

5.3 BIOLOGICAL GOALS AND OBJECTIVES

This section describes the biological goals and objectives for the BRCP. The BRCP biological goals and objectives are consistent with the guidance provided in the federal Five-Point Policy for Habitat Conservation Plans (65 FR No. 106 at 35242, June 1, 2000) and with the BRCP Planning Agreement conservation goals and objectives. Biological goals are defined as broad guiding principles for development of the conservation strategy that can be parsed into more manageable subsets of biological objectives. These biological goals are intended to be broad principles designed to guide the conservation strategy to meet the statutory criteria of the NCCPA and sections 7 and 10 of the ESA. The objectives, in turn, provide measureable metrics by which to assess progress in meeting the goals and to help inform the adaptive management process (see Section 5.8, *Adaptive Management Plan*). Potential metrics that may be used to measure progress towards achieving the biological objectives are presented in Section 5.7, *Monitoring Plan*. The biological goals and objectives were used to develop the conservation measures described in Section 5.4, *Conservation Measures*, and will be used by the Implementing Entity to guide BRCP implementation.

5.3.1 Development of Biological Goals and Objectives

Development of the biological goals and objectives was based on the following data and information:

- Distribution and extent of each natural community within the Plan Area (see Chapter 2, Existing Ecological Conditions);
- Distribution and extent of each covered species' modeled habitat within the Plan Area (see Appendix A, *Covered Species Accounts*);
- Primary threats and stressors for each of the covered species (see Appendix A, *Covered Species Accounts*);
- Location of habitat areas known to be occupied by each of the covered species (see Appendix A, *Covered Species Accounts*);
- Distribution and extent of existing protected patches of each natural community and covered species habitat (Figure 5-2);
- Potential for increasing connectivity with conserved habitat areas adjacent to the Plan Area (from documents of HCP/NCCPs approved or under development for lands that are adjacent to the Plan Area); and
- Information provided by experts with species-specific knowledge for the BRCP Plan Area.

Biological Goals and Objectives were developed at three spatial scales:

- Landscape-level goals and objectives are designed to provide functioning ecosystems, sufficient habitat for covered species, and to maintain the biological diversity of the Plan Area. Landscape-level goals and objectives provide for the maintenance of linkages along elevation gradients, protection of intact watersheds, protection and restoration of habitat mosaics, appropriate disturbance and successional regimes, and establishment of conservation lands units of appropriate size and shape. Landscape-level goals and objectives address the conservation requirements of species that have large ranges or that migrate between various distinct seasonal habitats (e.g., summer and winter range) as well as specialist species restricted to small patches of unique habitat (e.g., seeps, large vernal pools, alkali soils).
- Natural community goals and objectives are designed to provide for the appropriate amounts, distribution, and configuration of natural communities to conserve covered species and biodiversity in the Plan Area. Goals and objectives were established based on the broad needs of biological communities as determined through application of the conservation land assembly principles (see Section 5.2.3.5, *Conservation Land Assembly Principles*), and the conservation needs for the covered species habitats provided by each of the natural communities. Natural community protection objectives were established as described in Section 5.2.3.3, *Conservation Targets*, and are expressed as an extent of habitat conservation (in acres) for each covered species by CAZ. The target amount of unprotected natural communities to be conserved (both protection and restoration) for each natural community is provided in Table 5.1.
- Species-specific biological goals are designed to address individual species habitat requirements. Species-specific habitat objectives were established as described in Section 5.2.3.3, *Conservation Targets*, and are expressed as an extent of habitat conservation (in acres) for each covered species by CAZ. The target amount of unprotected habitat to be conserved (both habitat protection and restoration) for each covered species is provided in Table 5.2.

5.3.2 Goal and Objective Statements

This section presents the landscape-level, natural community-level, and covered species-level biological goals and objectives. Each goal and objective is assigned a unique alpha-numeric code that will assist with monitoring BRCP implementation. Many of the conservation measures address multiple goals and objectives, reflecting both the hierarchy of these goals and objectives and the inter-relationships among them.

Definitions of covered species habitats and natural communities referred to in the biological goals and objectives are presented in section 2.3.1 of Chapter 2, *Existing Ecological Conditions*, and in Appendix A, *Covered Species Accounts*. The objectives are measurable and the schedule

for implementing conservation measures to achieve the objectives is presented in Chapter 6, *Plan Implementation*.

Most of the biological goals and objectives are designed at least to maintain current populations of covered and other native species in the Planning area. In some cases, populations of covered species are expected to increase as a result of land protection, habitat management, habitat enhancement, habitat restoration, habitat creation, and improved water management. Conservation measures that will collectively achieve all of the biological objectives are presented in Table 5.8.

5.3.2.1 Landscape-Level Goals and Objectives

Goal LAND1: Protect large landscapes within the range of physical and biological attributes (e.g., slope, soils, hydrology, climate, plant associations) in the Plan Area to sustain covered species abundance and habitat and preserve native biodiversity.

Objective LAND1.1: Establish a system of protected lands in the Plan Area that protects the quantities and patch sizes of each natural community indicated in Table 5.9.

Table 5.9. Extent and Minimum Patch Sizes of Protected Covered Natural Communities

Natural Community	Extent to Protect (acres)	Minimum Patch Size (acres)
Oak Woodland and Savanna	7,230	300 ¹
Grassland	51,020	400 ²
Riparian		
<i>Cottonwood-willow riparian forest and valley oak riparian forest</i>	5,650	25 ³
<i>Willow scrub</i>	720	10
Wetland	3,025-44,230 ⁴	No minimum.
<i>Emergent wetland</i>	495-8,310 ⁴	0.5-320 ⁵
<i>Managed wetland</i>	2,530-35,920 ⁴	160
Agricultural land	8,760-86,900 ⁴	160-830 ⁶
Total	154,545	Not applicable

¹Minimum patch size can be comprised of any combination of oak woodland and oak savanna land cover types.

²Minimum patch size can be comprised of any combination of grassland, grassland with vernal pool, vernal pool, and degraded vernal pool land cover types.

³Minimum patch size can be comprised of cottonwood-willow riparian forest or combined cottonwood-willow riparian forest and valley oak riparian forest.

⁴These ranges represent the ability to protect either rice land as habitat for the greater sandhill crane and the giant garter snake or to substitute protection of an acre of managed wetland for each acre of rice land for the crane and an acre of emergent wetland for every 10 acres of rice land for the giant garter snake (see Section 5.4.1.1.1 *Approach to Land Acquisition*).

⁵Minimum patch size varies depending on the habitat requirements of the targeted covered species (see Table 5.5). The minimum patch size can be comprised of emergent wetland or emergent wetland in combination with other natural community types that also support habitat for the target covered species.

⁶Minimum patch size varies depending on the habitat requirements of the targeted covered species. The minimum patch size can be comprised of agricultural land or agricultural land in combination with other natural community types that also support habitat for the target covered species (see Table 5.5).

Goal LAND2: Protect continuous corridors of habitat along the east-west elevation gradient extending from the eastern boundary of the Plan Area to the major stream corridors in the valley bottom and along a north-south corridor within the valley basin habitats.

Objective LAND2.1: In the Plan Area north of the City of Chico, protect a habitat corridor comprised of oak woodland and savanna, grassland, riparian, wetland, and aquatic natural communities that is at least 1.2 miles wide¹ along the northeast-southwest elevation gradient between the foothills at the eastern boundary of the Plan Area and the Sacramento River at the western boundary of the Plan Area (across the Cascade Foothills and Northern Orchards CAZs) (Figure 5-4).

Objective LAND2.2: In the Plan Area south of the City of Chico and north of the City of Oroville, protect a habitat corridor comprised of oak woodland and savanna, grassland, riparian, wetland, and rice land that is at least 1.2 miles wide¹ along the east-west elevation gradient between the foothills at the eastern boundary of the Plan Area and Butte Creek at the western boundary of the Plan Area (across the Cascade Foothills and Basin CAZs; Figure 5-4).

Objective LAND2.3: In the Plan Area south of the City of Oroville, protect a habitat corridor comprised of oak woodland and savanna, grassland, riparian, and wetland, and agricultural land that is at least 1.2 miles wide¹ wide along the east-west elevation gradient between the foothills at the eastern boundary of the Plan Area and the Feather River (across the Sierra Foothills and Southern Orchard CAZs) (Figure 5-4).

Objective LAND2.4: Protect a habitat corridor suitable for giant garter snake movement comprised of riparian, wetland, aquatic, and agricultural natural communities separating patches of these communities that is at least 1.2 miles wide¹ wide along the north-south gradient between the Llano Seco Unit of the Upper Butte Basin Wildlife Area (in the Sacramento River CAZ), across the Basin CAZ, to the Little Dry Creek Unit of the Upper Butte Basin Wildlife Area, and to Gray Lodge Wildlife Area (Figure 5-4).

¹ Recommended corridor width in *California Essential Habitat Connectivity Project: A Strategy for Conserving a Connected California* (Caltrans and DFG, 2010) for meeting the movement needs of large wildlife species such as mountain lion and mule deer, which will also meet the needs of smaller wildlife species (e.g., reptiles, rodents).

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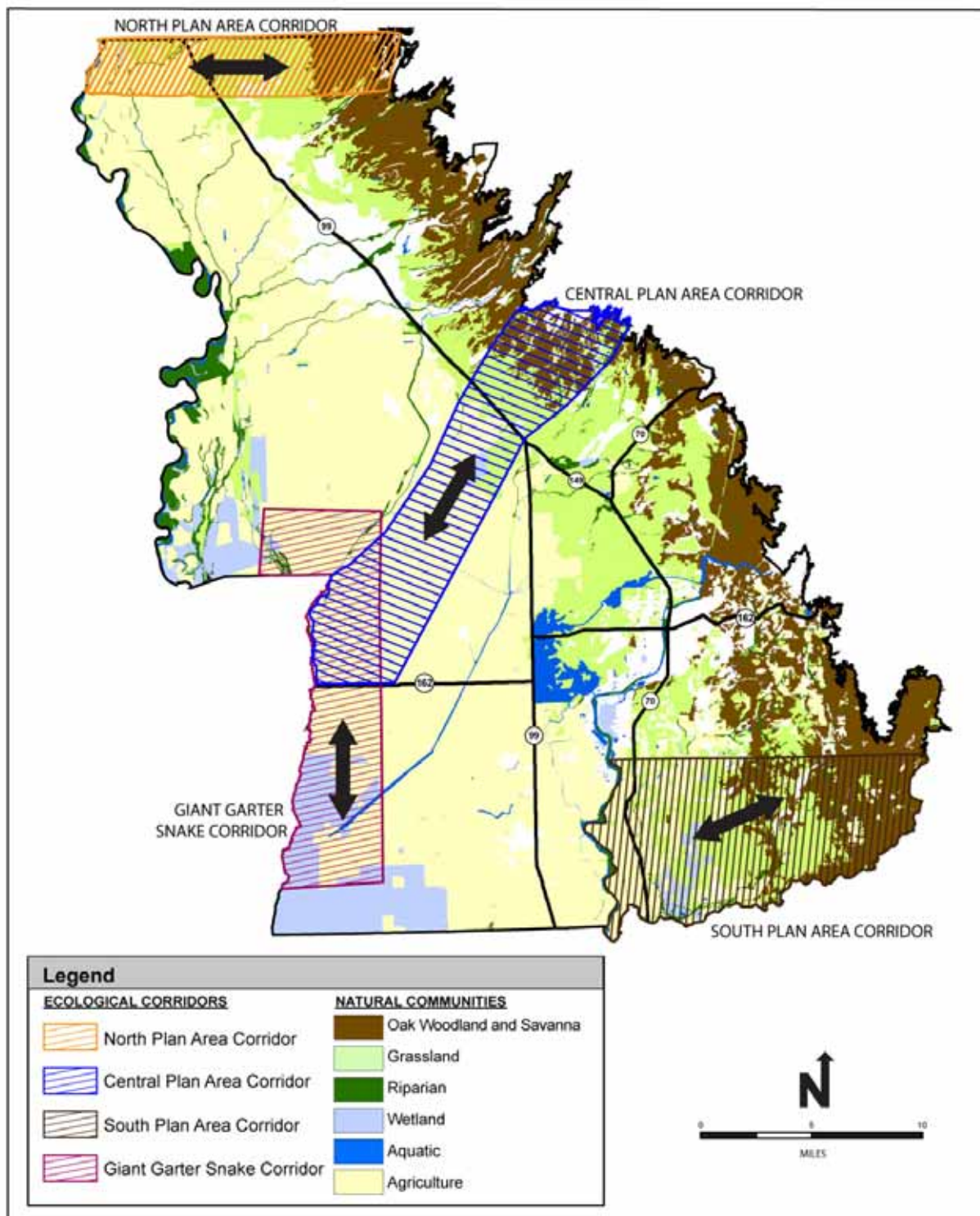


Figure 5-4. Locations within which ecological corridors will be protected under the BRCP

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Goal LAND3: Maintain and improve connectivity among protected lands to provide for the movement of covered and other native species among habitat areas and to facilitate genetic exchange among populations.

Objective LAND3.1: Protect corridors of habitat that provide linkages among protected habitat areas within and adjacent to the Plan Area.

Objective LAND3.2: Improve habitat corridors that allow covered and other native species to move into protected habitats from adjacent lands and among habitat areas within preserved lands.

Objective LAND3.3: Maintain or improve upstream and downstream passage for covered and other native fish in Pine Creek, Rock Creek, Mud Creek, Big Chico Creek, Lindo channel, Little Chico Creek, Butte Creek, Little Dry Creek, and Feather River.

Goal LAND4: Maintain and rehabilitate ecosystem processes that support covered species and their habitats.

Objective LAND4.1: Protect and enhance lands within watersheds and subwatersheds that are important to maintaining the quantity, quality, and timing of runoff to streams and wetlands.

Objective LAND4.2: Reduce the loads of toxic contaminants into waters that support covered plants, amphibians, and fish, and aquatic foodweb processes.

Objective LAND4.3: Restore floodplain erosional and depositional processes on BRCP protected river and stream channels.

Goal LAND5: Protect lands with a sufficient range of conditions to accommodate future anticipated shifts in distributions of covered species and natural communities with climate change.

Objective LAND5.1: Protect [] acres of suitable sites to provide for the potential future upslope migration of oak woodland and savanna communities in response to climate change.

5.3.2.2 Natural Community-Level Goals and Objectives

Goal NACO1: Protect oak woodland and savanna, grassland, riparian, wetland, aquatic natural communities that represent a range of ecological gradients and that support or have the potential to support high functioning habitat for covered and other native species.

Objective NACO1.1: Protect 3,665 acres of existing unprotected blue oak savanna of minimum patch size of 300 acres in combination with other oak habitats that are distributed within the Plan Area as indicated in Table 5.1.

Objective NACO1.2: Protect 3,565 acres of existing unprotected interior live oak and mixed oak woodlands of minimum patch size of 300 acres distributed within the Plan Area as indicated in Table 5.1.

Objective NACO1.3: Protect 51,020 acres of unprotected grassland (including grassland with swale complexes and vernal pools) within the Plan Area as indicated in Table 5.1.

Objective NACO1.4: Protect 6,370 acres of existing unprotected cottonwood-willow riparian forest and valley oak riparian forest in minimum patch sizes of 25 acres along rivers and streams distributed within the Plan Area as indicated in Table 5.1.

Objective NACO1.5: Protect at least 25 small stands (under 25 acres) of riparian trees dominated by native tree species that could support nesting Swainson's hawk and other raptors.

Objective NACO1.6: Protect at least [] acres of existing unprotected grassland swale complexes that are within vernal pool species recovery core areas distributed within the Plan Area as indicated in Table 5.1.

Objective NACO1.7: Protect 495-8,310 acres of existing unprotected emergent wetlands distributed within the Plan Area as indicated in Table 5.1.

Objective NACO1.8: Protect seeps that support emergent wetlands within BRCP protected grassland and oak savanna and oak woodland natural communities.

Objective NACO1.9: Maintain 2,530-35,920 acres of existing managed wetlands that support covered species habitat as wetlands distributed within the Plan Area as indicated in Table 5.1.

Objective NACO1.10: Protect up to 25 ponds that support western pond turtle and western spadefoot toad habitat, including adjacent upland habitat extending at least 200 feet from ponds, within BRCP protected grassland, oak savanna and woodland, and wetland natural communities.

Objective NACO1.11: Protect at least 15 linear miles of existing unprotected reaches of Pine Creek, Rock Creek, Mud Creek, Big Chico Creek, Lindo Channel, Little Chico Creek, Butte Creek, Little Dry Creek, and Feather River (one or both banks of streams channels may be protected under this objective).

Goal NACO2: Enhance habitat functions of BRCP protected oak woodland and savanna, grassland, swale, riparian, wetland, and aquatic natural communities.

Objective NACO2.1: Enhance the habitat functions of up to 5,120 acres of BRCP protected vernal pools and swales and adjacent watershed grassland.

Objective NAC02.2: Enhance the habitat functions of up to 7,640 acres of BRCP protected grassland that do not support vernal pools.

Objective NAC02.3: Enhance the habitat functions of up to 1,595 acres of BRCP protected cottonwood-willow riparian and valley oak riparian forest for covered and other native species.

Objective NAC02.4: Enhance the habitat functions of up to 8,980 acres of BRCP protected emergent wetlands for covered and other native species.

Objective NAC02.5: Enhance the habitat functions of channel bank and instream cover components of covered and other native fish species habitats along 5 linear miles of BRCP protected stream channel.

Objective NAC02.6: Enhance the habitat functions of up to 7 BRCP protected ponds for covered and other native species.

Goal NAC03: Restore oak woodland and savannah, grassland, riparian, and wetland natural communities.

Objective NAC03.1: Restore ■ acres of grassland swale complex that function as habitat for covered and other native species distributed within the Plan Area as indicated in Table 5.10.

Objective NAC03.2: Restore ■ acres of vernal pools that function as habitat for covered and other native species distributed within the Plan Area as indicated in Table 5.10.

Objective NAC03.3: Restore ■ acres of cottonwood-willow riparian forest along rivers and streams distributed within the Plan Area as indicated in Table 5.10.

Objective NAC03.4: Restore ■ acres of valley oak riparian forest along rivers and streams distributed within the Plan Area as indicated in Table 5.10.

Objective NAC03.5: Restore ■ acres of willow scrub along rivers and streams distributed within the Plan Area as indicated in Table 5.10.

Objective NAC03.6: Restore ■-■ acres of emergent wetland, depending on the amount of rice land maintained under objective NAC04.1, distributed within the Plan Area as indicated in Table 5.10.

Objective NAC03.7: Restore ■ acres of seasonal or managed wetland, depending on the amount of rice land maintained under objective NAC04.1, distributed within the Plan Area as indicated in Table 5.10.

Goal NACO4: Maintain and enhance agricultural land cover types and agricultural land use mosaics that support habitat for covered and other native wildlife species.

Objective NACO4.1: Annually maintain 0- 78,140 acres of land in rice production, depending on the amount of giant garter snake and greater sandhill crane habitat under objectives NACO1.7 and NACO1.9 distributed within the Plan Area as indicated in Table 5.1.

Objective NACO4.2: Annually maintain 8,760 acres of irrigated pasture and irrigated cropland distributed within the Plan Area as indicated in Table 5.1.

Objective NACO4.3: Enhance habitat conditions for covered species on BRCP maintained agricultural lands.

5.3.3 Species-Level Goals and Objectives

The following are species-specific goals and objectives. The landscape-level and natural community-level goals and objectives address most of the habitat conservation needs of the covered species.

Goal SPEC1: Protect and enhance covered species' habitats to maintain and enhance the abundance and distribution of covered species in the Plan Area.

Objective SPEC1.1: Protect and, where covered species will benefit, enhance covered species habitats in the quantities and locations indicated for each covered species in Table 5.2.

Objective SPEC1.2: Protect all unprotected active bald eagle nest sites from activities that could result in nest site abandonment and from disturbances that could reduce nesting success.

Objective SPEC1.3: Protect all unprotected active American peregrine falcon nesting sites from activities that could result in loss or degradation of the nesting habitat or nest site abandonment and from disturbances that could reduce nesting success.

Objective SPEC1.4: Protect existing unprotected occupied bank swallow nesting colonies from anthropogenic activities that could result in the loss of the colony or degradation of the habitat.

Objective SPEC1.5: Protect 29 linear miles of channel banks along the Feather River, Big Chico Creek, and Butte Creek that support dynamic bank formation and erosion processes that create bank swallow nesting habitat.

Objective SPEC1.6: Protect 400 acres of any combination of existing unprotected grassland, oak woodland and savanna, and riparian habitats in minimum patch sizes of 40 acres that support California horned lizard habitat distributed within the Plan Area.

Objective SPEC1.7: Protect 85 percent of western spadefoot habitat within the portion of the Northeast Sacramento vernal pool region present within the Plan Area, as per Recovery Plan (USFWS 2005).

Objective SPEC1.8: Bring under protection and enhance habitat areas within the Plan Area that are found to support breeding populations of California red-legged frog in the future.

Objective SPEC1.9: Increase the supply of spawning gravels recruited into creeks supporting Chinook salmon and steelhead runs compared to existing conditions.

Objective SPEC1.10: Remove, modify, or screen up to 57 diversions on streams supporting Chinook salmon and steelhead to reduce the risk for entrainment of juvenile salmonids.

Objective SPEC1.11: Protect 95 percent of suitable conservancy fairy shrimp habitat present within the Vina Plains recovery core area, as per Recovery Plan (USFWS 2005).

Objective SPEC1.12: Protect 85 percent of suitable vernal pool tadpole shrimp habitat present within the Doe Mill recovery core area and 95% present within each of the following recovery core areas: Chico, Oroville, and Vina Plains, as per Recovery Plan (USFWS 2005).

Objective SPEC1.13: Protect █% of extant occurrences of Butte County meadowfoam in the Plan Area, as per Recovery Plan (USFWS 2005).

Objective SPEC1.14: Protect 95% of suitable Butte County meadowfoam habitat within each of the Chico, Doe Mill, Vina Plains, and Oroville Recovery Areas, as per Recovery Plan (USFWS 2005).

Objective SPEC1.15: Protect 80% of the remaining known extant occurrences of Hoover's spurge within the Plan Area that are currently unprotected, as per Recovery Plan (USFWS 2005).

Objective SPEC1.16: Protect 95% of suitable Hoover's spurge habitat within the Oroville and Vina Plains Recovery Areas, as per Recovery Plan (USFWS 2005).

Objective SPEC1.17: Protect 80% of the remaining known extant occurrences of Greene's tuctoria that are currently unprotected, as per Recovery Plan (USFWS 2005).

Objective SPEC1.18: Protect 95% of suitable Greene's tuctoria habitat within the Oroville and Vina Plains Recovery Areas and 85% of suitable species habitat within the Richvale Recovery Area, as per Recovery Plan (USFWS 2005).

Objective SPEC1.19: Protect the 1 known unprotected occurrence of hairy Orcutt grass present in the Plan Area consistent with the overall Recovery Plan objective to protect 90% of known extant occurrences of hairy Orcutt grass (USFWS 2005).

Objective SPEC1.20: Protect 95% of suitable hairy Orcutt grass habitat within the Oroville and Vina Plains Recovery Areas, as per Recovery Plan (USFWS 2005).

Objective SPEC1.21: Protect 80% of known extant occurrences of slender Orcutt grass in the Plan Area, as per Recovery Plan (USFWS 2005).

Objective SPEC1.22: Protect 95% of slender Orcutt grass species habitat within the Vina Plains Recovery Area and 85% of suitable species habitat in the Palermo Recovery Area, as per Recovery Plan (USFWS 2005).

Objective SPEC1.23: Reintroduce slender Orcutt grass to extant vernal pools and soil types from which surveys indicate that the species has been extirpated, as per Recovery Plan (USFWS 2005).

Objective SPEC1.24: Protect 50% of the remaining known unprotected extant occurrences of Butte County checkerbloom in the Plan Area.

Objective SPEC1.25: Protect 100% of the remaining known extant occurrences of Ahart's dwarf rush that are currently unprotected, as per Recovery Plan (USFWS 2005).

Objective SPEC1.26: Protect 85% of suitable Ahart's dwarf rush habitat within the Honcut Core Recovery Area, as per the Recovery Plan (USFWS 2005).

Objective SPEC1.27: Protect 100% of the remaining known extant occurrences of Ferris' milkvetch that are currently unprotected within the Plan Area, as per Recovery Plan (USFWS 2005).

Objective SPEC1.28: Protect 95% of suitable Ferris' milkvetch habitat within the Llano Seco and Upper Butte Basin Recovery Areas, as per Recovery Plan (USFWS 2005).

Objective SPEC1.29: Protect the single known unprotected occurrence of veiny monardella in the Plan Area.

Objective SPEC1.30: Protect 50% of the remaining known extant occurrences of California beaked-rush that are currently unprotected in the Plan Area.

1 **Objective SPEC1.31:** Protect 1 of the 3 known extant occurrences of Ahart's
2 paronychia that are currently unprotected within the Plan Area.

3 **Objective SPEC1.32:** Protect up to 5 currently unknown occurrences of lesser saltscale
4 that may be located in the Plan Area over the term of BRCP.

5 **Objective SPEC1.33:** Protect 50% of known extant occurrences of Butte County golden
6 clover that are currently unprotected within the Plan Area.

7 **Objective SPEC1.34:** Protect 50% of known extant occurrences of Red Bluff dwarf
8 rush that are currently unprotected within the Plan Area.

9 **Objective SPEC1.35:** Protect new occurrences of covered plant species located in the
10 future through BRCP land acquisitions to protect natural communities.