and the California Fish and Game Code Sec. 3503 and 3503.5, which prohibits killing, possessing, or trading in migratory birds, and could substantially affect special-status birds. The following mitigation measure would reduce this impact to a less-than-significant level.

> Mitigation Measure BIO-2: Nest surveys should be conducted within 15 days prior to treatment if performed during the nesting season (February-July) to locate and avoid protected nesting birds if deemed necessary by the pre-treatment assessment. (LTS)

(12) Proposed Strategic Fire Route. Construction and maintenance of the proposed new strategic fire route in Claremont Canyon (per Figure III-5 and Plan Guidelines 1.9) could require the permanent removal of up to 0.2 acres of California annual grassland, 1.6 acres of xeric coastal scrub, 0.2 acres of coyote brush scrub, and 0.6 acres of oak-bay woodland, and could cause potential indirect impacts on downstream aquatic habitats, and potential impacts on nesting birds. Maintenance of existing strategic fire routes may also cause temporary impacts, but the construction of a new road would remove vegetation permanently. Impacts associated with construction and maintenance of a new strategic fire route would be considered potentially significant because these communities (California annual grassland, xeric coastal scrub, coyote brush scrub, and oak-bay woodland) may support potential occurrences of special-status plant species, provide habitat for special-status animals and potentially provide wildlife movement corridors and nursery sites.

The Vegetation Management Program (VMP) was designed to minimize impacts on these habitats to less-than-significant levels and reduce the potential for invasion of treated areas by exotic plant species as discussed previously in this section for California annual grasslands, north coastal scrub, coyote brush scrub, and oak-bay woodland. The VMP was also designed to minimize indirect impacts on downstream aquatic habitats and disturbance to nesting birds as discussed above. Implementation of these VMP guidelines and measures would therefore reduce most potential impacts associated with construction of the new strategic fire route on biological resources to a less-than significant level.

However, one significant impact that the VMP did not address is the potential for the area that would need to be disturbed along the side of the strategic fire route (i.e., the "road shoulder") to serve as conduit for invasive non-native plant species. These invasive species may colonize areas currently supporting special-status species or sensitive habitats.

Impact BIO-3: Construction and maintenance of the proposed new strategic fire route in Claremont Canyon could serve as a conduit for invasive non-native plant species during ground-disturbance activities. (S)

Implementation of the following mitigation measure would reduce this impact to a less-than-significant level:

Mitigation Measure BIO-3: The following procedures shall be implemented when constructing and maintaining a new strategic fire route:

- The road shoulders shall be revegetated with a native grass seed mix, as approved by EBRPD Stewardship Department, to provide a competitive cover to minimize colonization by invasive non-native species.
- While maintaining road shoulders for fuel reduction and defensible space, the occurrence of invasive non-native species should be monitored and controlled. (LTS)

(13) Conflict with Existing Regulations and Adopted Plans. Several special-status species occur or have the potential to occur on the Study Area.

Impact BIO-4: Implementation of the proposed Plan could conflict with federal, State or local policies, ordinances or regulations protecting biological resources and special-status species. (S)

Generally potential impacts related to conflicts with federal, State or local laws aimed at protecting biological resources and habitats are reduced to a less-than significant level through implementation of the VMP guidelines and the mitigation measures described in this section. Federal and State policies and regulations protecting nesting birds are reduced to less-than-significant levels through implementation of VMP measures and Mitigation Measure BIO-3 (pre-treatment nest surveys and avoidance). The VMP guidelines and mitigation measures discussed above would resolve any conflicts with policies, ordinances, and regulations and would reduce impacts to less-than-significant levels.

Additionally, EBRPD as the project proponent is required to comply with the federal Endangered Species Act in order to avoid take of federally listed species that may occur in the Study Area (pallid manzanita, Presidio clarkia, Santa Cruz tarplant, Callippe silverspot butterfly, steelhead, California red-legged frog, and Alameda whipsnake) and to avoid adverse modification of habitat that is determined to be essential to the survival and recovery of listed species. A Biological Opinion was prepared for the East Bay Regional Park District's fire mitigation projects by the USFWS in 2001 to address federally listed species (i.e., Alameda whipsnake, pallid manzanita, Santa Cruz tarplant, Presidio clarkia, and callippe silverspot butterfly) that may occur in the Study Area. A copy of the 2001 Biological Opinion is included in Appendix B. In order to ensure compliance with the Endangered Species Act, the following mitigation measure is included, which would reduce any potential impacts regarding compliance with the Endangered Species Act to a less-than-significant level.

Mitigation Measure BIO-4: EBRPD will coordinate with the USFWS to determine if the existing Biological Opinion for the District's Fire Mitigation Projects (File # 1-1-00-F-0205 dated August 14, 2001) can be revised and expanded to cover activities to be undertaken under the Fire Plan or if a new Biological Opinion is necessary. If revised, the Biological Opinion must include a new project description, add additional covered species (such as the California red-legged frog), and include additional conservation measures for covered species not included in the 2001 Biological Opinion. If it is determined that the existing Biological Opinion cannot be revised, EBRPD will need to obtain separate incidental take authorization from the USFWS for impacts to federally listed species. EBRPD shall obtain the appropriate

incidental take permit or incidental take authorization[48] from the USFWS prior to initiation of any ground disturbing activities. EBRPD will be required to comply with all terms of the incidental take permits including all mitigation requirements. EBRPD will also obtain a 2081 State Endangered Species Act permit or a letter of consistency from the CDFG for take authorization of state-listed species. (LTS)

[48] Incidental take of federally listed species would be authorized under Sections 7 or 10 of the federal Endangered Species Act.