

Chapter 4
Conservation Zones

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Eighteen discrete units, or *conservation zones* (CZs), were developed for this Conservation Strategy to identify locations for conservation actions in areas with the same relative ecological function as those areas where impacts occur. Designating CZs provides a description of specific areas where conservation actions, such as land acquisition, will occur without identifying individual parcels. Tables 4-1 through 4-18 illustrate the acreage of each land cover type present in each conservation zone. This chapter discusses the conservation value and conservation acreage goals for each CZ as described in Section 3.4.2, *Geographic Units of Conservation*, in Chapter 3. In addition, conservation priorities were assessed for focal species on the basis of suitable habitat and designated critical habitat (when applicable) in each CZ. Tables 4-19a-e show the modeled suitable habitat for focal species in each CZ based on Conservation Strategy habitat models; Table 4-20 shows the critical habitat designated by USFWS in each zone for those federally listed focal species for which such habitat has been designated.

The discussion of each CZ should be reviewed during project development to give regional context to the effects of anticipated project-level impacts or the benefits of proposed mitigation. Conservation priorities are highlighted for each CZ to ensure that the relative importance of each feature is not lost during project-level discussion. However, the list of conservation priorities is not exhaustive. The conservation value of resources that will be lost to project development or gained through mitigation should be considered on a case-by-case basis. The conservation zone discussions below merely provide context within which those more specific analyses can occur.

4.1 Conservation Zone 1

4.1.1 Background

CZ-1 is located in the northwestern corner of the Conservation Strategy study area along Pleasanton Ridge. This 1,672-acre CZ is largely comprised of the southern portion of Big Canyon watershed and is bordered on the south by I-580 and on the north by the Alameda–Contra Costa County line. I-680 is to the east and nearly touches the northeast corner of CZ-1. Table 4-1 shows the acreage of land cover types in CZ-1, based on Figure 2-8, as well as the proportion of each type that is currently under some form of protection. The most prevalent natural land cover types found in this CZ are annual grassland (780 acres), mixed evergreen forest/oak woodland (204 acres), and mixed riparian forest and woodland (140 acres) (Table 4-1).

4.1.2 Conservation Priorities

CZ-1 contains 5% (112 acres) of the study area's unprotected mixed riparian forest and woodland (Table 4-1). Mixed riparian forest and woodland occurs in three distinct areas in the CZ—along Dublin Creek and two smaller creeks to the north, all of which have their headwaters in the East Bay Hills and flow into the city of Dublin. This is a relatively rare land cover in the region, with only 2,110 acres [this is not what Table 4-1 says] total in the study area.

CZ-1 contains 543 acres of unprotected critical habitat for California red-legged frog, or 0.4% of the total unprotected critical habitat for this species in the study area (Table 4-20). The CNDDDB lists six occurrences for this species in CZ-1 that should be investigated as potential breeding locations (California Natural Diversity Database 2009). CZ-1 also contains 885 unprotected acres and 278 protected acres of Alameda whipsnake Recovery Unit 2 (Table 4-19b).

4.1.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-1 are listed below.

- Protection of and restoration opportunities within mixed riparian forest along Dublin Creek and other small creeks.
- Protection of California red-legged frog critical habitat, especially occupied breeding locations.
- Protection of habitat within Alameda whipsnake Recovery Unit 2.
- Surveys for Alameda whipsnake throughout CZ and protection of habitat, including stands of mixed evergreen forest/oak woodland and grassland between stands that could be used as movement habitat.
- Protection of annual grassland in this CZ should be focused in areas that support focal plant populations and provide non-breeding habitat for focal amphibians (uplands around aquatic breeding sites).

4.2 Conservation Zone 2

4.2.1 Background

CZ-2 encompasses 37,066 acres of the largely urbanized Livermore Valley in the northern portion of the study area. This CZ includes the intersection of I-680 and I-580 and the intersection of SR 84 and I-580. The southern and western boundaries of this CZ follow the Livermore watershed boundary; the northeast

boundary is formed by I-580. Table 4-2 shows the acreage of each land cover present in CZ-2, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. Though this area is largely urbanized, the dominant natural land cover types in this conservation zone are annual grassland (3,409 acres) and mixed riparian forest and woodland (410 acres), as shown in Table 4-2.

4.2.2 Conservation Priorities

CZ-2 contains 20% of the study area's unprotected stream mileage (Table 4-2), although most of those pass through urban areas. CZ-2 contains a portion of the study area's streams: Arroyo Seco, Arroyo Las Positas, Arroyo Mocho, Arroyo Valle, and Arroyo de la Laguna. Riverine habitat supports California red-legged frog and in the future could support central California coast steelhead. This CZ contains 11% (323 acres) of the study area's unprotected modeled California red-legged frog breeding habitat (Table 4-19b). Much of this habitat is found in the CZ's ponds, most of which are in urban areas. Assuming downstream barriers are removed or modified, Arroyo Mocho could be a migratory stream for central California Coast steelhead, according to Gunther et al. (2000).

CZ-2 contains 51% (341 acres) of the study area's unprotected mixed willow riparian scrub (Table 4-2). Mixed willow riparian scrub in this CZ occurs primarily along the Arroyo Valle and Arroyo Mocho streams and provides habitat for California red-legged frog, tricolored blackbird, and in some cases foothill yellow-legged frog, depending on the stream condition. CZ-2 also contains 23% (83 acres) of the study area's unprotected pond acreage (Table 4-2); however, many of these ponds are industrial in nature (e.g., golf course) and provide limited habitat value for focal species depending on the adjacent habitat.

In addition, CZ-2 contains 11% (7,991 acres) of the study area's unprotected potential habitat for burrowing owl (Table 4-19c). The bulk of the potential habitat for this species is northeast of the intersection of I-580 and I-680 and north of I-580 just west of SR 84 in ruderal and rural residential land covers in Dublin. There are additional habitat and known occurrences in eastern Livermore. Though most of this CZ is urbanized, small pockets of burrowing owl habitat occur throughout. CZ-2 also contains 15% (1,007 acres) of the unprotected CZ-2 contain 2% (4,215 acres) of modeled San Joaquin kit fox habitat. The highest quality habitat for kit fox is on the eastern edge of this CZ on the east side of Livermore, both north and south of I-580. Congdon's tarplant habitat in the study area (Table 4-19e). This habitat is in the far eastern part of the CZ in annual grassland just outside the Livermore city limits, and contains four CNDDDB occurrences for this species. In addition, CZ-2 contains 17% (638 acres) of the study area's unprotected modeled San Joaquin spearscale modeled habitat (Table 4-19e) in the northwest corner of the CZ near the intersection of I-680 and I-580, and in the northeast corner of the CZ just south of I-580. Small,

disjunct patches of potentially suitable habitat occur along I-580, one of which contains two CNDDDB records for this species.

4.2.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-2 are listed below.

- Protection of burrowing owl nesting and foraging habitat.
- Protection of and restoration opportunities in mixed willow riparian scrub along Arroyo Valle and Arroyo Mocho.
- Protection of and restoration opportunities along Arroyo Seco and Arroyo Mocho to support California red-legged frog and future central California coast steelhead habitat.
- Surveys for San Joaquin spearscale and protection of extant populations.
- Surveys for Congdon's tarplant and protection of extant populations.
- Protection of vernal pool habitat.

4.3 Conservation Zone 3

4.3.1 Background

CZ-3 is located in the northwestern part of the Conservation Strategy study area on the Livermore Uplift. This 9,768-acre CZ is bordered on the south by CZ-2 and on the east by CZ-4 and encompasses portions of the Daugherty Hills, Lower Tassajara Creek, Cottonwood Creek, and Cayetano Creek watersheds. The most prevalent natural land cover types are annual grassland (8,226 acres) and mixed riparian forest and woodland (91 acres) (Table 4-3). Other notable land cover types that persist in small quantities (less than 20 acres) in CZ-3 are mixed willow riparian scrub, pond, and seasonal wetland. Table 4-3 shows the acreage of each land cover present in CZ-3, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection.

4.3.2 Conservation Priorities

CZ-3 contains 8% (8,226 acres) of the study area's unprotected annual grassland, 2% (11 acres) of the study area's unprotected seasonal wetland, and 5% (19 acres) of the study area's unprotected pond acreage (Table 4-3). Seasonal wetlands are found in the northwest corner of CZ-3 in Tassajara Creek

Regional Park (designated Type 3/Type 4 open space). There were 38 ponds (totaling 19 acres) identified during land cover mapping for this Conservation Strategy, mainly east of Cottonwood Creek. Of the 38 ponds, all but two are currently unprotected. The relationship between these land cover types and the surrounding annual grasslands provide breeding and upland habitat for California red-legged frog and California tiger salamander. This is one of the most noteworthy features of this CZ. The protection of contiguous annual grasslands with known California red-legged frog and California tiger salamander breeding sites should be a priority for protection and management in this CZ. Protection of annual grasslands around breeding sites for California red-legged frog and California tiger salamander would have additional benefits for other focal wildlife species such as tricolored blackbird, burrowing owl, San Joaquin kit fox, and American badger.

CZ-3 contains 45% (3,055 acres) of the study area's unprotected Congdon's tarplant habitat (Table 4-19e), as defined by Conservation Strategy habitat models, and three of the study area's seven CNDDDB occurrences for this species (California Natural Diversity Database 2009). Protection of these three occurrences should be a priority, along with survey efforts in other like habitats. In addition, CZ-3 contains 9% (360 acres) of the study area's total unprotected suitable habitat for San Joaquin spearscale (Table 4-19e), as defined by Conservation Strategy habitat models. In fact, five of the twelve San Joaquin spearscale occurrences in the study area are in CZ-3. Protection of these occurrences should be a priority.

Finally, CZ-3 contains 7,426 acres of unprotected critical habitat for California red-legged frog and 1,178 acres of unprotected critical habitat for California tiger salamander—the entirety of critical habitat for the latter species in the study area (Table 4-20). Protection of California tiger salamander critical habitat should be a priority in CZ-3.

4.3.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-3 are listed below.

- Protection of California tiger salamander critical habitat.
- Protection of known occurrences of San Joaquin spearscale and surveys of other potential habitat.
- Protection of known occurrences of Congdon's tarplant and surveys of other potential habitat.
- Protection of known California tiger salamander and California red-legged frog breeding habitat, sufficient upland habitat surrounding those sites, and

connections between breeding and upland habitat Typically this is annual grassland.

- Protection of California red-legged frog critical habitat.
- Protection and restoration of mixed riparian forest and scrub and mixed willow riparian scrub along Tassajara, Cottonwood, and Cayetano Creeks.

4.4 Conservation Zone 4

4.4.1 Background

Encompassing 9,409 acres conservation zone, CZ-4 is located in the north central part of the Conservation Strategy study area in the Livermore Valley. CZ-4 is defined largely by the northeastern portion of the Livermore watershed, with the southern boundary of the CZ defined by I-580. Table 4-4 shows the acreage of each land cover present in CZ-4, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As shown in Table 4-4, dominant natural land cover types found in this conservation zone are annual grassland (4,253 acres), alkali meadow and scald (258 acres), valley sink scrub (410 acres), alkali wetland (106 acres), and seasonal wetland (347 acres).

4.4.2 Conservation Priorities

CZ-4 contains 22% (189 acres) of the study area's unprotected acres of alkali meadow and scald, 64% (343 acres) of the study area's unprotected seasonal wetland, and 99% (410 acres) of the study area's valley sink scrub (Table 4-4). Alkali meadow and scald is found in the center of this CZ, just north of Livermore at the Springtown Alkali Sink. Some, but not all, of this alkali meadow and scald is protected in the Springtown Preserve. The Springtown Alkali Sink provides potential habitat for a number of Conservation Strategy focal species: Palmate-bracted bird's-beak, San Joaquin spearscale, Congdon's tarplant, longhorn fairy shrimp, and vernal pool fairy shrimp. Protection of the sink as well as the watersheds that feed the sink should be a conservation priority in this CZ.

Seasonal wetland is also found in the Springtown Alkali Sink, interspersed with the alkali meadow and scalds, extending along the northern edge of Arroyo Las Positas to the CZ's eastern border. The protection of this area of wetland provides a unique conservation opportunity because it would provide a linkage between Springtown Preserve and its upper watershed, including Brushy Peak Regional Preserve in CZ-5. This region also contains 19% (12 acres) of the study area's unprotected perennial freshwater marsh (Table 4-4), extending east along Altamont Creek from Springtown Golf Course. Throughout the eastern

half of this CZ, there are 31 ponds encompassing 11 acres. These ponds provide breeding habitat for California tiger salamander and potentially for California red-legged frog. Nearly all these ponds are currently protected in a private mitigation bank.

Thirty-eight percent (1,452 acres) of the study area's unprotected San Joaquin spearscale habitat is in this CZ (Table 4-19e), with the vast majority occurring in the vicinity of the Springtown Alkali Sink, including two of the 12 CNDDB occurrences in the study area (California Natural Diversity Database 2009). In addition, CZ-4 contains 15% (1,001 acres) of the study area's unprotected Congdon's tarplant habitat (Table 4-19e), some of which is in the Springtown Alkali Sink. One of the seven CNDDB occurrences is found in this area. Protection of that occurrence and surveys for additional occurrences within modeled habitat should be a priority in this CZ. Additional Congdon's tarplant modeled habitat occurs southwest of the Springtown Alkali Sink in annual grassland along North Livermore Avenue. The only known occurrence of palmate-bracted bird's-beak is located in the Springtown Alkali Sink. This population has been surveyed extensively and portions of it are under some level of protection. Complete protection of this population and enhancement in the Springtown Alkali Sink through management is a high priority in this CZ.

CZ-4 contains 45% (900 acres) of the study area's unprotected longhorn fairy shrimp habitat and 37% (921 acres) of the study area's unprotected vernal pool fairy shrimp habitat (Table 4-19a). More importantly, this CZ contains 94% (892 acres) of the study area's designated critical habitat for vernal pool fairy shrimp (Table 4-20). The most prominent feature for California tiger salamander in this CZ is Frick Lake, located on its eastern edge. This is a regionally important breeding site for California tiger salamander and is likely a source population for this part of Alameda County. Additionally, the portion of Arroyo Las Positas that flows through Springtown Alkali Sink provides potential non-breeding habitat for California red-legged frog. Finally, the northern region of the CZ contains a small portion (605 acres) of Recovery Unit 4 for Alameda whipsnake (Table 4-19b); the preservation of this habitat should be a conservation priority for the CZ.

4.4.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-4 are listed below.

- Protection and management of alkali meadow and scald, valley sink scrub, seasonal wetland, and perennial freshwater marsh in the Springtown Alkali Sink and surrounding watershed.
- Protection of the palmate-bracted bird's beak population.

- Protection of Frick Lake and surrounding uplands for California tiger salamander.
- Protection within vernal pool species recovery units.
- Protection of vernal pool and longhorn fairy shrimp habitat.
- Protection of designated critical habitat for vernal pool and longhorn fairy shrimp.
- Surveys for vernal pool and longhorn fairy shrimp and protection of documented occurrences.
- Protection of known occurrences of San Joaquin spearscale and surveys of other potential habitat.
- Protection of known occurrences of Congdon’s tarplant and surveys of other potential habitat.
- Protection of designated critical habitat for California red-legged frog.
- Protection and restoration of Cayetano Creek, Arroyo Los Positas, and Altamont Creek.
- Protection of suitable habitat for Alameda whipsnake.
- Protection and enhancement of linkages across I-580 and Vasco Road for San Joaquin kit fox and American badger, including protection of lands on both sides of the roadways.

4.5 Conservation Zone 5

4.5.1 Background

CZ-5 is located in the northeastern section of the Conservation Strategy study area in the Altamont Hills. This 8,702-acre CZ is made up of a majority of the Altamont Creek and Brushy Peak watersheds, with its southern boundary formed by I-580. Table 4-5 shows the acreage of each land cover present in CZ-5, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As shown in Table 4-5, natural land cover types found in this conservation zone include annual grassland (7,528 acres), alkali meadow and scald (230 acres), coast live oak forest and woodland (146 acres), and alkali wetland (127 acres) (Table 4-5). An additional notable land cover in this CZ is blue oak woodland, at 42 acres (Table 4-5). This is the only stand of blue oak woodland mapped north of I-580 in the study area.

4.5.2 Conservation Priorities

CZ-5 contains 26% (230 acres) of the study area's unprotected alkali meadow and scalds (Table 4-5); these occur in the eastern portion of the CZ in valleys and swales and along creeks, such as Arroyo Las Positas. This CZ also has 15% (127 acres) of the study area's unprotected alkali wetland (Table 4-5), also along Arroyo Las Positas in the southern part of the CZ. These areas along Arroyo Las Positas also support seasonal wetland, which also occurs near the western border of the CZ just north of Springtown Alkali Sink. CZ-5 contains 2% (8 acres) of the study area's unprotected seasonal wetlands (Table 4-5). Protection of Arroyo Las Positas should be a priority for this CZ, as should identification of potential restoration opportunities that will enhance this stream. This CZ contains 25 ponds (9 acres), five of which are already protected. Of these 25 ponds, those that support breeding habitat for California red-legged frog, California tiger salamander, or tricolored blackbird should be a high conservation priority, as should ponds with the potential to be enhanced to support species. Ponds within 1.3 miles of other known California red-legged frog or California tiger salamander breeding sites are the highest priority. Protection of annual grassland in this CZ should be focused in areas where it supports focal plant populations, provides non-breeding habitat for focal amphibians (uplands around aquatic breeding sites), and movement and foraging habitat for San Joaquin kit fox.

CZ-5 also supports a small island of oak woodland (identified as blue oak woodland during land cover mapping for this strategy) in the western part of the CZ north of Livermore (Figures 3-2 through 3-5). While these 42 acres are a small portion (0.2%) of the unprotected blue oak woodland in the study area (Table 4-5), the stand is significantly isolated from other blue oak woodland communities and may, therefore, support a high level of genetic uniqueness. This area should be protected and surveyed to more accurately identify the type of oak woodland that is there.

This CZ contains 9% (357 acres) of the study area's unprotected San Joaquin spearscale modeled habitat (Table 4-19e), including two of the 12 CNDDB occurrences for this species in the study area (California Natural Diversity Database 2009). CZ-5 also contains 14% (3,363 acres) of the study area's unprotected big tarplant modeled habitat in annual grassland in the higher elevations of the CZ (Table 4-19e), and 8% (505 acres) of the study area's unprotected Congdon's tarplant modeled habitat (Table 4-19e) in annual grassland along the western border of the CZ. Surveys in these habitats for undiscovered focal plant occurrences should be a priority in this CZ, along with protection of any identified focal plant populations.

In addition, CZ-5 supports 7% (180 acres) of the study area's unprotected vernal pool fairy shrimp habitat (Table 4-19a) in the northern part of the CZ, near Brushy Peak. This CZ also supports 133 acres of unprotected longhorn fairy shrimp critical habitat (Table 4-20). This constitutes 50% of all unprotected

critical habitat for this species found in the study area and includes the single CNDDDB occurrence (California Natural Diversity Database 2009).

Finally, much of CZ-5 provides suitable habitat for San Joaquin kit fox and golden eagle. This area likely supports connectivity through the Altamont Hills for San Joaquin kit fox. Connectivity across I-580 has been compromised by construction of infrastructure. Further degradation of this westernmost linkage for kit fox should be disallowed, and opportunities to enhance that linkage (i.e., removal of movement barriers) should be explored as conservation/mitigation actions in this CZ. This area has also been identified as an important foraging area for golden eagles and nesting area for burrowing owls. Unfortunately, due to the presence of wind power facilities, there are limited mitigation opportunities for golden eagle in this CZ.

4.5.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-5 are listed below.

- Protection of designated critical habitat for longhorn fairy shrimp, which will also provide protection to vernal pool fairy shrimp.
- Protection of the isolated blue oak woodland community.
- Enhancement of linkages across I-580 for San Joaquin kit fox and protection of lands on the north side of the roadway.
- Protection of alkali meadow and scalds, which will also provide protection for San Joaquin spearscale habitat.
- Protection of known occurrences of San Joaquin spearscale and surveys of other potential habitat.
- Protection of known occurrences of Congdon's tarplant and surveys of other potential habitat.
- Protection of seasonal wetlands along Arroyo Las Positas.
- Protection of annual grassland in this CZ should be focused in areas where it supports focal plant populations, provides upland and refugia habitat for focal amphibians, and movement and foraging habitat for San Joaquin kit fox.
- Protection of foraging habitat for golden eagle and nesting habitat for burrowing owl.

4.6 Conservation Zone 6

4.6.1 Background

CZ-6 is located near the northeast corner of the Conservation Strategy study area in the Altamont Hills. This 14,475-acre CZ contains Bethany Reservoir and is made up of portions of the Upper Kellogg Creek, Brushy Creek, Bethany Reservoir, Mountain House, and Mountain House Creek watersheds. The southern boundary of CZ-6 is formed by I-580. Table 4-6 shows the acreage of each land cover present in CZ-6, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As shown in Table 4-6, the dominant natural land cover types in this CZ are annual grassland (12,888 acres), alkali wetland (380 acres), and reservoir (177 acres).

4.6.2 Conservation Priorities

CZ-6 contains 61% (380 acres) of the study area's unprotected alkali wetland, scattered throughout the conservation zone (Table 4-6). Protection of this land cover should be pursued in the CZ. Protection of areas that support focal species should be given priority. CZ-6 also contains 50% (27 acres) of the study area's unprotected rock outcrop (Table 4-6), located in the northwest portion of the CZ near Brushy Peak. This area provides habitat for longhorn fairy shrimp. Protection of these rock outcrop features should be a priority for this CZ. Additionally, CZ-6 contains 9% (57 acres) of the unprotected seasonal wetland in the study area (Table 4-6). Seasonal wetland is scattered throughout the western side of the CZ, interspersed with alkali wetland. While a small portion of it is protected in Type 2 open space (9 acres), the majority of the seasonal wetland in this CZ is unprotected (Table 4-6). Seasonal wetland provides breeding habitat for California tiger salamander and California red-legged frog and potentially for vernal pool fairy shrimp and longhorn fairy shrimp. Additional habitat for these species occurs in the CZ's 53 ponds, of which only two are currently protected. The existence of these seasonal wetlands and ponds in a matrix of annual grassland provides a valuable conservation opportunity for California tiger salamander and California red-legged frog, as this type of habitat composition provides upland habitat and breeding habitat in close proximity to one another. With proper management, some of these ponds can also provide habitat for tricolored blackbird.

CZ-6 contains 12% (12,345 acres) of the unprotected annual grassland in the study area (Table 4-6). Annual grassland provides habitat for big tarplant, burrowing owl, American badger, and San Joaquin kit fox, as well as non-breeding upland habitat for California red-legged frog and California tiger salamander. Annual grassland in this CZ also supports 12% (8,642 acres) of the study area's unprotected modeled burrowing owl habitat (Table 4-19c) as well

as 9% (12,517 acres) of the study area's unprotected modeled American badger habitat (Table 4-19d). Additionally, much of the annual grassland in CZ-6 provides suitable habitat for San Joaquin kit fox; this area potentially supports connectivity across the Altamont Hills. Connectivity across I-580 has been compromised by construction of infrastructure; further degradation of this linkage for kit fox should be disallowed, and opportunities to enhance that linkage (i.e., removal of movement barriers) should be explored as high priority conservation/mitigation actions in this CZ.

Finally, CZ-6 supports a few scattered patches of mixed evergreen forest/oak woodland along Brushy Creek in the northwest corner of the CZ. While it is only a small portion (0.8 acre) of the unprotected mixed evergreen forest/oak woodland in the study area, it is isolated from other mixed evergreen forest/oak woodland communities and may, therefore, support a high level of genetic uniqueness. If it is determined that retaining the stand of mixed evergreen forest/oak woodland is important then protection of this 0.8 acre should be a priority in this CZ.

Eleven percent (417 acres) of the study area's unprotected San Joaquin spearscale habitat (Table 4-19e), along with 1 CNDDDB occurrence, is found in scattered pockets of alkali wetland across the CZ (California Natural Diversity Database 2009). Protection of that occurrence and surveys for undocumented occurrences in modeled habitat should be a priority for this CZ. Twenty-six percent (6,078 acres) of the study area's unprotected big tarplant habitat is scattered across this CZ (Table 4-19e) in the higher elevations. Surveys for undocumented occurrences of big tarplant should also be a priority in modeled habitat in this CZ.

The part of the CZ near Brushy Peak supports 50% (134 acres) of the study area's unprotected longhorn fairy shrimp critical habitat (Table 4-20), encompassing much of the aforementioned rock outcrop habitat. Protection of all critical habitat for longhorn fairy shrimp should be a priority in this CZ. CZ-6 also contains 9% (223 acres) of the study area's unprotected vernal pool fairy shrimp habitat (Table 4-19a). CZ-6 contains 15% (99 acres) of the study area's unprotected modeled breeding habitat for California tiger salamander and 11% (330 acres) of the study area's unprotected modeled breeding habitat for California red-legged frog (Table 4-19b). Much of the pond and seasonal wetland habitats as well as the surrounding annual grassland are designated as critical habitat for California red-legged frog. This CZ contains 10% (12,489 acres) of all critical habitat for California red-legged frog in the study area (Table 4-20). Protection of this critical habitat should be a priority in this CZ.

The eastern edge of this CZ contains the "shoulder" of the Altamont Hills as they give way to the Central Valley. This area is an important movement corridor for San Joaquin kit fox, including a potentially important linkage to the northernmost portion of the species' range. Connectivity through the area is compromised by roadways and water conveyance infrastructure (Bethany

Reservoir, canals, and aqueducts), though movement through the area is still possible. Retaining as much connectivity through this part of the study area as possible should be a high priority for this CZ. Additional degradation of the linkage as it exists should be disallowed. Improving movement corridors across existing infrastructure (e.g., passage under roadways, bridges over canals) should be pursued as mitigation/conservation actions in this CZ.

4.6.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-6 are listed below.

- Protection of rock outcrops, including all critical habitat for longhorn fairy shrimp.
- Protection of 0.8 acre of mixed evergreen forest/oak woodland.
- Enhancement of linkages across I-580 and existing water conveyance infrastructure for San Joaquin kit fox and protection of lands on the north side of I-580.
- Protection of alkali wetland, which will also provide protection for San Joaquin spearscale habitat.
- Protection of known occurrences of San Joaquin spearscale and surveys of other potential habitat.
- Surveys for undocumented big tarplant occurrences in modeled habitat and protection of all new occurrences.
- Protection and restoration of seasonal wetland and ponds to provide protected dispersal corridors between ponds and to increase habitat for California red-legged frog and California tiger salamander.
- Protection of annual grassland in this CZ should be focused in areas where it supports focal plant populations, provides non-breeding habitat for focal amphibians (uplands around aquatic breeding sites), and movement and foraging habitat for San Joaquin kit fox.
- Protection of nesting and foraging habitat for burrowing owl.

4.7 Conservation Zone 7

4.7.1 Background

CZ-7 is located in the extreme northeast corner of the Conservation Strategy study area and extends slightly into the Central Valley. This 5,568-acre CZ is

made up of small portions of the San Joaquin Delta and Carbona watersheds, with I-580 forming its southern boundary. This is the only CZ in the study area that drains east toward the Central Valley. Table 4-7 shows the acreage of each land cover present in CZ-7, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As shown in Table 4-7, dominant natural land cover types in this conservation zone are annual grassland (1,515 acres), alkali meadow and scald (182 acres), and pond (17 acres). Tables 4-19a-e show the modeled suitable habitat for focal species and Table 4-20 shows the critical habitat designated in each conservation zone.

4.7.2 Conservation Priorities

CZ-7 contains 19% (165 acres) of the study area's unprotected alkali meadow and scalds (Table 4-7), all of which are in the northern part of this CZ near Byron Conservation Bank, a Type 1 open space. There may be the opportunity for expansion of Byron Conservation Bank to encompass this area of alkali meadow and scalds. These land covers provide habitat for San Joaquin spearscale, recurved larkspur, longhorn fairy shrimp, and vernal pool fairy shrimp.

CZ-7 encompasses 8% (293 acres) of the study area's unprotected San Joaquin spearscale habitat (Table 4-19e), focused mainly in the northern portion of the CZ and including one CNDDDB occurrence (California Natural Diversity Database 2009). Protection of that occurrence should be a priority in this CZ. Additionally, CZ-7 contains 16% (312 acres) of the study area's unprotected modeled longhorn fairy shrimp habitat and 13% (319 acres) of the unprotected modeled vernal pool fairy shrimp habitat (Table 4-19a), all of which are in the alkali meadow and scald land cover discussed above. This alkali meadow and scald supports the only CNDDDB occurrence of recurved larkspur in the study area (California Natural Diversity Database 2009). Protection of this occurrence should be the highest priority in this CZ. The northwestern corner of CZ-7 contains 701 acres of unprotected critical habitat for California red-legged frog, or 1% of all unprotected critical habitat in the study area for this species (Table 4-20). Because this corner of the study area drains toward the Central Valley, there should be an emphasis on protecting this critical habitat.

The western edge of this CZ contains the "shoulder" of the Altamont Hills as they give way to the Central Valley. This area is an important movement corridor for San Joaquin kit fox, including a potentially important linkage to the northernmost portion of the species' range. Connectivity through the area is compromised by roadways and water conveyance infrastructure (canals and aqueducts), though movement through the area is still possible. Retaining as much connectivity through this part of the study area should be a high priority for conservation in this CZ. Additional degradation of the linkage as it exists should be disallowed. Improving movement corridors across existing infrastructure (e.g., passage under roadways, bridges over canals) should be pursued as mitigation/conservation actions in this CZ.

4.7.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-7 are listed below.

- Protection of known occurrences of recurved larkspur and surveys of other potential habitat.
- Enhancement of and creation of additional linkages across existing water conveyance infrastructure for San Joaquin kit fox.
- Protection of alkali meadow and scalds, which will provide protection of habitat for San Joaquin spearscale, recurved larkspur, longhorn fairy shrimp, and vernal pool fairy shrimp.
- Protection of known occurrences of San Joaquin spearscale and surveys of other potential habitat.
- Protection of critical habitat for California red-legged frog.

4.8 Conservation Zone 8

4.8.1 Background

CZ-8 is located in the western portion of the Conservation Strategy study area in the East Bay Hills. This 18,016-acre CZ contains all of Sinbad Creek watershed along with large portions of the Indian Creek, Stonybrook Canyon, and Vallecitos Creek watersheds. The southern boundary of CZ-8 is formed by SR 84, and a segment of its eastern border is formed by I-680. Table 4-8 shows the acreage of each land cover present in CZ-8, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As shown in Table 4-8, dominant natural land cover types in this CA are mixed evergreen forest/oak woodland (9,617 acres), annual grassland (4,778 acres), blue oak woodland (365 acres), and northern coastal scrub/Diablan sage scrub (363 acres).

4.8.2 Conservation Priorities

CZ-8 contains 35% (297 acres) of the unprotected coast live oak forest and woodland in the study area (Table 4-8), a relatively rare land cover in the study area, in the southern portion of CZ-8 north of Alameda Creek. CZ-8 also contains 26% (6,482 acres) of the study area's unprotected mixed evergreen forest/oak woodland (Table 4-8), which is scattered relatively evenly throughout the CZ. Northern coastal scrub/Diablan sage scrub occurs in scattered patches throughout the southwest region of the CZ west of Sunol. CZ-8 contains 17% (324 acres) of the study area's unprotected acreage of this land cover (Table 4-

8). CZ-8 also contains 11% (223 acres) of the study area's unprotected mixed riparian forest and woodland (Table 4-8), mainly along Alameda Creek, Sinbad Creek, and Arroyo de la Laguna, as well as a number of smaller creeks and swales.

CZ-8's creeks are a conservation priority because they provide potential habitat for foothill yellow-legged frog, among other species. Modeled breeding and movement habitat for foothill yellow-legged frog occurs along most of Sinbad Creek within this CZ, as well as along Gold Creek in the northern part of the CZ. In the future, assuming that downstream barriers are removed, these creeks will also provide habitat for central California coast steelhead. Suitable spawning and rearing habitat for central California coast steelhead is present in CZ-8 along the southern reaches of Sinbad Creek and Arroyo de la Laguna and along the entire section of Stoneybrook Canyon Creek that flows through this CZ (Figure D-12).

Annual grasslands in CZ-8 could provide habitat for Callippe silverspot butterfly, provided larval host and adult food plants are present. Surveying for stands of larval host/food plants is an important first step toward determining where potential habitat could exist. CZ-8 contains 10% (7,192 acres) of unprotected modeled golden eagle nesting habitat in the study area (Table 4-19c), located in mixed evergreen forest/oak woodland distributed across the CZ.

This CZ contains 26% (10,134 acres) of the study area's unprotected critical habitat for Alameda whipsnake (Table 4-20) (U.S. Fish and Wildlife Service 2006), and the area along Alameda Creek in the south of the CZ supports dispersal (U.S. Fish and Wildlife Service 2003). CZ 8 also contains 9% (11,490 acres) of modeled suitable habitat in Recovery Unit 3 for Alameda whipsnake (Table 4-19b). Additionally, this CZ contains 0.7% (834 acres) of the study area's unprotected critical habitat for California red-legged frog (Table 4-20). Protection of documented Alameda whipsnake and California red-legged frog breeding sites and important dispersal corridors for Alameda whipsnake should be a high priority for protection in this CZ.

4.8.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-8 are listed below.

- Protection of known and potential Alameda whipsnake breeding habitat.
- Protection and management of northern coastal scrub/Diablan sage scrub, coast live oak forest and woodland, and annual grassland habitat matrix that could support all life history requirements of Alameda whipsnake.

- Protection and restoration of Alameda Creek to improve Alameda whipsnake dispersal habitat.
- Protection of critical habitat for Alameda whipsnake and Recovery Unit 3.
- Protection of critical habitat for California red-legged frog.
- Protection of and restoration opportunities in mixed riparian forest and woodland along Sinbad Creek, Stoneybrook Canyon, Arroyo de la Laguna, and Gold Creek.
- Conduct surveys in annual grassland habitat for Callippe silverspot butterfly larval host/food plants and map occurrences of plant populations.

4.9 Conservation Zone 9

4.9.1 Background

CZ-9 is located in the eastern region of the Conservation Strategy study area. This 16,135-acre CZ contains Arroyo Seco and Patterson Pass watersheds in their entirety and is bounded to the north by I-580. Table 4-9 shows the acreage of each land cover present in CZ-9, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As shown in Table 4-9, dominant natural land covers found in this conservation zone are annual grassland (11,704 acres), blue oak woodland (1,159 acres), and mixed evergreen forest/oak woodland (862 acres).

4.9.2 Conservation Priorities

CZ-9 contains 7% (40 acres) of the study area's unprotected seasonal wetland (Table 4-9) along Mountain House Creek on the southern edge of I-580. While the protection of seasonal wetland is a conservation priority for this Conservation Strategy, this wetland area's proximity to I-580 renders it low-quality habitat for California tiger salamander and California red-legged frog because I-580 prevents movement of those species north. This CZ also contains 11% (11,704 acres) of the study area's unprotected annual grassland (Table 4-9). Annual grassland covers most of this CZ, except for small urban patches along the western edge of the CZ and areas of higher elevation in its southeast corner. This matrix of annual grassland includes a number of ponds. CZ-9 contains approximately 39 ponds (two of which are currently protected) totaling 28 acres, and making up 8% (28 acres) of the unprotected pond land cover in the entire study area (Table 4-9). Of these 39 ponds, those that support breeding California red-legged frog, California tiger salamander, or tricolored blackbird should be a high conservation priority, as should ponds with the potential to be enhanced to support focal species. Ponds within 1.3 miles of other known red-legged frog or tiger salamander breeding sites are the highest priority.

Protection of annual grassland in this CZ should be focused in areas where it supports focal plant populations, provides non-breeding habitat for focal amphibians (uplands around aquatic breeding sites), and movement and foraging habitat for San Joaquin kit fox. Additionally, CZ-9 contains 3% (6 linear miles) of the study area's unprotected stream habitat (Table 4-9) in the southern reaches of Arroyo Seco, whose headwaters are in the CZ's southeast corner. Preservation and restoration of the upper reaches of Arroyo Seco should be a conservation priority, as this creek has the potential to support breeding and movement of foothill yellow-legged frog, according to species modeling.

The annual grassland in CZ-9 supports a number of this strategy's focal species, including big tarplant, burrowing owl, American badger, and San Joaquin kit fox. CZ-9 contains 19% (4,435 acres) of the study area's unprotected modeled big tarplant habitat (as well as one CNDDDB occurrence for this species), 11% (7,588 acres) of the study area's unprotected modeled burrowing owl habitat, 9% (12,365 acres) of the study area's unprotected modeled American badger habitat, and 9% (14,050 acres) of the study area's unprotected modeled San Joaquin kit fox habitat (Tables 4-19c, 4-19d, 4-19e). Potential big tarplant habitat, a high conservation priority for this CZ, is found in the eastern part of the CZ, at elevations above 1,827 feet. This area likely supports connectivity through the Altamont Hills for San Joaquin kit fox and American badger. Connectivity across I-580 has been compromised by infrastructure development. Further degradation of this westernmost linkage for kit fox should be disallowed, and opportunities to enhance this linkage (i.e., removal of movement barriers) should be explored as conservation/mitigation actions in this CZ. This area has also been identified as an important foraging and nesting area for burrowing owls.

Ponds in CZ-9 provide potential breeding habitat for focal species such as California tiger salamander, California red-legged frog, and tricolored blackbird. CZ-9 contains 10% (68 acres) of the study area's unprotected modeled California tiger salamander habitat (Table 4-19b), 9% (268 acres) of the study area's unprotected modeled California red-legged frog breeding habitat (Table 4-19b), and 8% (28 acres) of the study area's unprotected modeled tricolored blackbird breeding habitat (Table 4-19c). Additionally, CZ-9 contains 11,966 acres of critical habitat for California red-legged frog, or 9% of the study area's unprotected critical habitat for this species (Table 4-20). The protection of breeding habitat for California tiger salamander, California red-legged frog, and tricolored blackbird is a conservation priority in this CZ. Much of the breeding habitat for these species is in clustered ponds in the southwestern corner of the CZ. Additional modeled potential breeding habitat occurs in seasonal wetlands along the I-580 corridor; however, due to the seasonal wetlands' proximity to a major interstate, the quality of this habitat is considered low. Consequently, conservation actions addressing breeding habitat for these species should be focused on pond habitat. The existence of these ponds in a matrix of annual grassland provides a notable conservation opportunity for California tiger salamander, California red-legged frog, and tricolored blackbird, as this type of

habitat composition provides upland habitat and breeding habitat in close association.

4.9.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-9 are listed below.

- Protection of known occurrences of big tarplant and surveys of other potential habitat.
- Protection of critical habitat for California red-legged frog, especially occupied breeding locations.
- Protection of annual grassland in this CZ should be focused in areas where it contains focal plant populations and provides non-breeding habitat for focal amphibians (uplands around aquatic breeding sites).
- Protection and restoration of Arroyo Seco to improve dispersal habitat for foothill yellow-legged frog.
- Protection of ponds and other known California tiger salamander, California red-legged frog, and tricolored blackbird breeding habitat and sufficient upland habitat surrounding those sites.
- Protection and enhancement of linkages across I-580 for San Joaquin kit fox and protection of lands on the south side of I-580.

4.10 Conservation Zone 10

4.10.1 Background

CZ-10 is located along the eastern boundary of the Conservation Strategy study area. This 26,144-acre CZ is made up of portions of the Mountain House, Mountain House Creek, Patterson Run, Carnegie, Mitchell Ravine, Upper Corral Hollow Creek, and Carbona watersheds. The northern boundary of CZ-10 is formed by I-580. Table 4-10 shows the acreage of each land cover present in CZ-10, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As shown in Table 4-10, dominant natural land covers found in CZ-10 include annual grassland (18,571 acres), blue oak woodland (2,685 acres), foothill pine/oak woodland (2,024 acres), and mixed evergreen forest/oak woodland (1,575 acres).

4.10.2 Conservation Priorities

CZ-10 is a very diverse CZ that provides a distinct opportunity to conserve a large number of land cover types in close proximity to one another, as well as the potentially valuable transition zones between them. Overall, the northern portion of the CZ is characterized by grassland, whereas the southern portion of the CZ is characterized by a variety of woodland and scrub types. Corral Hollow, which bisects the CZ just south of its midway point, seems to delineate the general boundary between these diverse land cover types.

Corral Hollow supports 21% (11 acres) of the study area's unprotected rock outcrop (Table 4-10) near the CZ's western boundary in the Carnegie State Vehicular Recreation Area, a Type 3 open space area. Changing protections on this open space—converting it to Type 1 or Type 2 protection—would ensure that management goals were in line with the conservation goals of this strategy. Covering most of CZ-10 north of Corral Hollow is 17% (18,207 acres) of the study area's unprotected annual grassland (Table 4-10). This northern region of the CZ also contains 18% (156 acres) of the study area's unprotected alkali meadow and scalds (Table 4-10) in two main areas north of Patterson Run. A small portion of alkali meadow and scald is protected in a private Type 1 open space area. The addition to this open space area would provide an opportunity to conserve additional acreage of alkali meadow and scald, a relatively rare land cover in the study area and a conservation priority for this Conservation Strategy. Additionally, the northern area of the CZ supports 12% (72 acres) of the study area's unprotected alkali wetland (Table 4-10) just south of I-580 along Mountain House Creek. The protection of alkali wetland is a conservation priority for this strategy, and protections along this creek would contribute to the conservation goals. Two isolated areas of mixed willow riparian scrub occur in the northern portion of the CZ near Patterson Run. The isolated character of these woodland patches increases the likelihood that they support genetic uniqueness; therefore, they should be a conservation priority.

South of Corral Hollow, this CZ supports 14% (377 acres) of the study area's unprotected northern mixed chaparral/chamise chaparral, interspersed with 10% (187 acres) of the study area's unprotected northern coastal scrub/Diablan sage scrub (Table 4-10). The majority of these land cover areas are near the CZ's eastern border in the Carnegie State Vehicular Recreation Area. Since protection varies with open space type, ensuring long-term protection and management of those resources is a conservation priority given their relative scarcity in the study area. The majority of the land cover south of Corral Hollow is a mix of oak and evergreen woodland areas, containing 12% (2,685 acres) of the study area's unprotected blue oak woodland and 10% (2,024 acres) of the study area's foothill pine/oak woodland (Table 4-10). Additionally, the far southern corner of the CZ supports an isolated patch of mixed serpentine chaparral, which, due to its isolation, may support genetic uniqueness and should be considered a conservation priority. This site presents the only opportunity to protect that land cover type in this CZ.

CZ-10 contains 40% (9,375 acres) of the study area's unprotected modeled habitat for big tarplant (Table 4-19e), as well as five of six total CNDDDB occurrences in the study area (California Natural Diversity Database 2009). Survey work to detect unknown populations would be beneficial for this species, as would permanently protecting currently known occurrences. CZ-10 also contains 20% (24,659 acres) of the study area's unprotected critical habitat for California red-legged frog (Table 4-20) and 7% (213 acres) of the study area's unprotected modeled breeding habitat for this species (Table 4-19b). Approximately 58 ponds that are potential breeding habitat for this species are scattered across this CZ, with only one currently protected. Of these 58 ponds, determining which of those support breeding California red-legged frog, California tiger salamander, or tricolored blackbird is a high priority for the strategy, and protecting a substantial portion of those breeding ponds would be imperative to the long-term persistence of these species in the eastern part of the study area. Additionally, enhancing and protecting ponds that do not currently support these species would increase the likelihood of long-term persistence of these species. Ponds within 1.3 miles of other known red-legged frog or tiger salamander breeding sites are the highest priority. The situation of the northern ponds in a matrix of annual grassland provides an important conservation opportunity for California red-legged frog and tricolored blackbird, as this type of habitat composition provides upland habitat and breeding habitat in close association. The annual grassland in the northern half of the CZ supports a number of additional focal species' modeled habitats, including 15% (24,121 acres) of the study area's unprotected modeled habitat for San Joaquin kit fox and 15% (20,405 acres) of the study area's unprotected modeled habitat for American badger (Table 4-19d). This CZ also accounts for 14% (9,654 acres) of the study area's unprotected modeled habitat for burrowing owl (Table 4-19c), along with six breeding CNDDDB occurrences for burrowing owl.

This area likely supports connectivity through the Altamont Hills for San Joaquin kit fox. Connectivity across I-580 has been compromised by infrastructure development. Further degradation of this westernmost linkage for kit fox should be disallowed, and opportunities to enhance that linkage (i.e., removal of movement barriers) should be explored as conservation/mitigation actions in this CZ. This area has also been identified as an important foraging area for golden eagles and nesting area for burrowing owls. Unfortunately, due to the presence of wind power facilities, there are limited mitigation opportunities for these species in this CZ.

CZ-10 supports 28% (11,046 acres) of the study area's unprotected critical habitat for Alameda whipsnake (Table 4-20) and 9% (10,971 acres) of the southern portion of the CZ is in Recovery Unit 5 for this species (Table 4-20). This species is a significant conservation priority for CZ-10, since this area represents the easternmost extent of this species' occurrence in the study area. Additionally, CZ-10 contains 9% (405 acres) of the modeled unprotected breeding and dispersal habitat for foothill yellow-legged frog (Table 4-19b); in Patterson Run in the northern part of the CZ and along Corral Hollow Creek in

the southern part of the CZ. Corral Hollow Creek also contains a CNDDDB occurrence for this species (California Natural Diversity Database 2009). A determination of the viability of habitat in that area for foothill yellow-legged frog should be completed and protection of known breeding locations considered.

The alkali meadow and scalds and alkali wetland land cover types in the northern part of this CZ provide 7% (249 acres) of the study area's unprotected modeled habitat for San Joaquin spearscale (Table 4-19e). No CNDDDB occurrences for this species occur here; however, surveys should be conducted to determine presence or absence of this plant in these areas. All newly discovered occurrences should be protected.

4.10.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-10 are listed below.

- Protection of all big tarplant occurrences and surveys for new occurrences.
- Protection of critical habitat for Alameda whipsnake.
- Protection of critical habitat for California red-legged frog and all areas that support this species in various life stages, including ponds and annual grassland near ponds. This will also provide habitat protection for California tiger salamander and tricolored blackbird habitat.
- Protection and restoration of Patterson Run and Corral Hollow Creek to protect and manage foothill yellow-legged frog habitat.
- Protection of alkali meadow and scalds, which will also provide protection of San Joaquin spearscale habitat, along with surveys for occurrences of this species.
- Protection of isolated mixed willow riparian scrub and mixed serpentine chaparral communities.
- Protection of rock outcrop, mixed chaparral/chamise chaparral, and northern coastal scrub/Diablan sage scrub communities and any unique transition zones between these and other natural communities.
- Upgrade Open Space status on Carnegie State Vehicular Recreation Area from Type 3 to Type 1 or 2.

4.11 Conservation Zone 11

4.11.1 Background

CZ-11 is located in the west-central portion of the Conservation Strategy study area. This 7,976-acre CZ contains portions of the Vallecitos Creek and Vern watersheds and is bounded on the west by I-680 and on the southeast by SR 84. Table 4-11 shows the acreage of each land cover present in CZ-11, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As shown in Table 4-11, dominant natural land covers in this CZ are annual grassland (4,680 acres), blue oak woodland (1,392 acres), mixed riparian forest and woodland (295 acres), and mixed evergreen forest/oak woodland (255 acres).

4.11.2 Conservation Priorities

CZ-11 contains 14% (295 acres) of the study area's unprotected mixed riparian forest and woodland (Table 4-11) scattered throughout the CZ, with larger patches in the eastern part of the CZ just outside the city of Pleasanton near the CZ's northeast border. The protection of this land cover type should be a conservation priority in this CZ. This region of the CZ also supports a patch of mixed willow riparian scrub that constitutes 7% (47 acres) of the unprotected acreage of that land cover in the study area (Table 4-11). CZ-11 also contains 6% (1,371 acres) of the study area's unprotected blue oak woodland (Table 4-11) scattered throughout the CZ, but concentrated mostly in the northern portion of the CZ near the city of Pleasanton. Additionally, CZ-11 supports 4% (13 acres) of the study area's unprotected pond acreage (Table 4-11), comprising 29 ponds, two of which are currently protected in open space.

CZ-11 contains 5% (305 acres) of the unprotected modeled habitat for Congdon's tarplant (Table 4-19e), mainly in the eastern part of the CZ. No CNDDDB occurrences for this species occur here; however, surveys should be conducted to determine presence or absence of this plant in these areas. Additionally, CZ-11 contains a portion (7,371 acres) of Recovery Unit 5 for Alameda Whipsnake (Table 4-19b), along with a small area of dispersal habitat for this species along Vallecitos Creek near SR 84 at the CZ's southern boundary. According to Conservation Strategy habitat modeling, the large majority of the annual grassland in CZ-11 is potentially suitable for Callippe silverspot butterfly. It is unknown whether necessary larval host and adult food plants are present in this area. Surveying for stands of larval host/food plants is an important first step toward determining where potential habitat could exist.

This CZ's ponds support breeding habitat for California red-legged frog, California tiger salamander, and tricolored blackbird. CZ-11 provides 114 acres

of breeding habitat for California red-legged frog (4% of the unprotected modeled habitat within the study area), 20 acres of California tiger salamander habitat (3% of the unprotected modeled habitat within the study area), and 12 acres of tricolored blackbird habitat (3% of the unprotected modeled habitat within the study area) (Tables 4-19a, 4-19c). Of the CZ's ponds, those that support breeding California red-legged frog, California tiger salamander, or tricolored blackbird should be a high conservation priority, as should ponds with the potential to be enhanced to support these species. Ponds within 1.3 miles of other known red-legged frog or tiger salamander breeding sites are the highest priority. The existence of many of these ponds in a matrix of annual grassland provides an important conservation opportunity for California red-legged frog, California tiger salamander, and tricolored blackbird, as this type of habitat composition provides upland habitat and breeding habitat in close association.

4.11.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-11 are listed below.

- Protection of mixed riparian forest and woodland land cover type.
- Protection of ponds and sufficient upland habitat to support native amphibians.
- Complete surveys in Congdon's tarplant habitat and protect any occurrences found.
- Complete surveys in annual grassland habitat for Callippe silverspot butterfly larval host/food plants and map occurrences of plant populations.
- Protection of annual grassland in this CZ should be focused in areas where it supports focal plant populations and provides non-breeding habitat for focal amphibians (uplands around aquatic breeding sites).
- Protection and restoration along small segment of Vallecitos Creek within this CZ that provides potential dispersal habitat for Alameda whipsnake.

4.12 Conservation Zone 12

4.12.1 Background

CZ-12, located in the central portion of the Conservation Strategy study area, contains Lake Del Valle. This 16,438-acre CZ includes the Dry Creek and Lake Del Valle watersheds in their entirety, as well as the southeastern section of the Vern watershed. The northwest boundary of CZ-12 is formed by SR 84. Table 4-12 shows the acreage of each land cover present in CZ-12, based on Figure 2-8,

as well as the proportion of each that is currently under some form of protection. As shown in Figure 4-12, dominant natural land cover types in this CZ are annual grassland (6,728 acres), blue oak woodland (3,176 acres), mixed evergreen forest/oak woodland (2,530 acres), and foothill pine/oak woodland (995 acres).

4.12.2 Conservation Priorities

CZ-12 contains 90% (13 acres) of the study area's unprotected acreage of Coulter pine woodland (Table 4-12), located west of Lake Del Valle in Del Valle Regional Park, a Type 3 open space. This small area of Coulter pine woodland constitutes the vast majority of this land cover's acreage in the study area. For this reason, this area is a high conservation priority for CZ-12. CZ-12 also contains 36% (22 acres) of the study area's unprotected perennial freshwater marsh (Table 4-12) near the southern tip of Lake Del Valle and in Del Valle Regional Park. As a relatively rare land cover in the study area, this patch of perennial freshwater marsh is another conservation priority for this CZ. CZ-12 contains 19% (160 acres) of the study area's unprotected acreage of coast live oak forest and woodland (Table 4-12) along Dry Creek in the northern part of the CZ. Given its relative rarity, this land cover is a conservation priority for CZ-12. The area near Dry Creek also supports a portion (3,152 acres) of the CZ's blue oak woodland (Table 4-12), most of which is found in the southern part of the CZ. Along with 14% of the study area's unprotected blue oak woodland, CZ-12 supports 14% (295 acres) of the study area's unprotected mixed riparian forest and woodland (Table 4-12), primarily along Arroyo Valle north and south of Lake Del Valle but also in the western portion of the CZ near the border with CZ-16. CZ-12 contains 11% (215 acres) of the study area's unprotected acreage of northern coastal scrub/Diablan sage scrub (Table 4-12), primarily in the southern region of the CZ.

CZ-12 supports 15% (54 acres) of the modeled unprotected breeding habitat for tricolored blackbird (Table 4-19c) in 57 ponds scattered throughout the CZ, of which two are protected in open space. The southeastern portion of the CZ is particularly well suited for potential tricolored blackbird breeding habitat as it contains a number of ponds clustered near one another. These ponds also provide suitable potential habitat for California tiger salamander (56 acres) and California red-legged frog (253 acres). This CZ contains 9% of the study area's unprotected modeled habitat for both of these species (Table 4-19b) as well as 7% (8,427 acres) of the study area's unprotected critical habitat for California red-legged frog (Table 4-20). Of the 57 ponds, those that support breeding habitat for California red-legged frog, California tiger salamander, or tricolored blackbird should be a high conservation priority, as should ponds with the potential to be enhanced to support these species. Ponds within 1.3 miles of other known red-legged frog or tiger salamander breeding sites are the highest priority. CZ-12 also supports 10% (7,071 acres) of the study area's unprotected modeled nesting habitat for golden eagle (Table 4-19c), located mostly

southwest of Lake Del Valle. This area is in close proximity to modeled suitable foraging habitat, which may increase the value of this habitat to this species.

The areas to the northeast and southwest of Lake Del Valle support potential Callippe Silverspot butterfly habitat. It is unknown whether necessary larval host/food plants are present in this area. Surveying for stands of larval host/food plants is an important first step toward determining where potential habitat could exist. The area around Lake Del Valle also supports large continuous areas of modeled suitable habitat for San Joaquin kit fox. CZ-12 contains 8% (13,202 acres) of the study area's unprotected modeled suitable acreage for this species (Table 4-19d). Finally, CZ-12 contains 5% (2,191 acres) of the study area's unprotected critical habitat for Alameda whipsnake (Table 4-20), just east of the southern half of Lake Del Valle. Protection of critical habitat for this species is a conservation priority for this conservation zone.

4.12.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-12 are listed below.

- Protection of Coulter pine woodland land cover type.
- Protection of perennial freshwater marsh and coast live oak forest and woodland land cover types.
- Protection and enhancement of ponds to protect breeding habitat for tricolored blackbird, California tiger salamander, and California red-legged frog, with primary focus on currently occupied habitat and secondary focus on habitat that can be enhanced to encourage occupation.
- Protection of critical habitat for Alameda whipsnake.
- Complete surveys in annual grassland habitat for Callippe silverspot butterfly larval host/food plants and map occurrences of plant populations.

4.13 Conservation Zone 13

4.13.1 Background

CZ-13 extends from near the center of the Conservation Strategy study area to its extreme southeast corner in the northern Diablo Range. This 21,159-acre CZ is comprised of the Lower Arroyo Mocho and Tunnel Creek watersheds, as well as the northern half of the Upper Arroyo Mocho watershed. Table 4-13 shows the acreage of each land cover present in CZ-13, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As

shown in Table 4-13, dominant natural land cover types in this conservation zone are foothill pine/oak woodland (6,339 acres), blue oak woodland (4,982 acres), annual grassland (4,358 acres), mixed evergreen forest/oak woodland (2,139 acres), and northern mixed chaparral/chamise chaparral (1,380 acres).

4.13.2 Conservation Priorities

CZ-13 contains 97% of the study area's unprotected Sargent cypress woodland in a 636-acre contiguous patch on Cedar Mountain in the middle section of the CZ (Table 4-13). Since this land cover is rare in the study area and is almost completely contained within this CZ, protection of this land cover area is the highest conservation priority for CZ-13. CZ-13 contains 51% (1,380 acres) of the study area's unprotected northern mixed chaparral/chamise chaparral (Table 4-13) in a rugged area of the Northern Diablo Range, in the extreme southeast corner of the study area. Due to this land cover's relative rarity in the study area, it is also a conservation priority for this CZ. CZ-13 contains 31% (6,339 acres) of the study area's unprotected foothill pine/oak woodland land cover and 22% (4,982 acres) of the study area's unprotected blue oak woodland land cover (Table 4-13). These two land covers are interspersed throughout the CZ, with foothill pine/oak woodland dominant in the south and blue oak woodland dominant in the north. Each of these land covers is a conservation priority for CZ-13, with foothill pine/oak woodland a higher priority due to its more limited distribution in other CZs. Additionally, CZ-13 contains 21% of the study area's unprotected mixed serpentine chaparral (Table 4-13), located in the southern portion of the CZ, west of Arroyo Mocho. These 793 acres of mixed serpentine chaparral are part of a larger complex of this land cover that extends into CZ-18. The mixed serpentine chaparral community located in these two CZs makes up 98% of the study area's total for this land cover type. Accordingly, the protection of this land cover is a conservation priority for CZ-13, to ensure protection of this rare land cover type in the study area. Finally, CZ-13 contains 19% (127 acres) of the study area's unprotected mixed willow riparian scrub (Table 4-13), located exclusively in the northern region of the CZ along Arroyo Mocho. The protection of this land cover type is a priority due to this stream's potential habitat value for foothill yellow-legged frog and California coast steelhead.

CZ-13 contains 23% (8,913 acres) of the study area's unprotected critical habitat for Alameda whipsnake (Table 4-20) in the middle third of the CZ along Arroyo Mocho, and includes one CNDDDB occurrence (of a total of three occurrences in the study area) for this species. Due to the high percentage of critical habitat found in this CZ, its protection is a high conservation priority. CZ-13 contains 20% (14,104 acres) of the study area's unprotected modeled nesting habitat for golden eagle (Table 4-19c). The largest contiguous patches of nesting habitat for this species are found in the southern part of the CZ near Arroyo Mocho. According to species modeling, the areas near potential nesting habitat also contain suitable foraging habitat, indicating that this might be high-value habitat

for this species; therefore, protection of golden eagle habitat is a conservation priority for this CZ. Additionally, CZ-13 contains 16% (726 acres) of the study area's unprotected modeled habitat for foothill yellow-legged frog (Table 4-19b) and one of the study area's five CNDDDB occurrences for this species. Potential breeding and movement habitat for this species is found along the entire stretch of Arroyo Mocho that occurs within this CZ and should be a conservation priority. Protection of Arroyo Mocho would also provide potential habitat conservation for central California coast steelhead. The northern reach of Arroyo Mocho in CZ-13 has been identified as potential migratory habitat for this species, while the southern reach provides potentially suitable spawning and rearing habitat if downstream barriers are removed or modified (Gunther et al. 2000).

CZ-13 also supports 12% (351 acres) of the study area's unprotected modeled breeding habitat for California red-legged frog (Table 4-19b) and 9% (11,670 acres) of the study area's unprotected critical habitat for this species (Table 4-20). Breeding habitat is found mainly in ponds and some scattered seasonal wetlands along the southern reach of Arroyo Mocho. The CZ contains 39 acres in 64 ponds, or 11% of the study area's unprotected pond habitat (Table 4-13). Of these 64 ponds, those that support breeding California red-legged frog should be a high conservation priority, as should ponds with the potential to be enhanced to support this species. Ponds within 1.3 miles of other known red-legged frog breeding sites are the highest priority. Finally, CZ-13 supports 11% (17,709 acres) of the study area's unprotected modeled San Joaquin kit fox habitat (Table 4-19d). This species' potentially suitable habitat occurs across most of this CZ, with the exception of chaparral and cypress communities in the south. Additionally, the Arroyo Mocho corridor could provide suitable movement habitat for this species.

4.13.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-13 are listed below.

- Protection of Sargent cypress woodland land cover type.
- Protection of critical habitat for Alameda whipsnake.
- Protection of northern mixed chaparral/chamise chaparral and mixed serpentine chaparral land cover types.
- Protection of and restoration opportunities along Arroyo Mocho, including mixed willow riparian scrub, to protect potential foothill yellow-legged frog and central California coast steelhead habitat.
- Protection of critical habitat for California red-legged frog.
- Protection of golden eagle nesting habitat.

- Protection of foothill pine/oak woodland and blue oak woodland land cover types.

4.14 Conservation Zone 14

4.14.1 Background

CZ-14 is a small CZ located midway down the western boundary of the Conservation Strategy study area in the East Bay Hills. This 4,326-acre CZ contains portions of the Sheridan Creek, Sinbad Creek, and Stonybrook Canyon watersheds. The CZ's northern border is formed by SR 84 and its southeastern border is formed by I-680. Table 4-14 shows the acreage of each land cover present in CZ-14, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As shown in Table 4-14, dominant natural land cover types in this conservation zone are annual grassland (1,931 acres), mixed evergreen forest/oak woodland (1,198 acres), and mixed riparian forest and woodland (164 acres).

4.14.2 Conservation Priorities

CZ-14 contains 14% of the study area's unprotected acreage of perennial freshwater marsh (Table 4-14) near Alameda Creek in the southeast part of the CZ. This land cover type provides habitat for a number of focal species; however, this 9-acre patch of marsh is very near I-680 and Sunol Valley Golf Course, exposing it to a number of human disturbance mechanisms and likely reducing the quality of the habitat it provides. The segment of Alameda Creek that forms the northern boundary of this CZ supports a mix of sycamore alluvial woodland and mixed riparian forest and woodland. Fourteen percent (42 acres) of the study area's unprotected sycamore alluvial and 8% (164 acres) of the study area's unprotected mixed riparian forest and woodland occur in the southern part of the CZ (Table 4-14) along two small spring-fed creeks. The area along Alameda Creek in this CZ also supports 43 acres (5% of the study area's unprotected acreage) of coast live oak forest and woodland (Table 4-14). The fact that this stretch of Alameda Creek supports such a diverse mix of woodland suggests that its preservation and restoration should be a conservation priority for this CZ.

Preservation and restoration along Alameda Creek would also result in protection of potentially suitable habitat for central coast steelhead and Alameda whipsnake. In the future, assuming that downstream barriers are removed, Alameda Creek will provide migratory habitat for central California coast steelhead along its entire reach in this CZ, as well as a section of suitable spawning and rearing habitat at the confluence of Alameda Creek and Arroyo de la Laguna. Suitable dispersal habitat for Alameda whipsnake is found along the

entire reach of Alameda Creek in this CZ; in addition, this CZ contains 2,527 acres of Recovery Unit 7 for this species (U.S. Fish and Wildlife Service 2002). This is one of the only places where Alameda whipsnake Recovery Unit 7 is connected (free of development) to the central and northern portion of the species range CZ-14 contains 4% (15 acres) of the study area's unprotected modeled breeding habitat for tricolored blackbird (Table 4-19c) and 3% of the study area's unprotected modeled breeding habitat for both California red-legged frog (96 acres) and California tiger salamander (17 acres) (Table 4-19b). Potential breeding habitat for all three species occurs in the CZ's 29 ponds and in the 9-acre patch of perennial freshwater marsh near I-680; however, because the marsh's proximity to human development compromises its habitat value to these species, habitat conservation should be focused on the CZ's ponds, scattered throughout the CZ but concentrated in the eastern part. Of these 29 ponds, those that support breeding California red-legged frog, California tiger salamander, or tricolored blackbird should be a high conservation priority, as should ponds with the potential to be enhanced to support these species. Ponds within 1.3 miles of other known red-legged frog or tiger salamander breeding sites are the highest priority.

In addition, modeling shows that areas in the western portion of the CZ support potential Callippe silverspot butterfly habitat. It is unknown whether necessary larval host/food plants are present in this area to support Callippe silverspot butterfly. Surveying for stands of larval host/food plants is an important first step toward determining where potential habitat could exist.

4.14.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-14 are listed below.

- Protection and restoration along Alameda Creek to conserve sycamore alluvial woodland, mixed riparian forest and woodland, and coast live oak forest and woodland and to improve habitat value for central coast steelhead and Alameda whipsnake.
- Protect suitable dispersal habitat for Alameda whipsnake along the entire reach of Alameda Creek in this CZ. This is one of the only places where Alameda whipsnake Recovery Unit 7 is connected (free of development) to the central and northern portion of the species range
- Protection and enhancement opportunities for ponds to increase potential breeding habitat for California red-legged frog, California tiger salamander, and tricolored blackbird.
- Complete surveys in annual grassland habitat for Callippe silverspot butterfly larval host/food plants and map occurrences of plant populations.

4.15 Conservation Zone 15

4.15.1 Background

CZ-15 is in the East Bay Hills in the southwestern corner of the Conservation Strategy study area. This 14,594-acre CZ is made up of the Leyden Creek watershed along with portions of the Sheridan Creek and Vallecitos Creek watersheds. I-680 and SR 84 form the northwestern boundary of this CZ. Table 4-15 shows the acreage of each land cover present in CZ-15, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As shown in Table 4-15, dominant natural land cover types in this conservation zone are annual grassland (8,527 acres), mixed evergreen forest/oak woodland (2,750 acres), and blue oak woodland (1,078 acres).

4.15.2 Conservation Priorities

CZ-15 contains 47% (141 acres) of the study area's unprotected sycamore alluvial woodland (Table 4-15) along the stretch of Alameda Creek in this CZ, and a large patch just south of the confluence of Alameda Creek with Pirate Creek. Because such a large percentage of the study area's unprotected acreage of this land cover type occurs in CZ-15, its protection is a conservation priority for this CZ. CZ-15 contains 26% (22 acres) of the study area's unprotected serpentine bunchgrass grassland (Table 4-15) in the far southern part of the CZ near Sunol Regional Wilderness, a Type 2 open space preserve that occupies much of the southern portion of CZ-15. The CZ contains a total of 40 acres of serpentine bunchgrass grassland, half of which is protected within the Sunol Regional Wilderness, with the rest located just south of this preserve's southern boundary. Given this land cover's relative rarity within the study area, its conservation within this CZ is a priority. CZ-15 contains 9% (5 acres) of the study area's unprotected rock outcrop (Table 4-15) in small patches just west and southwest of San Antonio Reservoir. In addition, CZ-15 contains 6% (120 acres) of the study area's unprotected acreage of northern coastal scrub/Diablan sage scrub (Table 4-15) just west of Alameda Creek on San Francisco Public Utilities Commission lands. While the majority of this CZ's northern coastal scrub/Diablan sage scrub land cover is protected in the Sunol Regional Wilderness, the protection of the remainder of this land cover remains a conservation priority due to its relative rarity within the study area. Additionally, CZ-15 contains 6% (5,790 acres) of the study area's unprotected acreage of California annual grassland (Table 4-15). While the majority of the study area's unprotected acreage of this land cover is in other CZs, its protection in this CZ remains a priority because it is one of the few sources of potential habitat in this region of the study area for Callippe silverspot butterfly, burrowing owl, and American badger. The area of grassland north of San Antonio Reservoir is

particularly important because it represents a relatively contiguous patch of potential habitat for these species.

CZ-15 contains 6% (4,090 acres) of the study area's unprotected modeled habitat for burrowing owl (Table 4-19c). Much of this species' modeled habitat in this CZ occurs in small patches surrounded by unsuitable habitat. The area north of San Antonio Reservoir and south of SR 84 provides a patch of contiguous potential habitat for this species, as well as for American badger and Callippe silverspot butterfly. CZ-15 contains 4% (5,728 acres) of the study area's unprotected modeled habitat for American badger (Table 4-19d). It is unknown whether necessary larval host/food plants are present in this area to support Callippe silverspot butterfly. Surveying for stands of larval host/food plants is an important first step toward determining where potential habitat could exist.

CZ-15 contains 5% (213 acres) of the unprotected modeled breeding and movement habitat for foothill yellow-legged frog (Table 4-19b) along four tributaries of Alameda Creek in the southern part of the CZ—Leyden Creek, Pirate Creek, Sheridan Creek, and Indian Joe Creek. One CNDDDB record for this species is located in the southern region of the CZ along Alameda Creek, north of Calaveras Reservoir. CZ-15 also contains 4% (1,388 acres) of the study area's unprotected critical habitat for Alameda whipsnake (Table 4-20). This CZ contains 6,457 total acres of critical habitat for this species, but most (78%) is protected in Sunol Regional Wilderness and Mission Peak Regional Preserve. CZ-15 also contains 7% of the unprotected habitat (8,806 acres) in portions of Recovery Units 3, 5, and 7 for Alameda whipsnake (Table 4-19b). Protection of this species' critical habitat and recovery unit habitat is a conservation priority for this CZ, as is protection of dispersal habitat along Alameda Creek. Protection of habitat along Alameda Creek will also provide enhancement of potential migratory habitat for central California coast steelhead along most of the reach of Alameda Creek in the CZ, as well as potential spawning and rearing habitat along Alameda Creek in the southern part of CZ-15 (Gunther et al. 2000). Downstream barriers would need to be removed or modified before Alameda Creek could provide these types of habitat for steelhead.

Finally, CZ-15 provides 4% (111 acres) of the study area's unprotected modeled breeding habitat for California red-legged frog (Table 4-19b) and 1% (1,535 acres) of its unprotected critical habitat (Table 4-20). This potential breeding habitat is scattered throughout the CZ in ponds and localized areas of freshwater marsh and seasonal wetland in the northern portion of the CZ. Much of the California red-legged frog habitat in CZ-15 is currently protected in Sunol Regional Wilderness and other open space areas. Therefore, protection for this species should be focused on the 10 acres of CZ's ponds, 37 of which are within the CZ and seven (2 acres) of which are currently protected (Table 4-15). Of these ponds, those that support breeding California red-legged frog should be a high conservation priority, as should ponds with the potential to be enhanced to support this species. Ponds within 1.3 miles of other known red-legged frog breeding sites are the highest priority.

4.15.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-15 are listed below.

- Protection and restoration along Alameda Creek to conserve sycamore alluvial woodland and improve habitat value for central California coast steelhead and Alameda whipsnake.
- Protection of critical habitat and recovery unit habitat for Alameda whipsnake.
- Protection of potential breeding and movement habitat for foothill yellow-legged frog.
- Protection of serpentine bunchgrass grassland and northern coastal scrub/Diablan sage scrub land cover.
- Protection and enhancement opportunities for ponds to increase potential breeding habitat for California red-legged frog.
- Complete surveys in annual grassland habitat for callippe silverspot butterfly larval host /food plants and map occurrences of plant populations.
- Protection of annual grassland in area between SR 84 and San Antonio Reservoir to support potential habitat for callippe silverspot butterfly, western burrowing owl, and American badger.

4.16 Conservation Zone 16

4.16.1 Background

CZ-16, in the southeast section of the Conservation Strategy study area, contains San Antonio Reservoir and Wauhab Ridge. This 24,468-acre CZ is composed of the La Costa Creek, Indian Creek, and San Antonio Reservoir watersheds in their entirety. Table 4-16 shows the acreage of each land cover type present in CZ-16, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As shown in Table 4-16, dominant natural land covers in this conservation zone are annual grassland (10,725 acres), mixed evergreen forest/oak woodland (4,849 acres), blue oak woodland (4,695 acres), and foothill pine/oak woodland (1,631 acres).

4.16.2 Conservation Priorities

CZ-16 contains 38% (1,926 acres) of the study area's unprotected acreage of northern coastal scrub/Diablan sage scrub (Table 4-16), largely along San

Antonio Creek in the eastern part of the CZ. This CZ contains a higher proportion of northern coastal scrub/Diablan sage scrub than any other CZ. Even though a large portion of this land cover is preserved within the Ohlone Preserve Conservation Bank, the conservation of the remainder will support habitat connectivity within this CZ and should be a conservation priority. CZ-16 contains 28% (235 acres) of the study area's unprotected acreage of coast live oak and woodland (Table 4-16), mainly near San Antonio Reservoir and along Williams Gulch, with some preserved in Ohlone Regional Wilderness and Sunol Regional Wilderness. Because this land cover is relatively rare in the study area and CZ-16 contains almost 30% of the study area total, its preservation is a conservation priority for this CZ. CZ-16 contains 17% (11 acres) of the study area's unprotected perennial freshwater marsh (Table 4-16) near the northeastern shore of San Antonio Reservoir. Marsh land cover such as this provides potential habitat for California tiger salamander, California red-legged frog, and tricolored blackbird and should be a conservation priority for this CZ. CZ-16 contains 14% (41 acres) of the study area's unprotected sycamore alluvial woodland and 12% (3,028 acres) of the study area's unprotected mixed evergreen forest/oak woodland (Table 4-16), both of which occur along the CZ's creeks, including Indian Creek and La Costa Creek, with mixed evergreen forest extending outside the riparian zone. These land covers are a conservation priority because they provide a mix of habitats that support the CZ's focal species and, along with mixed riparian forest and woodland, support a diverse and healthy riparian zone along the CZ's creeks.

Preservation of habitat along the CZ's creeks will support conservation of a number of the strategy's focal species, including foothill yellow-legged frog. CZ-16 contains 15% (687 acres) of the study area's unprotected modeled foothill yellow-legged frog breeding and movement habitat (Table 4-19b) along all the streams in CZ-16. Potential habitat for central California coast steelhead can also be found in this CZ. If barriers to movement are removed or enhanced, the lower reaches of Indian Creek, La Costa Creek, and San Antonio Creek are expected to provide suitable spawning and rearing habitat (Gunther et al. 2000). In addition, the CZ's streams provide potential habitat for nesting golden eagles, according to species modeling. CZ-16 also contains 9% (6,303 acres) of the study area's unprotected modeled golden eagle nesting habitat (Table 4-19c), and the CNDDDB lists two nesting records north and east of San Antonio Reservoir (California Natural Diversity Database 2009). According to occurrence records, one nest was active from 1991 to 1993, with two offspring fledged each of those years; the other nest was active from 1992 to 1993, with one offspring fledged in 1992 and two in 1993.

CZ-16 contains 10% (298 acres) of the study area's unprotected modeled breeding habitat for California red-legged frog (Table 4-19b) and 12% (14,958 acres) of this species' unprotected critical habitat (Table 4-20). Critical habitat occurs throughout most of the CZ, while modeled breeding habitat occurs in the CZ's 112 ponds, 12 (5 acres) of which are protected in open space (Table 4-16). The CZ's ponds, along with seasonal wetlands near San Antonio Reservoir, also

provide 30 acres of suitable modeled habitat for California tiger salamander (5% of the study area's unprotected habitat) (Table 4-19b) and 31 acres of suitable modeled habitat for tricolored blackbird (8% of the study area's unprotected habitat) (Table 4-19c). Of these ponds, those that support breeding California red-legged frog, California tiger salamander, or tricolored blackbird should be a high conservation priority, as should ponds with the potential to be enhanced to support these species. Ponds within 1.3 miles of other known red-legged frog or tiger salamander breeding sites are the highest priority.

CZ-16 contains 6% (394 acres) of the study area's unprotected modeled Congdon's tarplant habitat (Table 4-19e) in the northern area of the CZ near San Antonio Reservoir and in the northeastern corner of the CZ. These rather isolated islands of potential Congdon's tarplant habitat should be surveyed for occurrences of this species. Any occurrences found could possess a high degree of genetic uniqueness due to the area's isolation from other Congdon's tarplant habitat and, for this reason, should be a high conservation priority for this CZ. Alameda whipsnake dispersal habitat occurs along the shores of San Antonio Reservoir, according to this species' draft recovery plan (U.S. Fish and Wildlife Service 2002), and the CNDDDB lists occurrence just south of San Antonio Reservoir (California Natural Diversity Database 2009). Additionally, 13% (16,132 acres) of the unprotected acreage in Recovery Unit 5 for this species is in CZ-16 (Table 4-19b). Potential callippe silverspot butterfly habitat occurs in patches scattered throughout this CZ, with the most contiguous patches just south of San Antonio Reservoir and along La Costa Creek. It is unknown whether necessary larval host/food plants are present in this area to support Callippe silverspot butterfly. Surveying for stands of larval host/food plants is an important first step toward determining where potential habitat could exist.

4.16.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-16 are listed below.

- Protection of northern coastal scrub/Diablan sage scrub and coast live oak and woodland land covers.
- Protection of sycamore alluvial woodland, mixed evergreen forest/oak woodland, and mixed riparian forest and woodland land covers along the CZ's streams to support riparian and riverine species, including foothill yellow-legged frog and coast steelhead.
- Protection of critical habitat for California red-legged frog.
- Protection of perennial freshwater marsh and seasonal wetland, as well as protection and enhancement opportunities for ponds to increase potential breeding habitat for California red-legged frog, California tiger salamander, and tricolored blackbird.

- Protection of dispersal habitat for Alameda whipsnake.
- Complete surveys for Congdon’s tarplant and map occurrences of plant populations.
- Complete surveys in annual grassland habitat for Callippe silverspot butterfly larval host/food plants and map occurrences of plant populations.

4.17 Conservation Zone 17

4.17.1 Background

CZ-17 is in the southwestern corner of the Conservation Strategy study area; Valpe Ridge forms its northeastern boundary. This 12,118-acre CZ is made up of portions of the Calaveras Reservoir, Whitlock Creek, and Baby Peak watersheds. Table 4-17 shows the acreage of each land cover present in CZ-17, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As shown in Table 4-17, dominant natural land covers in this CZ are annual grassland (4,428 acres), mixed evergreen forest/oak woodland (4,161 acres), and blue oak woodland (1,380 acres).

4.17.2 Conservation Priorities

CZ-17 contains 40% (33 acres) of the study area’s unprotected serpentine bunchgrass grassland (Table 4-17) very near Calaveras Reservoir on the southern boundary of the CZ. Given this land cover’s relative rarity in the study area and the large proportion found in CZ-17, its preservation is a high conservation priority for this CZ. CZ-17 contains 13% (3,318 acres) of the study area’s unprotected mixed evergreen forest/oak woodland (Table 4-17) scattered across the southern region of the CZ, with large contiguous patches that should be conservation priorities. CZ-17 contains 11% (208 acres) of the study area’s unprotected northern coastal scrub/Diablan sage scrub along Alameda Creek in the south of the CZ and near Calaveras Reservoir in the west. CZ-17 contains 8% (68 acres) of the study area’s unprotected coast live oak forest and woodland land cover near Alameda Creek and Calaveras Reservoir in the southern area of the CZ and 6% (18 acres) of the study area’s unprotected sycamore alluvial woodland, mostly along Alameda Creek (Table 4-17). While much of the CZ’s sycamore alluvial woodland is currently protected in Sunol Regional Wilderness, protection of the adjoining unprotected areas would enhance continuity of this land cover and should be a conservation priority.

CZ-17 contains 7% (5,232 acres) of the study area’s unprotected modeled nesting habitat for golden eagle (Table 4-19c), most of which occurs on either side of Alameda Creek in the southern region of the CZ. The CNDDDB lists a nest occurrence north of Alameda Creek in Ohlone Regional Wilderness. An active

nest was identified here in 1993, with two adults and one juvenile (California Natural Diversity Database 2009). The existence of potential nesting habitat and a historic nest suggests that this should be a conservation priority for CZ-17. CZ-17 contains 6% (295 acres) of the study area's unprotected modeled foothill yellow-legged frog breeding and movement habitat (Table 4-19b) along the CZ's reach of Alameda Creek and Whitlock Creek, with two CNDDDB occurrences along Alameda Creek (California Natural Diversity Database 2009). Conservation of riparian habitat along Alameda Creek should be a priority not only because it will provide protection for potential foothill yellow-legged frog habitat but also because it will provide protection for potential habitat central California coast steelhead and Alameda whipsnake dispersal habitat. If barriers to movement are removed or enhanced, the reach of Alameda Creek in CZ-17 could provide suitable spawning and rearing habitat (Gunther et al. 2000). Thirteen percent (5,286 acres) of the study area's unprotected critical habitat for Alameda whipsnake occurs in CZ-17 (Table 4-20), along with 6% (8,055 acres) of Recovery Unit 5 for this species (Table 4-19b). Protection of critical habitat should be a conservation priority. Additionally, potential Callippe silverspot butterfly habitat occurs in this CZ, with the largest contiguous patches found just north and east of Calaveras Reservoir. It is unknown whether necessary larval host/food plants are present in this area to support Callippe silverspot butterfly. Surveying for stands of larval host/food plants is an important first step toward determining where potential habitat could exist. Finally, CZ-17 contains 4% (4,878 acres) of the study area's unprotected critical habitat for California red-legged frog (Table 4-20). Critical habitat for this species can be found across most of the CZ with a large portion protected in Ohlone and Sunol Regional Wildernesses. The protection of the remaining critical habitat should be a conservation priority for CZ-17.

4.17.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-17 are listed below.

- Protection of serpentine bunchgrass grassland land cover.
- Protection of critical habitat and recovery unit habitat for Alameda whipsnake.
- Protection of riparian habitat along Alameda Creek to support foothill yellow-legged frog, Alameda whipsnake, and central California coast steelhead.
- Protection of golden eagle nesting habitat, with surveys to determine if previously identified nests are still active.
- Protection of critical habitat for California red-legged frog.

- Protection of contiguous patches of mixed evergreen forest/oak woodland and sycamore alluvial woodland land covers.
- Complete surveys in annual grassland habitat for Callippe silverspot butterfly larval host/food plants and map occurrences of plant populations.

4.18 Conservation Zone 18

4.18.1 Background

CZ-18 is in the Northern Diablo Range near the southeast corner of the Conservation Strategy study area. This 23,369-acre CZ is in rugged terrain and contains Cedar Mountain and Man Ridge, with Cedar Ridge forming the CZ's eastern boundary. Portions of Valpe Creek, Trout Creek, Lang Canyon, and Coffee Mill Creek watersheds make up this CZ. Table 4-18 shows the acreage of each land cover present in CZ-18, based on Figure 2-8, as well as the proportion of each that is currently under some form of protection. As shown in Table 4-18, dominant natural land covers in this CZ are foothill pine/oak woodland (10,400 acres), blue oak woodland (5,318 acres), mixed serpentine chaparral (2,875 acres), and mixed evergreen forest/oak woodland (2,338 acres).

4.18.2 Conservation Priorities

CZ-18 contains 77% (2,875 acres) of the study area's unprotected acreage of mixed serpentine chaparral (Table 4-18) in a relatively large, connected patch in the center of the CZ east of Arroyo Valle. Due to this land cover's relative rarity within the study area and the large percentage present in this CZ, it is the highest conservation priority for CZ-18. CZ-18 contains 49% (10,245 acres) of the study area's unprotected foothill pine/oak woodland (Table 4-18) throughout the CZ, and largely interspersed with blue oak woodland in the southwest part of the CZ. Because this CZ contains almost half of the study area's unprotected acreage of this land cover type, it is a high conservation priority, as is the protection of serpentine bunchgrass grassland. CZ-18 contains 35% (29 acres) of the study area's unprotected serpentine bunchgrass grassland (Table 4-18) in the area of Sugarloaf Butte near the eastern boundary of the CZ. CZ-18 contains 28% (745 acres) of the study area's unprotected northern mixed chaparral /chamise chaparral (Table 4-18) in widely scattered patches throughout the CZ, with the largest patches located along Arroyo Valle in the north of the CZ. CZ-18 contains 23% (5,109 acres) of the study area's blue oak woodland (Table 4-18), found in large patches across the northern and southern regions of the CZ.

CZ-18 contains 25% (17,860 acres) of the study area's unprotected modeled golden eagle nesting habitat (Table 4-19c). There is a large continuous area of potentially suitable nesting habitat with relatively few edges in the western

portion of the CZ; conservation activities for this species should be focused in this area of potential habitat. Sixteen percent (708 acres) of the study area's unprotected modeled foothill yellow-legged frog is in CZ-18 (Table 4-19b) along the CZ's major streams—Arroyo Valle, Valpe Creek, and Trout Creek. In addition, CZ-18 contains a portion of the study area's unprotected modeled habitat for San Joaquin kit fox and American badger. CZ-18 contains 12% (18,929 acres) of the study area's unprotected potential San Joaquin kit fox habitat (Table 4-19d) across most of the CZ except its center, with the largest patches located west of Arroyo Valle. The western portion of the CZ contains what are likely the CZ's most suitable patches of potential American badger habitat. Aside from these large patches, modeled American badger habitat occurs in many small patches scattered across the landscape, comprising 8% (11,698 acres) of the study area's unprotected potential badger habitat (Table 4-19d). Finally, CZ-18 contains 15% (18,363 acres) of the study area's unprotected critical habitat for California red-legged frog (Table 4-20), a conservation priority for this CZ, and 17% (22,378 acres) of unprotected Alameda whipsnake habitat within Recovery Unit 5 (Table 4-19b).

4.18.3 Summary

Conservation priorities are based on the rarity of the feature in the CZ or the Conservation Strategy study area, or the risk of losing conservation opportunities in the future. Conservation priorities for CZ-18 are listed below.

- Protection of mixed serpentine chaparral and foothill pine/oak woodland land covers.
- Protection of serpentine bunchgrass grassland, northern mixed chaparral/chamise chaparral, and blue oak woodland land covers.
- Protection of contiguous patches of golden eagle nesting habitat.
- Protection and restoration of Arroyo Valle, Valpe Creek, and Trout Creek to support foothill yellow-legged frog.
- Protection of contiguous patches of San Joaquin kit fox and American badger modeled habitat.
- Protection of critical habitat for California red-legged frog.
- Protection of recovery unit habitat for Alameda whipsnake.

Table 4-1. Natural land cover protection goals for Conservation Zone 1.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-1)	Protected Acreage in Type 1&2 (CZ-1)	Unprotected Acreage (CZ-1)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-1 (%)	Conservation Goal (= acres unprotected x protection goal)
<i>Grassland</i>							
California Annual Grassland	75%	780	176	605	104,749	1%	454
<i>Oak Woodland</i>							
Mixed Evergreen Forest / Oak Woodland	75%	204	77	127	24,757	1%	95
<i>Riparian Forest and Scrub</i>							
Mixed Riparian Forest and Woodland	75%	140	28	112	2,110	5%	84
Natural Land Cover Type Total		1,124	280	844	131,616	1%	633

Table 4-2. Natural land cover protection goals for Conservation Zone 2.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-2)	Protected Acreage in Type 1&2 (CZ-2)	Unprotected Acreage (CZ-2)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-2 (%)	Conservation Goal (= acres unprotected x protection goal)
<i>Grassland</i>							
California Annual Grassland	75%	3,409	95	3,314	104,749	3%	2,485
<i>Oak Woodland</i>							
Blue Oak Woodland	75%	11	1	10	22,193	0.05%	8
Coast Live Oak Forest and Woodland	75%	2	0	2	844	0.26%	2
Mixed Evergreen Forest / Oak Woodland	75%	1	0	1	24,757	0.003%	0
<i>Riparian Forest and Scrub</i>							
Mixed Riparian Forest and Woodland	75%	410	29	380	2,110	18%	285
Mixed Willow Riparian Scrub	75%	341	0	341	664	51%	256
Sycamore Alluvial Woodland	90%	188	152	36	298	12%	32
<i>Wetlands</i>							
Perennial Freshwater Marsh	90%	7	0	7	62	12%	7
Seasonal Wetland	90%	43	0	43	532	8%	39
<i>Open Water</i>							
Pond	75%	84	0	84	362	23%	63
Quarry Pond	75%	1,079	0	1,079	1,246	87%	810
Reservoir (defined by management)	75%	32	0	32	1,886	2%	24
Streams ¹	90%	46	2	44	215	20%	40
Natural Land Cover Type Acreage Total²		5,607	277	5,330	159,703	3%	4,010

¹ All numbers in table for streams are represented as miles.

² Natural land cover type total does not include streams, which are represented as miles.

Table 4-3. Natural land cover protection goals for Conservation Zone 3.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-3)	Protected Acreage in Type 1&2 (CZ-3)	Unprotected Acreage (CZ-3)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-3 (%)	Conservation Goal (= acres unprotected x protection goal)
<i>Grassland</i>							
California Annual Grassland	75%	8,226	0	8,226	104,749	8%	6,170
<i>Oak Woodland</i>							
Blue Oak Woodland	75%	2	0	2	22,193	0%	2
<i>Riparian Forest and Scrub</i>							
Mixed Riparian Forest and Woodland	75%	91	0	91	2,110	4%	68
Mixed Willow Riparian Scrub	75%	11	0	11	664	2%	8
<i>Wetlands</i>							
Alkali wetland	90%	8	0	8	621	1%	7
Seasonal Wetland	90%	11	0	11	532	2%	10
<i>Open Water</i>							
Pond	75%	19	0	19	362	5%	14
Streams ¹	90%	6	0	6	215	3%	5
Natural Land Cover Type Acreage Total²		8,368	0	8,368	131,231	6%	6,279

¹ All numbers in table for streams are represented as miles.

² Natural land cover type total does not include streams, which are represented as miles.

Table 4-4. Natural land cover protection goals for Conservation Zone 4.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-4)	Protected Acreage in Type 1&2 (CZ-4)	Unprotected Acreage (CZ-4)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-4 (%)	Conservation Goal (= acres unprotected x protection goal)
Grassland							
Alkali Meadow and Scalds	90%	258	69	189	871	22%	170
California Annual Grassland	75%	4,253	388	3,865	104,749	4%	2,899
Valley sink scrub	90%	410	256	154	155	99%	139
Riparian Forest and Scrub							
Mixed Riparian Forest and Woodland	75%	11	0	11	2,110	1%	8
Wetlands							
Alkali wetland	90%	106	64	42	621	7%	38
Perennial Freshwater Marsh	90%	12	0	12	62	19%	10
Seasonal Wetland	90%	347	4	343	532	64%	309
Open Water							
Pond	75%	29	24	5	362	1%	4
Natural Land Cover Type Total		5,426	805	4,621	109,462	4%	3,576

Table 4-5. Natural land cover protection goals for Conservation Zone 5.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-5)	Protected Acreage in Type 1&2 (CZ-5)	Unprotected Acreage (CZ-5)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-5 (%)	Conservation Goal (= acres unprotected x protection goal)
<i>Grassland</i>							
Alkali Meadow and Scalds	90%	230	0	230	871	26%	207
California Annual Grassland	75%	7,528	1,520	6,008	104,749	6%	4,506
Valley sink scrub	90%	0.2	0	0	155	0%	0
Rock Outcrop	90%	4	0	4	53	8%	4
<i>Oak Woodland</i>							
Blue Oak Woodland	75%	42	0	42	22,193	0.2%	32
Coast Live Oak Forest and Woodland	75%	146	146	0	844	0%	0
<i>Wetlands</i>							
Alkali Wetland	90%	127	31	96	621	15%	86
Seasonal Wetland	90%	8	0	8	532	2%	7
<i>Open Water</i>							
Pond	75%	9	2	7	362	2%	6
Streams ¹	90%	3	0	3	215	1%	3
Natural Land Cover Type Acreage Total²		8,094	1,698	6,397	130,380	5%	4,848

¹ All numbers in table for streams are represented as miles.

² Natural land cover type total does not include streams, which are represented as miles.

Table 4-6. Natural land cover protection goals for Conservation Zone 6.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-6)	Protected Acreage in Type 1&2 (CZ-6)	Unprotected Acreage (CZ-6)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-6 (%)	Conservation Goal (= acres unprotected x protection goal)
Grassland							
Alkali Meadow and Scalds	90%	4	0	4	871	0%	4
California Annual Grassland	75%	12,888	543	12,345	104,749	12%	9,258
Rock Outcrop	90%	71	44	27	53	50%	24
Oak Woodland							
Blue Oak Woodland	75%	4	0	4	22,193	0%	3
Coast Live Oak Forest and Woodland	75%	9	9	0	844	0%	0
Mixed Evergreen Forest / Oak Woodland	75%	1	0	1	24,757	0%	1
Conifer Woodland							
Coulter Pine Woodland	75%	1	0	1	14	6%	1
Wetlands							
Alkali Wetland	90%	380	0	380	621	61%	342
Seasonal Wetland	90%	57	10	47	532	9%	42
Open Water							
Canal / Aqueduct	0%	81	0	81	198	41%	0
Pond	75%	30	1	29	362	8%	22
Reservoir (defined by management)	0%	177	0	177	1,886	9%	0
Streams ¹	90%	3	0	3	215	1%	3
Natural Land Cover Type Total²		13,702	607	13,095	157,080	8%	9,697

¹All numbers in table for streams are represented as miles.

² Natural land cover type total does not include streams, which are represented as miles.

Table 4-7. Natural land cover protection goals for Conservation Zone 7.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-7)	Protected Acreage in Type 1&2 (CZ-7)	Unprotected Acreage (CZ-7)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-7 (%)	Conservation Goal (= acres unprotected x protection goal)
Grassland							
Alkali Meadow and Scalds	90%	182	16	165	871	19%	149
California Annual Grassland	75%	1,515	124	1,391	104,749	1%	1,043
Wetlands							
Alkali Wetland	90%	4	0	4	621	1%	3
Seasonal Wetland	90%	7	0	7	532	1%	6
Open Water							
Canal / Aqueduct	0%	114	0	114	198	58%	0
Pond	75%	17	2	15	362	4%	11
Natural Land Cover Type Total		1,838	142	1,695	107,333	2%	1,212

Table 4-8. Natural land cover protection goals for Conservation Zone 8.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-8)	Protected Acreage in Type 1&2 (CZ-8)	Unprotected Acreage (CZ-8)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-8 (%)	Conservation Goal (= acres unprotected x protection goal)
Grassland							
California Annual Grassland	75%	4,778	1,542	3,236	104,749	3%	2,427
Chaparral and Coastal Scrub							
Northern Coastal Scrub / Diablan Sage Scrub	75%	363	38	324	1,926	17%	243
Oak Woodland							
Blue Oak Woodland	75%	365	180	186	22,193	1%	139
Coast Live Oak Forest and Woodland	75%	297	0	297	844	35%	223
Mixed Evergreen Forest / Oak Woodland	75%	9,617	3,135	6,482	24,757	26%	4,862
Riparian Forest and Scrub							
Mixed Riparian Forest and Woodland	75%	223	0	223	2,110	11%	167
Mixed Willow Riparian Scrub	75%	13	0	13	664	2%	10
Sycamore Alluvial Woodland	90%	3	0	3	298	1%	3
Wetlands							
Seasonal Wetland	90%	2	1	1	532	0%	1
Open Water							
Pond	75%	8	4	4	362	1%	3
Natural Land Cover Type Total		15,670	4,900	10,769	158,435	7%	8,078

Table 4-9. Natural land cover protection goals for Conservation Zone 9.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-9)	Protected Acreage in Type 1&2 (CZ-9)	Unprotected Acreage (CZ-9)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-9 (%)	Conservation Goal (= acres unprotected x protection goal)
Grassland							
California Annual Grassland	75%	11,704	0	11,704	104,749	11%	8,778
Chaparral and Coastal Scrub							
Northern Coastal Scrub / Diablan Sage Scrub	75%	10	0	10	1,926	1%	8
Oak Woodland							
Blue Oak Woodland	75%	1,159	0	1,159	22,193	5%	869
Mixed Evergreen Forest / Oak Woodland	75%	862	0	862	24,757	3%	646
Conifer Woodland							
Foothill Pine-Oak Woodland	75%	88	0	88	20,751	0%	66
Riparian Forest and Scrub							
Mixed Riparian Forest and Woodland	75%	43	0	43	2,110	2%	32
Mixed Willow Riparian Scrub	75%	11	0	11	664	2%	8
Wetlands							
Alkali Wetland	90%	20	0	20	621	3%	18
Seasonal Wetland	90%	40	0	40	532	7%	36
Open Water							
Pond	75%	28	0	28	362	8%	21
Streams ¹	90%	6	0	6	215	3%	5
Natural Land Cover Type Acreage Total²		13,965	0	13,965	178,665	8%	10,483

¹ All numbers in table for streams are represented as miles.

² Natural land cover type total does not include streams, which are represented as miles.

Table 4-10. Natural land cover protection goals for Conservation Zone 10.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-10)	Protected Acreage in Type 1&2 (CZ-10)	Unprotected Acreage (CZ-10)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-10 (%)	Conservation Goal (= acres unprotected x protection goal)
<i>Grassland</i>							
Alkali Meadow and Scalds	90%	180	24	156	871	18%	141
California Annual Grassland	75%	18,571	364	18,207	104,749	17%	13,655
Rock Outcrop	90%	11	0	11	53	21%	10
<i>Chaparral and Coastal Scrub</i>							
Mixed Serpentine Chaparral	90%	48	0	48	3,740	1%	43
Northern Coastal Scrub / Diablan Sage Scrub	75%	187	0	187	1,926	10%	141
Northern Mixed Chaparral / Chamise Chaparral	75%	377	0	377	2,684	14%	283
<i>Oak Woodland</i>							
Blue Oak Woodland	75%	2,685	0	2,685	22,193	12%	2,013
Mixed Evergreen Forest / Oak Woodland	75%	1,575	0	1,575	24,757	6%	1,181
<i>Conifer Woodland</i>							
Foothill Pine-Oak Woodland	75%	2,024	0	2,024	20,751	10%	1,518
<i>Riparian Forest and Scrub</i>							
Mixed Riparian Forest and Woodland	75%	11	0	11	2,110	1%	8
Mixed Willow Riparian Scrub	75%	32	0	32	664	5%	24
<i>Wetlands</i>							
Alkali Wetland	90%	72	0	72	621	12%	65
Seasonal Wetland	90%	6	0	6	532	1%	6
<i>Open Water</i>							
Canal / Aqueduct	0%	3	0	3	198	2%	0
Pond	75%	21	0	21	362	6%	15
Streams ¹	90%	4	0	4	215	2%	4
Natural Land Cover Type Acreage Total²		25,804	388	25,415	186,211	14%	19,103

¹ All numbers in table for streams are represented as miles.

² Natural land cover type total does not include streams, which are represented as miles.

Table 4-11. Natural land cover protection goals for Conservation Zone 11.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-11)	Protected Acreage in Type 1&2 (CZ-11)	Unprotected Acreage (CZ-11)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-11 (%)	Conservation Goal (= acres unprotected x protection goal)
Grassland							
California Annual Grassland	75%	4,680	87	4,593	104,749	4%	3,445
Oak Woodland							
Blue Oak Woodland	75%	1,392	21	1,371	22,193	6%	1,028
Mixed Evergreen Forest / Oak Woodland	75%	255	0	255	24,757	1%	191
Riparian Forest and Scrub							
Mixed Riparian Forest and Woodland	75%	295	0	295	2,110	14%	221
Mixed Willow Riparian Scrub	75%	47	0	47	664	7%	35
Wetlands							
Perennial Freshwater Marsh	90%	0	0	0	62	0%	0
Seasonal Wetland	90%	7	1	7	532	1%	6
Open Water							
Pond	75%	15	2	13	362	4%	10
Natural Land Cover Type Total		6,692	111	6,581	155,429	4%	4,937

Table 4-12. Natural land cover protection goals for Conservation Zone 12.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-12)	Protected Acreage in Type 1&2 (CZ-12)	Unprotected Acreage (CZ-12)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-12 (%)	Conservation Goal (= acres unprotected x protection goal)
Grassland							
California Annual Grassland	75%	6,728	310	6,418	104,749	6%	4,814
Chaparral and Coastal Scrub							
Northern Coastal Scrub / Diablan Sage Scrub	75%	215	0	215	1,926	11%	161
Northern Mixed Chaparral / Chamise Chaparral	75%	181	0	181	2,684	7%	136
Oak Woodland							
Blue Oak Woodland	75%	3,176	24	3,152	22,193	14%	2,364
Coast Live Oak Forest and Woodland	75%	160	0	160	844	19%	120
Mixed Evergreen Forest / Oak Woodland	75%	2,530	90	2,440	24,757	10%	1,830
Conifer Woodland							
Coulter Pine Woodland	75%	13	0	13	14	90%	9
Foothill Pine-Oak Woodland	75%	995	19	976	20,751	5%	732
Riparian Forest and Scrub							
Mixed Riparian Forest and Woodland	75%	337	42	295	2,110	14%	221
Mixed Willow Riparian Scrub	75%	39	0	39	664	6%	29
Sycamore Alluvial Woodland	90%	79	62	16	298	6%	15
Wetlands							
Perennial Freshwater Marsh	90%	22	0	22	62	36%	20
Open Water							
Pond	75%	34	1	34	362	9%	25
Reservoir (defined by management)	75%	698	0	698	1,886	37%	523
Streams ¹	90%	24	1	23	215	11%	21
Natural Land Cover Type Acreage Total²		15,206	547	14,659	183,300	8%	11,000

¹ All numbers in table for streams are represented as miles.

² Natural land cover type total does not include streams, which are represented as miles.

Table 4-13. Natural land cover protection goals for Conservation Zone 13.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-13)	Protected Acreage in Type 1&2 (CZ-13)	Unprotected Acreage (CZ-13)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-13 (%)	Conservation Goal (= acres unprotected x protection goal)
Grassland							
California Annual Grassland	75%	4,358	0	4,358	104,749	4%	3,269
Chaparral and Coastal Scrub							
Mixed Serpentine Chaparral	90%	793	0	793	3,740	21%	714
Northern Coastal Scrub / Diablan Sage Scrub	75%	84	0	84	1,926	4%	63
Northern Mixed Chaparral / Chamise Chaparral	75%	1,380	0	1,380	2,684	51%	1,035
Oak Woodland							
Blue Oak Woodland	75%	4,982	0	4,982	22,193	22%	3,737
Mixed Evergreen Forest / Oak Woodland	75%	2,139	0	2,139	24,757	9%	1,605
Conifer Woodland							
Foothill Pine-Oak Woodland	75%	6,339	0	6,339	20,751	31%	4,754
Sargent Cypress Woodland	90%	636	0	636	653	97%	573
Riparian Forest and Scrub							
Mixed Riparian Forest and Woodland	75%	8	0	8	2,110	0%	6
Mixed Willow Riparian Scrub	75%	127	0	127	664	19%	95
Wetland							
Seasonal Wetland	90%	15	0	15	532	3%	13
Open Water							
Pond	75%	39	0	39	362	11%	29
Streams ¹	90%	18	0	18	215	8%	16
Natural Land Cover Type Acreage Total²		20,900	0	20,900	185,121	11%	15,892

¹ All numbers in table for streams are represented as miles.

² Natural land cover type total does not include streams, which are represented as miles.

Table 4-14. Natural land cover protection goals for Conservation Zone 14.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-14)	Protected Acreage in Type 1&2 (CZ-14)	Unprotected Acreage (CZ-14)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-14 (%)	Conservation Goal (= acres unprotected x protection goal)
Grassland							
California Annual Grassland	75%	1,931	274	1,658	104,749	2%	1,243
Chaparral and Coastal Scrub							
Northern Coastal Scrub / Diablan Sage Scrub	75%	77	26	51	1,926	3%	38
Oak Woodland							
Blue Oak Woodland	75%	30	0	30	22,193	0%	22
Coast Live Oak Forest and Woodland	75%	43	0	43	844	5%	32
Mixed Evergreen Forest / Oak Woodland	75%	1,198	236	962	24,757	4%	721
Riparian Forest and Scrub							
Mixed Riparian Forest and Woodland	75%	164	0	164	2,110	8%	123
Mixed Willow Riparian Scrub	75%	13	0	13	664	2%	10
Sycamore Alluvial Woodland	90%	42	0	42	298	14%	38
Wetland							
Perennial Freshwater Marsh	90%	9	0	9	62	14%	8
Open Water							
Pond	75%	8	0	8	362	2%	6
Natural Land Cover Type Total		3,515	536	2,979	157,965	2%	2,242

Table 4-15. Natural land cover protection goals for Conservation Zone 15.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-15)	Protected Acreage in Type 1&2 (CZ-15)	Unprotected Acreage (CZ-15)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-15 (%)	Conservation Goal (= acres unprotected x protection goal)
Grassland							
California Annual Grassland	75%	8,527	2,737	5,790	104,749	6%	4,342
Rock Outcrop	90%	5	0	5	53	9%	5
Serpentine Bunchgrass Grassland	90%	40	19	22	84	26%	19
Chaparral and Coastal Scrub							
Mixed Serpentine Chaparral	90%	71	48	23	3,740	1%	20
Northern Coastal Scrub / Diablan Sage Scrub	75%	378	258	120	1,926	6%	90
Oak Woodland							
Blue Oak Woodland	75%	1,078	594	484	22,193	2%	363
Coast Live Oak Forest and Woodland	75%	90	52	38	844	4%	28
Mixed Evergreen Forest / Oak Woodland	75%	2,750	1,531	1,219	24,757	5%	914
Conifer Woodland							
Coulter Pine Woodland	75%	6	6	0	14	0%	0
Foothill Pine-Oak Woodland	75%	47	47	0	20,751	0%	0
Riparian Forest and Scrub							
Mixed Riparian Forest and Woodland	75%	134	30	104	2,110	5%	78
Mixed Willow Riparian Scrub	75%	31	0	31	664	5%	23
Sycamore Alluvial Woodland	90%	192	51	141	298	47%	127
Wetland							
Perennial Freshwater Marsh	90%	1	0	1	62	2%	1
Open Water							
Pond	75%	10	2	8	362	2%	6
Quarry Pond	75%	167	0	167	1,246	13%	125
Reservoir (defined by management)	75%	7	0	7	1,886	0%	5
Streams ¹	90%	25	7	18	215	8%	16
Natural Land Cover Type Acreage Total²		13,535	5,375	8,159	185,739	4%	6,148

¹ All numbers in table for streams are represented as miles.

² Natural land cover type total does not include streams, which are represented as miles.

Table 4-16. Natural land cover protection goals for Conservation Zone 16.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-16)	Protected Acreage in Type 1&2 (CZ-16)	Unprotected Acreage (CZ-16)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-16 (%)	Conservation Goal (= acres unprotected x protection goal)
Grassland							
California Annual Grassland	75%	10,725	1,835	8,890	104,749	8%	6,668
Rock Outcrop	90%	8	2	6	53	12%	6
Chaparral and Coastal Scrub							
Northern Coastal Scrub / Diablan Sage Scrub	75%	1,044	318	726	1,926	38%	544
Oak Woodland							
Blue Oak Woodland	75%	4,695	2,580	2,115	22,193	10%	1,586
Coast Live Oak Forest and Woodland	75%	339	104	235	844	28%	176
Mixed Evergreen Forest / Oak Woodland	75%	4,849	1,821	3,028	24,757	12%	2,271
Conifer Woodland							
Coulter Pine Woodland	75%	55	54	0	14	3%	0
Foothill Pine-Oak Woodland	75%	1,631	1,475	156	20,751	1%	117
Riparian Forest and Scrub							
Mixed Riparian Forest and Woodland	75%	230	109	121	2,110	6%	91
Sycamore Alluvial Woodland	90%	41	0	41	298	14%	37
Wetlands							
Perennial Freshwater Marsh	90%	11	0	11	62	17%	10
Open Water							
Pond	75%	24	5	19	362	5%	14
Reservoir (defined by management)	75%	779	0	779	1,886	41%	584
Natural Land Cover Type Total		24,433	8,304	16,129	180,005	9%	12,105

Table 4-17. Natural land cover protection goals for Conservation Zone 17.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-17)	Protected Acreage in Type 1&2 (CZ-17)	Unprotected Acreage (CZ-17)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-17 (%)	Conservation Goal (= acres unprotected x protection goal)
Grassland							
California Annual Grassland	75%	4,428	2,059	2,369	104,749	2%	1,777
Serpentine Bunchgrass Grassland	90%	172	138	33	84	40%	30
Chaparral and Coastal Scrub							
Mixed Serpentine Chaparral	90%	1	0	1	3,740	0%	1
Northern Coastal Scrub / Diablan Sage Scrub	75%	341	134	208	1,926	11%	156
Oak Woodland							
Blue Oak Woodland	75%	1,380	519	861	22,193	4%	646
Coast Live Oak Forest and Woodland	75%	134	66	68	844	8%	51
Mixed Evergreen Forest / Oak Woodland	75%	4,161	843	3,318	24,757	13%	2,489
Conifer Woodland							
Foothill Pine-Oak Woodland	75%	1,171	248	923	20,751	4%	692
Riparian Forest and Scrub							
Mixed Riparian Forest and Woodland	75%	70	26	44	2,110	2%	33
Sycamore Alluvial Woodland	90%	51	34	18	298	6%	16
Open Water							
Pond	75%	18	9	9	362	3%	7
Reservoir (defined by management)	75%	194	0	194	1,886	10%	146
Natural Land Cover Type Total		12,122	4,075	8,047	183,700	4%	6,043

Table 4-18. Natural land cover protection goals for Conservation Zone 18.

Natural Landcover Type	Protection Goal	Total Acreage (CZ-18)	Protected Acreage in Type 1&2 (CZ-18)	Unprotected Acreage (CZ-18)	Unprotected Acreage (Study Area)	Study Area's Unprotected Acreage in CZ-18 (%)	Conservation Goal (= acres unprotected x protection goal)
Grassland							
California Annual Grassland	75%	1,381	27	1,354	104,749	1%	1,015
Serpentine Bunchgrass Grassland	90%	29	0	29	84	35%	26
Chaparral and Coastal Scrub							
Mixed Serpentine Chaparral	90%	2,875	0	2,875	3,740	77%	2,588
Northern Mixed Chaparral / Chamise Chaparral	75%	745	0	745	2,684	28%	559
Oak Woodland							
Blue Oak Woodland	75%	5,318	209	5,109	22,193	23%	3,832
Mixed Evergreen Forest / Oak Woodland	75%	2,338	7	2,331	24,757	9%	1,748
Conifer Woodland							
Foothill Pine-Oak Woodland	75%	10,400	155	10,245	20,751	49%	7,684
Sargent Cypress Woodland	90%	17	0	17	653	3%	15
Riparian Forest and Scrub							
Mixed Riparian Forest and Woodland	75%	157	0	157	2,110	7%	118
Open Water							
Pond	75%	24	2	22	362	6%	16
Natural Land Cover Type Total		23,285	400	22,885	182,083	13%	17,602

Table 4-19a. Modeled suitable habitat (acres) for focal invertebrate species¹

Conservation Zone	Longhorn Fairy Shrimp			Vernal Pool Fairy Shrimp		
	Total	Protected	Unprotected	Total	Protected	Unprotected
CZ1	-	-	-	-	-	-
CZ2	644	-	644	680	-	680
CZ3	-	-	-	14	-	14
CZ4	1,446	546	900	1,438	516	921
CZ5	1,597	1,577	19	186	6	180
CZ6	413	397	16	443	220	223
CZ7	312	-	312	319	-	319
CZ8	-	-	-	2	1	1
CZ9	90	-	90	130	-	130
CZ10	-	-	-	6	-	6
CZ11	-	-	-	7	1	7
CZ12	-	-	-	-	-	-
CZ13	-	-	-	15	-	15
CZ14	-	-	-	-	-	-
CZ15	-	-	-	3	-	3
CZ16	-	-	-	-	-	-
CZ17	-	-	-	-	-	-
CZ18	-	-	-	-	-	-
Total	4,501	2,520	1,981	3,243	744	2,499

¹ Habitat for callippe silverspot butterfly was not modeled.

Table 4-19b. Modeled suitable habitat (acres) for focal reptile and amphibian species

Conservation Zone	California Tiger Salamander			California Red-legged Frog ¹			Foothill yellow-legged frog			Alameda whipsnake ²		
	Total	Protected	Unprotected	Total	Protected	Unprotected	Total	Protected	Unprotected	Total	Protected	Unprotected
CZ1	0.2	0.1	0.1	5	2	2	-	-	-	1,164	278	885
CZ2	133	-	133	323	0.1	323	261	7	254	1,842	268	1,575
CZ3	30	-	30	150	-	150	106	-	106	20	0	20
CZ4	91	52	39	267	166	101	304	15	289	605	0	605
CZ5	34	7	27	148	36	111	139	-	139	456	14	442
CZ6	109	9	99	366	35	330	105	14	91	156	132	24
CZ7	24	2	22	91	16	75	-	-	-	-	-	-
CZ8	10	5	5	76	34	42	316	177	139	16,435	4,945	11,490
CZ9	68	-	68	268	-	268	222	-	222	4,763	0	4,763
CZ10	27	0.5	26	216	4	213	405	-	405	10,971	0	10,971
CZ11	23	3	20	138	23	114	43	-	43	7,482	112	7,371
CZ12	56	1	56	258	4	253	271	26	245	16,424	563	15,861
CZ13	53	-	53	351	-	351	726	-	726	16,420	0	16,420
CZ14	17	0.4	17	99	3	96	-	-	-	3,059	532	2,527
CZ15	15	2	13	134	22	111	352	139	213	14,214	5,408	8,806
CZ16	34	4	30	337	39	298	1,141	454	687	24,439	8,307	16,132
CZ17	15	9	6	102	61	40	383	88	295	12,130	4,075	8,055
CZ18	12	2	10	81	10	71	745	37	708	22,778	400	22,378
Total	749	96	653	3,408	457	2,951	5,520	957	4,563	153,357	25,034	128,324

Notes:

¹ Modeled habitat for California red-legged frog only includes breeding habitat.

² Habitat for Alameda whipsnake was not modeled, but rather is based on USFWS recovery units.

Table 4-19c. Modeled suitable habitat (acres) for focal bird species

Conservation Zone	Golden eagle ¹			Tricolored blackbird ²			Burrowing owl		
	Total	Protected	Unprotected	Total	Protected	Unprotected	Total	Protected	Unprotected
CZ1	344	105	239	0.1	0.1	-	257	56	201
CZ2	612	182	429	81	-	81	8,094	103	7,991
CZ3	93	-	93	16	-	16	4,676	-	4,676
CZ4	11	-	11	36	24	12	4,718	407	4,310
CZ5	188	146	42	9	2	7	4,784	908	3,875
CZ6	33	9	24	28	1	27	8,978	336	8,642
CZ7	-	-	-	13	0.3	13	1,784	123	1,661
CZ8	10,506	3,314	7,192	8	4	4	2,387	871	1,516
CZ9	2,152	-	2,152	28	-	28	7,588	-	7,588
CZ10	6,294	-	6,294	19	-	19	9,990	336	9,654
CZ11	1,942	21	1,921	14	2	12	2,832	42	2,791
CZ12	7,318	246	7,071	55	1	54	3,454	201	3,254
CZ13	14,104	-	14,104	26	-	26	3,045	-	3,045
CZ14	1,476	236	1,240	15	0.4	15	1,294	169	1,125
CZ15	4,309	2,311	1,997	11	2	9	5,161	1,072	4,090
CZ16	11,842	5,539	6,303	34	3	31	5,567	689	4,878
CZ17	6,967	1,735	5,232	14	9	4	1,573	764	809
CZ18	18,230	370	17,860	13	2	11	914	58	856
Total	86,421	14,216	72,205	419	50	369	77,095	6,135	70,960

Notes:

¹ Modeled habitat for golden eagle only includes nesting habitat.² Modeled habitat for tricolored blackbird only includes nesting habitat.

Table 4-19d. Modeled suitable habitat (acres) for focal mammal species

Conservation Zone	American badger			San Joaquin kit fox		
	Total	Protected	Unprotected	Total	Protected	Unprotected
CZ1	759	176	584	-	-	-
CZ2	7,978	105	7,873	4,215	12	4,204
CZ3	8,433	-	8,433	8,481	-	8,481
CZ4	7,071	699	6,372	6,070	412	5,658
CZ5	7,759	1,521	6,237	7,626	1,666	5,959
CZ6	13,060	543	12,517	12,547	552	11,995
CZ7	5,098	140	4,957	4,801	124	4,677
CZ8	4,481	1,434	3,047	-	-	-
CZ9	12,365	-	12,365	14,050	-	14,050
CZ10	20,793	388	20,405	24,485	364	24,121
CZ11	4,615	87	4,528	-	-	-
CZ12	8,034	328	7,706	13,625	423	13,202
CZ13	10,570	-	10,570	17,709	-	17,709
CZ14	2,443	274	2,169	-	-	-
CZ15	8,523	2,795	5,728	12,165	4,881	7,284
CZ16	12,357	2,794	9,563	21,988	6,635	15,352
CZ17	5,747	2,445	3,302	11,183	3,823	7,360
CZ18	11,880	182	11,698	19,327	398	18,929
Total	151,964	13,909	138,054	178,269	19,289	158,980

Table 4-19e. Modeled suitable habitat (acres) for focal plant species¹

Conservation Zone	San Joaquin spearscale			Big tarplant			Congdon's tarplant		
	Total	Protected	Unprotected	Total	Protected	Unprotected	Total	Protected	Unprotected
CZ1	-	-	-	-	-	-	44	1	42
CZ2	638	-	638	6	-	6	1,035	27	1,007
CZ3	360	-	360	-	-	-	3,055	-	3,055
CZ4	1,846	394	1,452	-	-	-	1,213	212	1,001
CZ5	396	40	357	4,124	761	3,363	747	242	505
CZ6	417	-	417	6,319	241	6,078	-	-	-
CZ7	311	18	293	88	10	78	-	-	-
CZ8	-	-	-	-	-	-	122	-	122
CZ9	43	-	43	4,435	-	4,435	105	-	105
CZ10	274	25	249	9,450	75	9,375	-	-	-
CZ11	-	-	-	-	-	-	310	4	305
CZ12	-	-	-	-	-	-	64	48	15
CZ13	-	-	-	-	-	-	-	-	-
CZ14	-	-	-	-	-	-	22	-	22
CZ15	-	-	-	-	-	-	167	13	154
CZ16	-	-	-	-	-	-	394	-	394
CZ17	-	-	-	-	-	-	-	-	-
CZ18	-	-	-	-	-	-	-	-	-
Total	4,286	477	3,809	24,422	1,087	23,335	7,278	549	6,729

¹ Habitat for recurved larkspur, Livermore valley tarplant, and palmate bracted bird's beak was not modeled.

Table 4-20. Critical habitat (acres) for federally listed focal species

Conservation Zone	Alameda Whipsnake			California Tiger Salamander			Longhorn Fairy Shrimp			California Red-legged Frog			Vernal Pool Fairy Shrimp		
	Total	Protected	Unprotected	Total	Protected	Unprotected	Total	Protected	Unprotected	Total	Protected	Unprotected	Total	Protected	Unprotected
CZ1	-	-	-	-	-	-	-	-	-	814	271	543	-	-	-
CZ2	-	-	-	-	-	-	-	-	-	81	-	81	-	-	-
CZ3	-	-	-	1,178	-	1,178	-	-	-	7,426	-	7,426	-	-	-
CZ4	-	-	-	-	-	-	-	-	-	857	83	774	1,378	486	892
CZ5	-	-	-	-	-	-	133	0.1	133	8,343	1,705	6,637	77	17	60
CZ6	-	-	-	-	-	-	354	220	134	13,095	606	12,489	-	-	-
CZ7	-	-	-	-	-	-	-	-	-	842	141	701	-	-	-
CZ8	14,916	4,782	10,134	-	-	-	-	-	-	1,829	995	834	-	-	-
CZ9	185	-	184	-	-	-	-	-	-	11,966	-	11,966	-	-	-
CZ10	11,046	-	11,046	-	-	-	-	-	-	24,937	277	24,659	-	-	-
CZ11	-	-	-	-	-	-	-	-	-	92	-	92	-	-	-
CZ12	2,191	-	2,191	-	-	-	-	-	-	8,567	140	8,427	-	-	-
CZ13	8,913	-	8,913	-	-	-	-	-	-	11,670	-	11,670	-	-	-
CZ14	12	-	12	-	-	-	-	-	-	-	-	-	-	-	-
CZ15	6,457	5,069	1,388	-	-	-	-	-	-	6,631	5,096	1,535	-	-	-
CZ16	35	17	18	-	-	-	-	-	-	23,265	8,307	14,958	-	-	-
CZ17	9,141	3,854	5,286	-	-	-	-	-	-	8,838	3,960	4,878	-	-	-
CZ18	366	-	366	-	-	-	-	-	-	18,763	400	18,363	-	-	-
Total	53,261	13,722	39,544	1,178	-	1,178	487	220	267	148,105	21,981	126,034	1,455	503	952