

1 **Note to Reviewers:** *This handout presents a partial draft of Section 5.5, Approach to Providing*
2 *Conservation for Covered Species, of BRCP document Chapter 5, Conservation Strategy. This*
3 *section describes how implementation of the conservation measures conserves each of covered*
4 *wildlife species and mitigates impacts of the covered activities on their habitats.*

5 **5.5 Approach to Providing Conservation for Covered Species**

6 The BRCP Conservation Strategy is designed to meet the ESA section 10 standard to minimize
7 and mitigate the impacts of the covered activities on the covered species to the maximum extent
8 practicable (50 C.F.R. § 17.22(b)(2)(B)) and the NCCP Act standard to contribute to the
9 conservation of covered species. This section describes how implementation of the Conservation
10 Strategy minimizes and mitigates the impacts of the covered activities on and contributes to the
11 conservation the covered species. The approach to conserving each of the covered species
12 focuses on alleviating the effects of environmental stressors in the Plan Area that pose a threat to
13 maintaining and increasing each species' population that can be reasonably and practicably
14 addressed through the BRCP.

15 As described in Section 5.4, *Conservation Measures*, the BRCP includes conservation measures
16 that avoid and minimize the impacts of covered activities and protects, enhances, and restores an
17 extent of natural communities sufficient to mitigate impacts of the covered activities on and to
18 contribute to the conservation of the covered species. Beyond implementing the avoidance and
19 minimization measures (see 5.4.4, *Avoidance and Minimization Measures*), it is not considered
20 practicable to further modify the development covered activities to reduce the level of potential
21 impacts on the covered species. There are also no practicable alternatives, other than
22 implementing the BRCP avoidance and minimization measures, to implementing covered
23 activities that are necessary to meet the overall planning goals of the BRCP.

24 **5.5.1 Tricolored Blackbird**

25 Tricolored blackbirds are largely endemic to California. Tricolored blackbirds occur in Butte
26 County primarily during the breeding season. Post-breeding birds can be observed in Butte
27 County and other Sacramento Valley counties into October and November, but most birds
28 migrate to wintering areas in the Sacramento-San Joaquin Delta and coastal areas during the non-
29 breeding season. The species has dramatically declined in Butte County from over 300,000
30 adults in 32 colonies to just one active colony located along Lone Tree Road with an estimated
31 500 adult blackbirds in 2001.

32 Tricolored blackbirds have three basic requirements for selecting their breeding colony sites: 1)
33 open, accessible water; 2) a protected nesting substrate, including either flooded, thorny, or spiny
34 vegetation; and 3) a suitable foraging space proving adequate insect prey within a few miles of the
35 nesting colony. Tricolored blackbird foraging habitat includes annual grassland (particularly
36 ungrazed grasslands containing tall grasses), wet and dry vernal pools and other seasonal

1 wetlands, pastures, agricultural fields – primarily alfalfa and recently tilled fields – cattle
2 feedlots, and dairies. They also forage occasionally in riparian scrub and marsh habitats.
3 Proximity to suitable foraging habitat appears to be important for the establishment of nesting
4 colonies because foraging occurs at least initially in the field containing the breeding

5 The most significant historic and ongoing threat to the tricolored blackbird is habitat loss and
6 alteration. The initial conversion from native landscapes to agriculture removed vast wetland
7 areas in the state and caused initial declines in populations. The more recent conversion of
8 suitable agricultural lands to urbanization has permanently removed historic breeding and
9 foraging habitat for this species. Habitat fragmentation and proximity to human disturbances has
10 also led to abandonment of large historic colonies. Nests in cereal crops and silage are often
11 destroyed by agricultural operations. As available habitat becomes increasingly limited and food
12 resources become more concentrated, predation can have a substantially larger impact on nesting
13 colonies. Nonnative predators, especially feral cats, can also have a dramatic impact on nesting
14 colonies. Tricolored blackbird colonies are highly sensitive to human disturbances. Close
15 proximity to urbanizing areas can cause colonies to be permanently abandoned. Increases in noise,
16 loose pets, and human presence can cause nest abandonment. Even entry into colonies for
17 management or scientific purposes can cause disturbances and should be avoided.

18 **5.5.1.1 Applicable Goals, Objectives and Conservation Measures**

19 *Applicable Goals and Objectives from Section 3.3*

20

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

24

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

27

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

31

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

34

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

38

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

41

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

4
5 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
6 grassland-, swale, riparian, wetland, and aquatic natural communities.

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

9 **Objective NACO2.2:** Enhance the habitat functions of up to 7,640 acres of BRCP
10 protected grassland that do not support vernal pools.

11 **Objective NACO2.4:** Enhance the habitat functions of up to 8,980 acres of BRCP
12 protected emergent wetlands for covered and other native species.

13 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
14 communities.

15
16 **Objective NACO3.1:** Restore █ acres of grassland swale complex that function as
17 habitat for covered and other native species distributed within the Plan Area as indicated
18 in Table 5.10.

19
20 **Objective NACO3.6:** Restore █-█ acres of emergent wetland, depending on the
21 amount of rice land maintained under objective NACO4.1, distributed within the Plan
22 Area as indicated in Table 5.10.

23
24 **Objective NACO3.7:** Restore █ acres of seasonal or managed wetland, depending on
25 the amount of rice land maintained under objective NACO4.1, distributed within the Plan
26 Area as indicated in Table 5.10.

27
28 **Goal NACO4:** Maintain and enhance agricultural land cover types and agricultural land use
29 mosaics that support habitat for covered and other native wildlife species.

30 **Objective NACO4.1:** Annually maintain 0- 78,140 acres of land in rice production,
31 depending on the amount of giant garter snake and greater sandhill crane habitat under
32 objectives NACO1.7 and NACO1.9 distributed within the Plan Area as indicated in Table
33 5.1.

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

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

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

5 **Objective SPEC1.1:** Protect and, where covered species will benefit, enhance covered
6 species habitats in the quantities and locations indicated for each covered species in Table
7 5.2.

8 *Applicable Conservation Measures from Section 3.4*

- 9 • CM 1: Protect Natural Communities
- 10 • CM5: Restore vernal pool complex
- 11 • CM6: Restore/Create Emergent Wetland
- 12 • CM7: Create Managed Wetlands
- 13 • CM9: Enhance and Manage Protected Natural Communities

14 **5.5.1.2 Summary of Permanent Habitat Effects**

15 Full implementation of the BRCP covered activities could result in permanent removal and
16 degradation of habitat functions of up to █ acres and █ acres, respectively, of modeled
17 tricolored blackbird breeding and foraging habitat.

18 **5.5.1.3 Conservation Approach and Expected Outcomes**

19 Full implementation of the BRCP will protect an additional 65,700 acres of tricolored blackbird
20 habitat, resulting in protection of over 40% of habitat in the Plan Area (see Table 5.7). Current
21 distribution of tricolored blackbirds within this habitat is limited to a small portion of the Plan
22 Area and habitat protection will focus on currently occupied habitat areas. Conservation
23 measures to protect emergent and managed wetlands and remnant patches of wetland and
24 riparian habitats associated present in the agricultural landscape will serve to protect nesting
25 habitat for the species. Protected habitat areas will be comprised of a mosaic of grassland,
26 wetlands, and agricultural land habitats that will provide protected nesting habitat areas within
27 the typical foraging flight distance of 3 miles from foraging habitat. The conservation land
28 assembly principles also include provisions for prioritizing protection of lands that support new
29 nesting colonies that may be located during BRCP implementation. Restoration/creation of █-
30 █ acres of the emergent wetland and managed wetland will also restore/create tricolored
31 blackbird foraging and nesting habitats. Nesting colonies located on BRCP conservation lands
32 will be monitored to assess nesting success and Conservation Measure *CM2: Develop and*
33 *Implement an Invasive Species Control Program* provides for controlling predators if necessary
34 to improve nesting success.

1 In summary, the extent of BRCP actions to protect, enhance, and restore/create tricolored
2 blackbird nesting and foraging habitats are expected to be sufficient to sustain the existing
3 breeding and wintering population of tricolored blackbirds in the Plan Area and provide for the
4 potential future expansion of their abundance and distribution.

5 **5.5.2 Yellow-Breasted Chat**

6 Yellow-breasted chats are neotropical migrants that are rare in California and in Butte County.
7 The species has been observed in the Upper Park area of Big Chico Creek, Lower Butte Creek
8 Canyon, Little Chico Creek and at the Butte Creek Ecological Preserve. Yellow-breasted chats
9 nest and forage in early successional vegetation including clearcut areas and powerline corridors
10 with dense shrubby vegetation with sapling-sized trees, blackberry (*Rubus* spp.) thickets and in
11 dense riparian thickets of willows, vines, and brush associated with streams and other wetland
12 habitats. Some taller trees are also required for song perches (Dunn and Garrett 1977). A major
13 factor leading to declines in populations of yellow-breasted chats is the loss and degradation of
14 early successional riparian habitat (willow/alder shrub habitats with a dense understory)
15 throughout the species' range. Habitat loss and degradation can occur through clearing of
16 vegetation for agriculture, timber harvest, development, flood control and river channelization.
17 Cowbird parasitism can have a significant impact on local reproductive performance of yellow-
18 breasted chats.

19 **5.5.2.1 Applicable Goals, Objectives and Conservation Measures**

20 *Applicable Goals and Objectives from Section 3.3*

21
22 **Goal LAND1:** Protect large landscapes within the range of physical and biological attributes
23 (e.g., slope, soils, hydrology, climate, plant associations) in the Plan Area to sustain covered
24 species abundance and habitat and preserve native biodiversity.

25
26 **Objective LAND1.1:** Establish a system of protected lands in the Plan Area that protects
27 the quantities and patch sizes of each natural community indicated in Table 5.9.

28
29 **Goal LAND3:** Maintain and improve connectivity among protected lands to provide for the
30 movement of covered and other native species among habitat areas and to facilitate genetic
31 exchange among populations.

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

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

37 **Objective NACO1.4:** Protect 6,370 acres of existing unprotected cottonwood-willow

1 riparian forest and valley oak riparian forest in minimum patch sizes of 25 acres along
2 rivers and streams distributed within the Plan Area as indicated in Table 5.1.

3 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
4 grassland-, swale, riparian, wetland, and aquatic natural communities.

5 **Objective NACO2.3:** Enhance the habitat functions of up to 1,595 acres of BRCP
6 protected cottonwood-willow riparian and valley oak riparian forest for covered and other
7 native species.

8 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
9 communities.

10
11 **Objective NACO3.3:** Restore █ acres of cottonwood-willow riparian forest along
12 rivers and streams distributed within the Plan Area as indicated in Table 5.10.

13 **Objective NACO3.4:** Restore █ acres of valley oak riparian forest along rivers and
14 streams distributed within the Plan Area as indicated in Table 5.10.

15 **Objective NACO3.5:** Restore █ acres of willow scrub along rivers and streams
16 distributed within the Plan Area as indicated in Table 5.10.

17 *Applicable Conservation Measures from Section 3.4*

- 18 • CM 1: Protect Natural Communities
- 19 • CM2: Develop and implement an invasive species control program
- 20 • CM4: Restore riparian habitat
- 21 • CM9: Enhance and Manage Protected Natural Communities

22 **5.5.2.2 Summary of Permanent Effects**

23 Full implementation of the BRCP covered activities could result in permanent removal and
24 degradation of habitat functions of up to █ acres and █ acres, respectively, of modeled yellow-
25 breasted chat habitat.

26 **5.5.2.3 Conservation Approach and Expected Outcomes**

27 Full implementation of the BRCP will protect an additional 1,030 acres of modeled suitable
28 yellow-breasted chat habitat and 187 acres of modeled occupied habitat, resulting in protection
29 of over 24% and 90% of these habitat types, respectively, in the Plan Area (see Table 5.7).
30 Protection of corridors of riparian habitat will help ensure that chat populations are well
31 connected to other populations and that local movement is uninhibited. In addition, the
32 Implementing Entity will monitor brown-headed cowbird abundance in occupied yellow-

1 breasted chat habitat areas and implement control measures if necessary to improve nesting
2 success. Implementation of these conservation actions is expected to be sufficient to sustain the
3 existing abundance and distribution of yellow-breasted chat in the Plan Area.

4 **5.5.3 Bank Swallow**

5 Bank swallow nests in steep stream channel banks comprised of appropriate substrates that are
6 created and renewed through erosional processes of streams and rivers. Its habitat has been
7 greatly reduced due to flood control projects that eliminate the soil characteristics and erosion
8 processes necessary for the species to form breeding colonies. Suitable bank swallow habitat
9 within the Plan Area is defined as banks along unleveed and unchannelized portions of the
10 Sacramento and Feather Rivers and Big Chico and Butte Creeks and set-back levees associated
11 with broad basins. However, known occurrences are restricted to sites along the Sacramento and
12 Feather Rivers.

13 Reports have identified 17 bank swallow colonies along the Sacramento River within or
14 immediately adjacent to the Plan Area (nine on the eastern bank and eight on the western bank.
15 However, these colonies have since undergone significant declines. An additional 23 colonies
16 along the Feather River between the confluence with the Sacramento River and Oroville have
17 been reported. Several of these colonies occur within the Plan Area and are considered extant.
18 Available bank swallow nesting habitat was substantially reduced in California due to
19 channelization of streams. This practice eliminated nesting habitat and prevented formation of
20 new nesting habitat by preventing natural erosional processes. Along the Sacramento and
21 Feather Rivers and other Sacramento Valley nesting areas, the most significant current threat is
22 the direct loss of suitable colony sites due to continuing bank protection and flood control
23 projects. Bank swallow along the Sacramento River have suffered an estimated 47% reduction in
24 the number of colonies between 1986 and 1994, followed by a gradual increase through 1999
25 when the number was similar to that found in 1986. Other reports estimate a 27% decline in the
26 number of burrows along this stretch between 1986 and 1999, indicating that while the number
27 of colonies rebounded to near 1986 levels, the number of burrows per colony decreased. Despite
28 an apparent continuing decline in local populations, the Butte County stretch of the Sacramento
29 and Feather Rivers remains a key area for the bank swallow nesting population in California.

30 **5.5.3.1 Applicable Goals , Objectives and Conservation Measures**

31 *Applicable Goals and Objectives from Section 3.3*

32

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

35

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

38

1 **Goal NAC01:** Protect oak woodland and savannah, grassland, riparian, wetland, aquatic natural
2 communities that represent a range of ecological gradients and that support or have the potential
3 to support high functioning habitat for covered and other native species.
4

5 **Objective NAC01.11:** Protect at least 15 linear miles of existing unprotected reaches of
6 Pine Creek, Rock Creek, Mud Creek, Big Chico Creek, Lindo Channel, Little Chico
7 Creek, Butte Creek, Little Dry Creek, and Feather River (one or both banks of streams
8 channels may be protected under this objective).
9

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

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

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

18 *Applicable Conservation Measures from Section 3.4*

- 19
- CM 1: Protect Natural Communities
 - **CM12:** Remove riprap from channel banks along streams that support salmonid spawning habitat.
- 21

22 **5.5.3.2 Summary of Permanent Effects**

23 Full implementation of the BRCP covered activities could result in permanent removal of up to
24 acres of modeled bank swallow habitat.

25 **5.5.3.3 Conservation Approach and Expected Outcomes**

26 Full implementation of the BRCP will protect an additional 29 miles of channel bank that
27 currently or potentiall could support bank swallow habitat in the future, resulting in protection of
28 over 45% of habitat in the Plan Area (see Table 5.7). Full implementation of the BRCP will
29 result in protection of over than 47% of its habitat, thus ensuring that the erosional processes
30 necessary to provide its habitat over time are maintained. Such conservation contributes to the
31 goals of the CDFG bank swallow recovery plan to ensure that: 1) the remaining population of
32 this species does not suffer further declines in either range or abundance; and 2) sufficient habitat
33 is available to ensure that the species will be able to survive as a member of California's
34 avifauna.

1 5.5.4 Western Burrowing Owl

2 Western burrowing owls are resident in Butte County year round and occur in relatively low
3 densities. Habitat areas include the non-orchard agricultural areas along the western side
4 of Butte County and valley and foothill grasslands along the east side of the Plan Area. In
5 northern California, most nest sites occur in abandoned California ground squirrel burrows;
6 however, other sites, such as culverts, pipes, and rock piles are also used. Optimal nesting
7 locations are within an open landscape with level to gently sloping topography, sparse or low
8 grassland or pasture cover, and a high density of burrows. Urbanization, including residential
9 and commercial development and infrastructure development (roads and oil, water, gas, and
10 electrical conveyance facilities) permanently removes habitat and has led to permanent
11 abandonment of many western burrowing owl colonies in the developing portions of the Central
12 Valley, Bay Area, and throughout the state.

13 Burrowing owls are known for their strong site fidelity and seem to have a high level of
14 tolerance for human encroachment, degradation of native habitats, and fragmentation of habitats.
15 Active breeding colonies have been reported in small parcels or narrow strips of disturbed habitat
16 along levees or utility corridors and surrounded by urban development. Some western burrowing
17 owls nest on the edges of agricultural areas and forage in suitable agricultural fields, such as
18 recently harvested fields, alfalfa and other hay fields, irrigated pastures, and fallow fields. Field
19 conversion to incompatible crop types, such as orchards, vineyards, and other crops reduce
20 available foraging habitat and lead to abandonment of traditional nesting areas. Many western
21 burrowing owl nests are known to occur along the outside slope or at the toe of levees. Levee
22 stability practices for flood control, including vegetation removal, grading, and reinforcing with
23 rock can destroy burrowing owl nesting habitat. Rodent control, particularly along levees and
24 roadsides, can decimate ground squirrel burrow abundance. Although western burrowing owls are
25 relatively tolerant of lower levels of human activity, human-related impacts such as shooting and
26 burrow destruction adversely affect this species.

27 *Applicable Goals and Objectives from Section 3.3*

28
29 **Goal LAND1:** Protect large landscapes within the range of physical and biological attributes
30 (e.g., slope, soils, hydrology, climate, plant associations) in the Plan Area to sustain covered
31 species abundance and habitat and preserve native biodiversity.

32
33 **Objective LAND1.1:** Establish a system of protected lands in the Plan Area that protects
34 the quantities and patch sizes of each natural community indicated in Table 5.9.

35
36 **Goal NACO1:** Protect oak woodland and savannah, grassland, riparian, wetland, aquatic natural
37 communities that represent a range of ecological gradients and that support or have the potential
38 to support high functioning habitat for covered and other native species.

39
40 **Objective NACO1.1:** Protect 3,665 acres of existing unprotected blue oak savanna of

1 minimum patch size of 300 acres in combination with other oak habitats that are
2 distributed within the Plan Area as indicated in Table 5.1.

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

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

10
11 **Objective NACO1.9:** Maintain 2,530-35,920 acres of existing managed wetlands that
12 support covered species habitat as wetlands distributed within the Plan Area as indicated
13 in Table 5.1.

14
15 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
16 grassland-, swale, riparian, wetland, and aquatic natural communities.

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

19 **Objective NACO2.2:** Enhance the habitat functions of up to 7,640 acres of BRCP
20 protected grassland that do not support vernal pools.

21 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
22 communities.

23
24 **Objective NACO3.1:** Restore █ acres of grassland swale complex that function as
25 habitat for covered and other native species distributed within the Plan Area as indicated
26 in Table 5.10.

27
28 **Objective NACO3.7:** Restore █ acres of seasonal or managed wetland, depending on
29 the amount of rice land maintained under objective NACO4.1, distributed within the Plan
30 Area as indicated in Table 5.10.

31
32 **Goal NACO4:** Maintain and enhance agricultural land cover types and agricultural land use
33 mosaics that support habitat for covered and other native wildlife species.

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

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

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

5 **Objective SPEC1.1:** Protect and, where covered species will benefit, enhance covered
6 species habitats in the quantities and locations indicated for each covered species in Table
7 5.2.

8 *Applicable Conservation Measures from Section 3.4*

- 9 • CM 1: Protect Natural Communities
- 10 • CM7: Create Managed Wetlands
- 11 • CM9: Enhance and Manage Protected Natural Communities

12 **5.5.4.2 Summary of Permanent Effects**

13 Full implementation of the BRCP covered activities could result in permanent removal and
14 degradation of habitat functions on up to [] acres and [] acres of modeled western burrowing
15 owl habitat, respectively.

16 **5.5.4.3 Conservation Approach and Expected Outcomes**

17 Full implementation of the BRCP will protect an additional 56,300 acres of western burrowing
18 owl habitat, resulting in protection of over 60% of habitat in the Plan Area (see Table 5.7). The
19 Management and enhancement activities on protected grasslands are also expected to benefit
20 burrowing owls by increasing prey and nesting burrow availability. Depending on site-specific
21 habitat enhancement and management needs, these actions could include installation of artificial
22 nesting burrows for western burrowing owl to facilitate use of unoccupied areas; installation of
23 perching structures to facilitate use of protected habitats by western burrowing owl; use of fire,
24 grazing, or other vegetation management techniques to increase the absolute cover of native
25 plant species and to control undesirable non-native plant species; prohibiting rodent control
26 activities; creating debris piles to create habitat for prey species; and managing grazing to
27 improve the abundance of fossorial mammals. Implementation of these conservation actions is
28 expected to be sufficient to sustain the existing abundance and distribution of western burrowing
29 owl in the Plan Area.

30 **5.5.5 Western Yellow-Billed Cuckoo**

31 The largest portion of the range of the western yellow-billed cuckoo in Northern California
32 occurs along the western border of the Plan Area. At least four confirmed or probable breeding
33 locations occur within this area along with numerous other detections. Breeding pairs have also

1 been reported from portions of the Feather River between Oroville and the Butte County border.
2 Western yellow-billed cuckoo is a riparian obligate species; its primary habitat association being
3 willow-cottonwood riparian forest. All studies indicate a highly significant association with
4 relatively expansive stands of mature cottonwood-willow forests. Meandering streams that allow
5 for constant erosional and depositional processes create habitat for new rapidly-growing young
6 stands of willow, which create preferred nesting habitat conditions. Channelized streams or
7 levied systems that do not allow for these natural processes become over-mature and,
8 presumably, less optimal.

9 Historical declines have been due primarily to the removal of riparian forests for agricultural and
10 urban expansion. Habitat loss and degradation continues to be the most significant threat to
11 remaining populations. Habitat loss continues as a result of bank stabilization and flood control
12 projects, urbanization along edges of watercourses, agricultural activities, and river management
13 that alter flow and sediment regimes. Nesting Cuckoos are also sensitive to habitat
14 fragmentation that reduces patches of otherwise suitable habitat to less than 325 x 1,000 feet.
15 Predation is a significant source of nest failure, and pesticides may pose a long term threat to
16 western yellow-billed cuckoo.

17 **5.5.5.1 Applicable Goals, Objectives and Conservation Measures**

18 *Applicable Goals and Objectives from Section 3.3*

19
20 **Goal LAND1:** Protect large landscapes within the range of physical and biological attributes
21 (e.g., slope, soils, hydrology, climate, plant associations) in the Plan Area to sustain covered
22 species abundance and habitat and preserve native biodiversity.

23
24 **Objective LAND1.1:** Establish a system of protected lands in the Plan Area that protects
25 the quantities and patch sizes of each natural community indicated in Table 5.9.

26
27 **Goal LAND3:** Maintain and improve connectivity among protected lands to provide for the
28 movement of covered and other native species among habitat areas and to facilitate genetic
29 exchange among populations.

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

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

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

1 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
2 grassland-, swale, riparian, wetland, and aquatic natural communities.

3 **Objective NACO2.3:** Enhance the habitat functions of up to 1,595 acres of BRCP
4 protected cottonwood-willow riparian and valley oak riparian forest for covered and other
5 native species.

6 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
7 communities.

8
9 **Objective NACO3.3:** Restore █ acres of cottonwood-willow riparian forest along
10 rivers and streams distributed within the Plan Area as indicated in Table 5.10.

11 **Objective NACO3.4:** Restore █ acres of valley oak riparian forest along rivers and
12 streams distributed within the Plan Area as indicated in Table 5.10.

13 *Applicable Conservation Measures from Section 3.4*

- 14 • CM 1: Protect Natural Communities
- 15 • CM4: Restore riparian habitat
- 16 • CM9: Enhance and Manage Protected Natural Communities

17 **5.5.5.2 Summary of Permanent Habitat Effects**

18 With implementation of the avoidance and minimization measures described in Section 5.4.4,
19 *Avoidance and Minimization Measures*, all permanent effects on western yellow-billed cuckoo
20 habitat will be avoided.

21 **5.5.5.3 Conservation Approach and Expected Outcomes**

22 Full implementation of the BRCP will protect an additional 2,025 acres of western yellow-billed
23 cuckoo habitat, resulting in protection of 90% of habitat in the Plan Area (see Table 5.7).
24 Restoration of █ acres of riparian habitat (see Table 5-10) in locations that result in creating
25 patches of riparian habitat of at least 25 acres will also increase the extent of cuckoo habitat in
26 the Plan Area. In addition, BRCP protection of over 80% of the riparian habitat present in the
27 Plan Area is expected to maintain patches of habitat suitable for supporting migration and
28 dispersal of the species. Consequently, the BRCP riparian habitat conservation actions are
29 expected to be sufficient to maintain the current Plan Area population and provide for its future
30 expansion.

31 **5.5.6 Greater Sandhill Crane**

32 Although Greater Sandhill Cranes do not breed in the Plan Area, the majority of birds winter

1 within the Sacramento Valley between Butte Sink and the Sacramento-San Joaquin River Delta
2 (Delta). The Sacramento Valley (Chico/Butte Basin) Greater Sandhill crane wintering area is
3 within the Plan Area; it extends from Chico to the Butte Sink between the Sacramento River and
4 State Route 99. Littlefield (2002) estimates that the Butte Basin frequently supports up to 70%
5 of the Central Valley crane population.

6 Wintering habitat is found almost entirely in agricultural fields and edges and consists of three
7 primary elements: foraging habitat, loafing habitat, and roosting habitat. In the Butte Basin,
8 harvested rice fields are the most commonly used foraging habitat along with winter wheat, corn,
9 fallow fields, and grasslands. Loafing generally occurs mid-day when birds loosely congregate
10 along agricultural field borders, levees, rice-checks, ditches, or in alfalfa fields or pastures.
11 During the late afternoon/evening, cranes begin to congregate into large, dense communal groups
12 where they remain until the following morning. Providing protection from predators during the
13 night, roost sites are typically within 2 to 3 miles from foraging/loafing areas and thus available
14 roosting sites are an essential component of winter habitat. Roosting habitat typically consists of
15 shallowly flooded open fields or wetlands interspersed with uplands. If properly managed, roost
16 sites are often used for many years.

17 While declines in greater sandhill cranes are mainly associated with impacts on their breeding
18 grounds, various issues on the wintering grounds may also be significant stressors on this
19 population. Threats on the wintering grounds include changes in water availability; flooding
20 fields for waterfowl, which reduces foraging habitat for cranes; conversion of cereal cropland to
21 vineyards or other incompatible crop types; human disturbances; collision with power lines; and
22 urban encroachment.

23 **5.5.6.1 Applicable Goals, Objectives and Conservation Measures**

24 *Applicable Goals and Objectives from Section 3.3*

25
26 **Goal LAND1:** Protect large landscapes within the range of physical and biological attributes
27 (e.g., slope, soils, hydrology, climate, plant associations) in the Plan Area to sustain covered
28 species abundance and habitat and preserve native biodiversity.

29
30 **Objective LAND1.1:** Establish a system of protected lands in the Plan Area that protects
31 the quantities and patch sizes of each natural community indicated in Table 5.9.

32
33 **Goal NACO1:** Protect oak woodland and savannah, grassland, riparian, wetland, aquatic natural
34 communities that represent a range of ecological gradients and that support or have the potential
35 to support high functioning habitat for covered and other native species.

36
37 **Objective NACO1.9:** Maintain 2,530-35,920 acres of existing managed wetlands that
38 support covered species habitat as wetlands distributed within the Plan Area as indicated
39 in Table 5.1.

40

1 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
2 communities.

3
4 **Objective NACO3.7:** Restore █ acres of seasonal or managed wetland, depending on
5 the amount of rice land maintained under objective NACO4.1, distributed within the Plan
6 Area as indicated in Table 5.10.

7
8 **Goal NACO4:** Maintain and enhance agricultural land cover types and agricultural land use
9 mosaics that support habitat for covered and other native wildlife species.

10 **Objective NACO4.1:** Annually maintain 0- 78,140 acres of land in rice production,
11 depending on the amount of giant garter snake and greater sandhill crane habitat under
12 objectives NACO1.7 and NACO1.9 distributed within the Plan Area as indicated in Table
13 5.1.

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

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

18 **Objective SPEC1.1:** Protect and, where covered species will benefit, enhance covered
19 species habitats in the quantities and locations indicated for each covered species in Table
20 5.2.

21 *Applicable Conservation Measures from Section 3.4*

- 22 • CM 1: Protect Natural Communities
- 23 • CM7: Create Managed Wetlands
- 24 • CM9: Enhance and Manage Protected Natural Communities

25 **5.5.6.2 Summary of Permanent Effects**

26 Full implementation of the BRCP covered activities could result in the permanent removal of up
27 up to █ acres of modeled greater sandhill crane winter roosting and foraging habitat and
28 permanent degradation of habitat functions of up to █ acres of modeled greater sandhill crane
29 habitat.

30 **5.5.6.3 Conservation Approach and Expected Outcomes**

31 Full implementation of the BRCP will protect or create an additional 62,010 acres of greater
32 sandhill crane foraging and roosting habitat, resulting in protection of over 57% of habitat in the
33 Plan Area (see Table 5.7). Current distribution of greater sandhill crane is limited to the non-
34 orchard agricultural lands (primarily rice lands) and managed wetlands in the Basin and

1 Sacramento River CAZs and habitat protection will focus on this currently occupied area.
2 Conservation measures to protect suitable agricultural lands and managed wetlands will serve to
3 protect high value winter roosting and foraging habitat for the species. Hunting and other high-
4 disturbance uses will not be allowed on BDCP managed lands during the period cranes are
5 present in the Plan Area.

6 As described in CM11(Create and Maintain Greater Sandhill Crane Winter Roost Sites) the
7 Implementing Entity will also create and maintain two crane winter roost sites located within the
8 Basin CAZ in traditional crane winter use areas. These roost sites will be managed to provide
9 appropriate seasonal wetland vegetation that supports crane roosting habitat and upland berms
10 situated throughout the seasonal wetland as loafing areas.

11 In summary, the extent of BRCP actions to protect, enhance, and create greater sandhill crane
12 foraging and roosting habitats are expected to be sufficient to sustain the existing wintering
13 population of greater sandhill cranes in the Plan Area and provide for the potential future
14 expansion of their abundance and distribution.

15 **5.5.7 California Black Rail**

16 Known populations of California black rail within Butte County are located just north of La Porte
17 Road southeast of Oroville, but it is likely that additional subpopulations occur further north and
18 possibly west into Butte County. Occurrences of California black rail are reported from seep
19 spring sites in the eastern foothills of the Plan Area, including sites at Upper Bidwell Park, Butte
20 Creek Canyon, and at the Base of Table Mountain; in emergent marsh at the BCAG/Caltrans
21 mitigation project site at the intersection of Highways 70 and 149; and a possible detection near the
22 picnic grounds of Thermalito Forebay. Rails are susceptible to predation by herons, egrets,
23 northern harriers, short-eared owls, and several mammalian species. A dense canopy that
24 provides optimal cover is essential for survival. Occupied sites in the Plan area are typically
25 dominated by bulrushes (*Scirpus* spp.) and cattails (*Typha* spp.). These sites are very shallow
26 (usually less than three cm of standing water depth) but require a perennial water source.
27 Throughout its range, the primary threat to the California black rail is the loss and fragmentation
28 of habitat from urbanization, flood control projects, agricultural practices, and hydrologic
29 changes that affect water regimes. The most significant historical threat was the draining of tidal
30 marshes, which may be responsible for over 90% the population declines of this species, and
31 which is still occurring in some areas, albeit at a slower rate. Within the Plan Area, agricultural
32 practices, livestock grazing, and urbanization may threaten individual subpopulations. Isolated
33 subpopulations are also susceptible stochastic extinction events. Other potential threats include
34 increased predation by domestic cats and by native predators; pollution and its affect on
35 freshwater marshes; and collision with automobiles and utility lines.

36

1 **5.5.7.1 Applicable Goals, Objectives and Conservation Measures**

2 *Applicable Goals and Objectives from Section 3.3*

3
4 **Goal LAND1:** Protect large landscapes within the range of physical and biological attributes
5 (e.g., slope, soils, hydrology, climate, plant associations) in the Plan Area to sustain covered
6 species abundance and habitat and preserve native biodiversity.

7
8 **Objective LAND1.1:** Establish a system of protected lands in the Plan Area that protects
9 the quantities and patch sizes of each natural community indicated in Table 5.9.

10
11 **Goal NACO1:** Protect oak woodland and savannah, grassland, riparian, wetland, aquatic natural
12 communities that represent a range of ecological gradients and that support or have the potential
13 to support high functioning habitat for covered and other native species.

14
15 **Objective NACO1.7:** Protect 495-8,310 acres of existing unprotected emergent
16 wetlands distributed within the Plan Area as indicated in Table 5.1.

17
18 **Objective NACO1.8:** Protect seeps that support emergent wetlands within BRCP
19 protected grassland and oak savanna and oak woodland natural communities.

20
21 **Objective NACO1.9:** Maintain 2,530-35,920 acres of existing managed wetlands that
22 support covered species habitat as wetlands distributed within the Plan Area as indicated
23 in Table 5.1.

24
25 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
26 grassland-, swale, riparian, wetland, and aquatic natural communities.

27
28 **Objective NACO2.4:** Enhance the habitat functions of up to 8,980 acres of BRCP
protected emergent wetlands for covered and other native species.

29 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
30 communities.

31
32 **Objective NACO3.6:** Restore ■-■ acres of emergent wetland, depending on the
33 amount of rice land maintained under objective NACO4.1, distributed within the Plan
34 Area as indicated in Table 5.10.

35
36 **Objective NACO3.7:** Restore ■ acres of seasonal or managed wetland, depending on
37 the amount of rice land maintained under objective NACO4.1, distributed within the Plan
38 Area as indicated in Table 5.10.

39
40 **Goal SPEC1:** Protect and enhance covered species' habitats to maintain and enhance the
41 abundance and distribution of covered species in the Plan Area.

42 **Objective SPEC1.1:** Protect and, where covered species will benefit, enhance covered

1 species habitats in the quantities and locations indicated for each covered species in Table
2 5.2.

3 *Applicable Conservation Measures from Section 3.4*

- 4 • CM 1: Protect Natural Communities
- 5 • CM6: Restore/Create Emergent Wetland
- 6 • CM7: Create Managed Wetlands
- 7 • CM9: Enhance and Manage Protected Natural Communities

8 **5.5.7.2 Summary of Permanent Habitat Effects**

9 Full implementation of the BRCP covered activities could result in permanent removal of up to
10 █ acres emergent wetland that could support California black rail habitat.

11 **5.5.7.3 Conservation Approach and Expected Outcomes**

12 Black rail habitat requirements are very specific and do not correlate well with mapped land
13 cover types. The species selects a narrow range of conditions that exist within emergent
14 wetlands, and may be present in small patches of seeps or springs which have not been
15 delineated within the Butte Regional HCP/NCCP database. The current extent of suitable habitat
16 for this species is therefore largely unknown, and no habitat model has been developed for black
17 rail. Full implementation of the BRCP will protect an additional 495 acres of emergent wetland
18 and 2,530 acres of managed wetland that could support patches of California black rail habitat,
19 resulting in protection of approximately 64% and 92% of these community types, respectively, .
20 in the Plan Area (see Table 5-6). Conservation measure CM9: *Enhance and Manage Protected*
21 *Natural Communities* provides for managing BRCP protected emergent wetlands to enhance
22 habitat functions for California black rail and other wetland-associated covered species,
23 including such actions as maintaining appropriate water depth (3 cm for black rail), establishing
24 emergent vegetation (especially cover with a permeable understory to allow high security
25 foraging habitat for black rail), fencing to exclude livestock (to protect cover for rail) and control
26 of non-native predators (such a feral cats, which are known predators of black rails). Restoration
27 of █ acres of emergent wetland habitats (see Table 5-10) is also expected to increase the extent
28 of California black rail habitat in the Plan Area. In addition, the conservation land assembly
29 rules direct the Implementing Entity to give priority to protecting upland natural communities
30 that support springs and seeps that provide California black rail habitat. The strategy's emphasis
31 on adaptive management furthermore allows reacting flexibly to the observation of black rail
32 occurrences when acquiring, protecting or managing protected lands.

33 **5.5.8 American Peregrine Falcon**

34 American peregrine falcons are known to occur, and possibly breed, along the eastern edge or

1 just east of the eastern Plan Area boundary. Nesting habitat is generally associated with cliffs and
2 open landscapes for foraging along rivers, lakes, or coastal shorelines. Nest sites are usually
3 selected based on available foraging opportunities. American peregrine falcons forage almost
4 exclusively on birds. Foraging habitat consists of open water (e.g., lakes, reservoirs, estuaries,
5 rivers, and oceans), marshes, mudflats, and tidal zones where shorebirds and other water birds
6 congregate, or pasturelands with potholes or vernal pools that provide habitat for waterfowl and
7 other water birds.

8 Historically, organochloride pesticides presented the greatest threat to peregrine falcons. However,
9 the risk is significantly reduced since the banning of DDT. Other potential threats to nesting
10 peregrine falcons include urbanization resulting in the loss of foraging habitats and disturbance to
11 nest sites; illegal shooting, egg collecting; and collision with vehicles, utility lines, and other
12 structures. Development activities and land use changes in the Plan Area could potentially pose a
13 threat to this local population. Urbanization of bluffs and ridges could alter available habitat or
14 increase levels of human disturbance. Loss of wetland habitats within the Plan Area and any
15 subsequent reduction of available water bird prey that may result could affect foraging opportunities
16 for peregrine falcon.

17 **5.5.8.1 Applicable Goals , Objectives and Conservation Measures**

18 *Applicable Goals and Objectives from Section 3.3*

19
20 **Goal LAND1:** Protect large landscapes within the range of physical and biological attributes
21 (e.g., slope, soils, hydrology, climate, plant associations) in the Plan Area to sustain covered
22 species abundance and habitat and preserve native biodiversity.

23
24 **Objective LAND1.1:** Establish a system of protected lands in the Plan Area that protects
25 the quantities and patch sizes of each natural community indicated in Table 5.9.

26
27 **Goal NACO1:** Protect oak woodland and savannah, grassland, riparian, wetland, aquatic natural
28 communities that represent a range of ecological gradients and that support or have the potential
29 to support high functioning habitat for covered and other native species.

30
31 **Objective NACO1.3:** Protect 51,020 acres of unprotected grassland (including grassland
32 with swale complexes and vernal pools) within the Plan Area as indicated in Table 5.1.

33
34 **Objective NACO1.6:** Protect at least █ acres of existing unprotected grassland swale
35 complexes that are within vernal pool species recovery core areas distributed within the
36 Plan Area as indicated in Table 5.1.

37
38 **Objective NACO1.7:** Protect 495-8,310 acres of existing unprotected emergent
39 wetlands distributed within the Plan Area as indicated in Table 5.1.

40
41 **Objective NACO1.9:** Maintain 2,530-35,920 acres of existing managed wetlands that

1 support covered species habitat as wetlands distributed within the Plan Area as indicated
2 in Table 5.1.

3
4 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
5 grassland-, swale, riparian, wetland, and aquatic natural communities.

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

8 **Objective NACO2.2:** Enhance the habitat functions of up to 7,640 acres of BRCP
9 protected grassland that do not support vernal pools.

10 **Objective NACO2.4:** Enhance the habitat functions of up to 8,980 acres of BRCP
11 protected emergent wetlands for covered and other native species.

12 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
13 communities.

14
15 **Objective NACO3.1:** Restore █ acres of grassland swale complex that function as
16 habitat for covered and other native species distributed within the Plan Area as indicated
17 in Table 5.10.

18
19 **Objective NACO3.6:** Restore █-█ acres of emergent wetland, depending on the
20 amount of rice land maintained under objective NACO4.1, distributed within the Plan
21 Area as indicated in Table 5.10.

22
23 **Objective NACO3.7:** Restore █ acres of seasonal or managed wetland, depending on
24 the amount of rice land maintained under objective NACO4.1, distributed within the Plan
25 Area as indicated in Table 5.10.

26
27 **Goal NACO4:** Maintain and enhance agricultural land cover types and agricultural land use
28 mosaics that support habitat for covered and other native wildlife species.

29 **Objective NACO4.1:** Annually maintain 0- 78,140 acres of land in rice production,
30 depending on the amount of giant garter snake and greater sandhill crane habitat under
31 objectives NACO1.7 and NACO1.9 distributed within the Plan Area as indicated in Table
32 5.1.

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

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

37 **Objective SPEC1.1:** Protect and, where covered species will benefit, enhance covered

1 species habitats in the quantities and locations indicated for each covered species in Table
2 5.2.

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

6 *Applicable Conservation Measures from Section 3.4*

- 7 • CM 1: Protect Natural Communities
- 8 • CM5: Restore vernal pool complex
- 9 • CM6: Restore/Create Emergent Wetland
- 10 • CM7: Create Managed Wetlands
- 11 • CM9: Enhance and Manage Protected Natural Communities

12 **5.5.8.2 Summary of Permanent Habitat Effects**

13 Full implementation of the BRCP covered activities could result in permanent removal of up to
14 acres of modeled peregrine falcon foraging habitat.

15 **5.5.8.3 Conservation Approach and Expected Outcomes**

16 Full implementation of the BRCP will protect an additional 36 acres of peregrine falcon nesting
17 habitat and 66,495 acres of foraging habitat, resulting in protection of over 81% and 53% of
18 these habitat types, respectively, in the Plan Area (see Table 5.7). Protection of suitable cliff
19 faces will ensure the availability of peregrine falcon nest sites to accommodate the potential
20 future expansion of the nesting population and protection and management of a large proportion
21 of its foraging habitat, , in concert with maintaining and enhancing biological diversity across the
22 landscape, is expected to provide for potential increases in peregrine falcon prey abundance and
23 thereby maintain or increase reproduction and survival rates. Consequently, the conservation
24 actions for the peregrine falcon are expected maintain and provide for potential future increases
25 in distribution and abundance of peregrine falcon in the Plan Area.

26 **5.5.9 Swainson's Hawk**

27 Swainson's hawks are sparsely distributed throughout the Plan Area and surrounding lands (see
28 Appendix A, *Covered Species Accounts*). Within the Plan Area, nesting Swainson's hawks occur
29 primarily west of State Route 70 and 99. Available nesting habitat is more abundant in this area,
30 which includes portions of the Sacramento River, Feather River, Butte Creek, and other riparian
31 corridors. Agricultural foraging is also more abundant in this area; however, much of the landscape
32 consists of agricultural land uses that are incompatible with Swainson's hawk foraging habitat,
33 including rice and orchards, which is likely why relatively few active nest sites have been reported

1 from the Plan Area. It is likely that nesting Swainson's hawks also occur east of State Route 99,
2 particularly in the grassland habitats along the edge of the valley.

3 Swainson's hawk habitat includes two essential requirements, nesting and foraging habitat. Modeled
4 nesting habitat includes all cottonwood-willow riparian forest, valley oak riparian forest, and willow
5 scrub; however, nesting also occurs in tree rows along roadsides or field borders, along the edges of
6 oak groves, in woodlots, and in isolated trees. Foraging habitat includes all non-perennial irrigated
7 cropland (i.e., not including rice, orchards, vineyards), irrigated pasture, grasslands, vernal pool
8 grasslands, and managed wetlands. Within the Plan Area, suitable foraging habitat is limited
9 primarily to the far southwestern corner, in the Llano Seco area and other smaller sites along the
10 western boundary, and in the foothill grasslands east of State Route 99.

11 Threats to Swainson's hawks are generally associated with loss of nesting and foraging habitat
12 from urban development and the conversion to unsuitable agriculture, such as orchards and
13 vineyards, both of which reduce available foraging habitat and fragment the landscape. Loss of
14 riparian and other nesting habitat results from levee projects, agricultural practices, local
15 development and lack of regeneration of valley oak and other native trees.

16 **5.5.9.1 Applicable Goals, Objectives and Conservation Measures**

17 *Applicable Goals and Objectives from Section 3.3*

18
19 **Goal LAND1:** Protect large landscapes within the range of physical and biological attributes
20 (e.g., slope, soils, hydrology, climate, plant associations) in the Plan Area to sustain covered
21 species abundance and habitat and preserve native biodiversity.

22
23 **Objective LAND1.1:** Establish a system of protected lands in the Plan Area that protects
24 the quantities and patch sizes of each natural community indicated in Table 5.9.

25
26 **Goal NACO1:** Protect oak woodland and savannah, grassland, riparian, wetland, aquatic natural
27 communities that represent a range of ecological gradients and that support or have the potential
28 to support high functioning habitat for covered and other native species.

29
30 **Objective NACO1.1:** Protect 3,665 acres of existing unprotected blue oak savanna of
31 minimum patch size of 300 acres in combination with other oak habitats that are
32 distributed within the Plan Area as indicated in Table 5.1.

33
34 **Objective NACO1.3:** Protect 51,020 acres of unprotected grassland (including grassland
35 with swale complexes and vernal pools) within the Plan Area as indicated in Table 5.1.

36
37 **Objective NACO1.4:** Protect 6,370 acres of existing unprotected cottonwood-willow
38 riparian forest and valley oak riparian forest in minimum patch sizes of 25 acres along
39 rivers and streams distributed within the Plan Area as indicated in Table 5.1.

40
41 **Objective NACO1.5:** Protect at least 25 small stands (under 25 acres) of riparian trees

1 dominated by native tree species that could support nesting Swainson's hawk and other
2 raptors.

3
4 **Objective NACO1.6:** Protect at least █ acres of existing unprotected grassland swale
5 complexes that are within vernal pool species recovery core areas distributed within the
6 Plan Area as indicated in Table 5.1.

7
8 **Objective NACO1.9:** Maintain 2,530-35,920 acres of existing managed wetlands that
9 support covered species habitat as wetlands distributed within the Plan Area as indicated
10 in Table 5.1.

11
12 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
13 grassland-, swale, riparian, wetland, and aquatic natural communities.

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

16 **Objective NACO2.2:** Enhance the habitat functions of up to 7,640 acres of BRCP
17 protected grassland that do not support vernal pools.

18 **Objective NACO2.3:** Enhance the habitat functions of up to 1,595 acres of BRCP
19 protected cottonwood-willow riparian and valley oak riparian forest for covered and other
20 native species.

21 **Objective NACO2.4:** Enhance the habitat functions of up to 8,980 acres of BRCP
22 protected emergent wetlands for covered and other native species.

23 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
24 communities.

25
26 **Objective NACO3.3:** Restore █ acres of cottonwood-willow riparian forest along
27 rivers and streams distributed within the Plan Area as indicated in Table 5.10.

28
29 **Objective NACO3.4:** Restore █ acres of valley oak riparian forest along rivers and
30 streams distributed within the Plan Area as indicated in Table 5.10.

31
32 **Objective NACO3.5:** Restore █ acres of willow scrub along rivers and streams
33 distributed within the Plan Area as indicated in Table 5.10.

34
35 **Objective NACO3.7:** Restore █ acres of seasonal or managed wetland, depending on
36 the amount of rice land maintained under objective NACO4.1, distributed within the Plan
37 Area as indicated in Table 5.10.

38
39 **Goal NACO4:** Maintain and enhance agricultural land cover types and agricultural land use
40 mosaics that support habitat for covered and other native wildlife species.

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

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

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

7 **Objective SPEC1.1:** Protect and, where covered species will benefit, enhance covered
8 species habitats in the quantities and locations indicated for each covered species in Table
9 5.2.

10 *Applicable Conservation Measures from Section 3.4*

- 11 • CM 1: Protect Natural Communities
- 12 • CM4: Restore riparian habitat
- 13 • CM5: Restore vernal pool complex
- 14 • CM7: Create Managed Wetlands
- 15 • CM9: Enhance and Manage Protected Natural Communities

16 **5.5.9.2 Summary of Permanent Effects**

17 Full implementation of the BRCP covered activities could result in permanent removal and
18 degradation of habitat functions on up to █ acres and █ acres of modeled Swainson's hawk
19 nesting habitat and on up to █ acres and █ acres of modeled Swainson's hawk foraging habitat,
20 respectively.

21 **5.5.9.3 Conservation Approach and Expected Outcomes**

22 Full implementation of the BRCP will protect an additional 43,435 acres of modeled Swainson's
23 hawk nesting and foraging habitat, resulting in protection of over 60% of Swainson's hawk
24 habitat in the Plan Area (see Table 5.7). Restoration of █ acres of riparian habitat (see Table 5-
25 10) will also increase the extent of Swainson's hawk nesting habitat in the Plan Area. The
26 distribution of protected habitat reflects the relative distribution of modeled habitat throughout
27 the Plan Area, but will focus on lands that support or are adjacent to occupied or potentially
28 occupied habitats. Swainson's hawk often nests in isolated or small groves of trees present in
29 agricultural-dominated landscapes that support its foraging habitat. To protect these important
30 nesting areas, Swainson's hawk conservation actions include protecting small patches of trees
31 that support nesting habitat. Conservation measures to protect nesting and foraging habitats
32 include actions to enhance habitat function for Swainson's hawk and other covered species that
33 use the natural communities that support its foraging and nesting habitats. Implementation of

1 these conservation actions are expected to be sufficient to sustain the existing and provide
2 opportunities for increasing the abundance and distribution of Swainson's hawk in the Plan Area.

3 **5.5.10 Bald Eagle**

4 This species is found at lakes, reservoirs, rivers, offshore islands, and some rangelands and coastal
5 wetlands in California. Bald eagles generally require large bodies of water or free flowing rivers
6 with abundant fish and adjacent snags or other perches. In Butte County, bald eagles are considered
7 a permanent resident, an uncommon winter migrant, and a known, but uncommon breeder. Bald
8 eagles regularly winter in the Plan Area, including at Lake Oroville, Thermalito Forebay and
9 Afterbay, along the Feather and Sacramento Rivers, and in the wetlands associated with Llano Seco
10 and the Gray Lodge Wildlife Area. Currently, there are at least five documented breeding sites in
11 Butte County that are outside the Plan Area, and two nesting territories within the Plan Area. Bald
12 eagles nest in large, old-growth, or dominant live trees with open branches, especially ponderosa
13 pine.

14 The main threats identified in the Pacific Recovery Plan (USFWS 1986) for the Butte County
15 area include disturbance to nest territories; loss of anadromous fishery, loss of riparian habitat,
16 disturbance of forage areas, and shooting (Sacramento Valley and Foothills); and disturbance of
17 wintering grounds, loss of potential nest habitat to logging, and development (Sierra-Nevada
18 Mountains). Historically, the decline of the bald eagle coincided with the introduction of the
19 pesticide DDT in 1947. Eagles contaminated with DDT were either unable to lay eggs or produced
20 eggs with thin shells that broke during incubation. Shooting, egg collection, and trapping were other
21 causes of decline.

22 **5.5.10.1 Applicable Goals, Objectives and Conservation Measures**

23 *Applicable Goals and Objectives from Section 3.3*

24
25 **Goal LAND1:** Protect large landscapes within the range of physical and biological attributes
26 (e.g., slope, soils, hydrology, climate, plant associations) in the Plan Area to sustain covered
27 species abundance and habitat and preserve native biodiversity.

28
29 **Objective LAND1.1:** Establish a system of protected lands in the Plan Area that protects
30 the quantities and patch sizes of each natural community indicated in Table 5.9.

31
32 **Goal NACO1:** Protect oak woodland and savannah, grassland, riparian, wetland, aquatic natural
33 communities that represent a range of ecological gradients and that support or have the potential
34 to support high functioning habitat for covered and other native species.

35
36 **Objective NACO1.1:** Protect 3,665 acres of existing unprotected blue oak savanna of
37 minimum patch size of 300 acres in combination with other oak habitats that are
38 distributed within the Plan Area as indicated in Table 5.1.

39

Handout #4

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

4 **Objective NACO1.3:** Protect 51,020 acres of unprotected grassland (including grassland
5 with swale complexes and vernal pools) within the Plan Area as indicated in Table 5.1.
6

7 **Objective NACO1.4:** Protect 6,370 acres of existing unprotected cottonwood-willow
8 riparian forest and valley oak riparian forest in minimum patch sizes of 25 acres along
9 rivers and streams distributed within the Plan Area as indicated in Table 5.1.
10

11 **Objective NACO1.6:** Protect at least █ acres of existing unprotected grassland swale
12 complexes that are within vernal pool species recovery core areas distributed within the
13 Plan Area as indicated in Table 5.1.
14

15 **Objective NACO1.7:** Protect 495-8,310 acres of existing unprotected emergent
16 wetlands distributed within the Plan Area as indicated in Table 5.1.
17

18 **Objective NACO1.9:** Maintain 2,530-35,920 acres of existing managed wetlands that
19 support covered species habitat as wetlands distributed within the Plan Area as indicated
20 in Table 5.1.
21

22 **Objective NACO1.11:** Protect at least 15 linear miles of existing unprotected reaches of
23 Pine Creek, Rock Creek, Mud Creek, Big Chico Creek, Lindo Channel, Little Chico
24 Creek, Butte Creek, Little Dry Creek, and Feather River (one or both banks of streams
25 channels may be protected under this objective).
26

27 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
28 grassland-, swale, riparian, wetland, and aquatic natural communities.

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

31 **Objective NACO2.2:** Enhance the habitat functions of up to 7,640 acres of BRCP
32 protected grassland that do not support vernal pools.

33 **Objective NACO2.3:** Enhance the habitat functions of up to 1,595 acres of BRCP
34 protected cottonwood-willow riparian and valley oak riparian forest for covered and other
35 native species.

36 **Objective NACO2.4:** Enhance the habitat functions of up to 8,980 acres of BRCP
37 protected emergent wetlands for covered and other native species.

38 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
39 communities.
40

1 **Objective NACO3.1:** Restore █ acres of grassland swale complex that function as
2 habitat for covered and other native species distributed within the Plan Area as indicated
3 in Table 5.10.

4 **Objective NACO3.3:** Restore █ acres of cottonwood-willow riparian forest along
5 rivers and streams distributed within the Plan Area as indicated in Table 5.10.

6
7 **Objective NACO3.4:** Restore █ acres of valley oak riparian forest along rivers and
8 streams distributed within the Plan Area as indicated in Table 5.10.

9
10 **Objective NACO3.6:** Restore █-█ acres of emergent wetland, depending on the
11 amount of rice land maintained under objective NACO4.1, distributed within the Plan
12 Area as indicated in Table 5.10.

13
14 **Objective NACO3.7:** Restore █ acres of seasonal or managed wetland, depending on
15 the amount of rice land maintained under objective NACO4.1, distributed within the Plan
16 Area as indicated in Table 5.10.

17
18 **Goal NACO4:** Maintain and enhance agricultural land cover types and agricultural land use
19 mosaics that support habitat for covered and other native wildlife species.

20 **Objective NACO4.1:** Annually maintain 0- 78,140 acres of land in rice production,
21 depending on the amount of giant garter snake and greater sandhill crane habitat under
22 objectives NACO1.7 and NACO1.9 distributed within the Plan Area as indicated in Table
23 5.1.

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

26 **Objective SPEC1.1:** Protect and, where covered species will benefit, enhance covered
27 species habitats in the quantities and locations indicated for each covered species in Table
28 5.2.

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

31 *Applicable Conservation Measures from Section 3.4*

- 32 • CM 1: Protect Natural Communities
- 33 • CM4: Restore riparian habitat
- 34 • CM5: Restore vernal pool complex
- 35 • CM6: Restore/Create Emergent Wetland
- 36 • CM7: Create Managed Wetlands

- 1 • CM9: Enhance and Manage Protected Natural Communities

2 **5.5.10.2 Summary of Permanent Habitat Effects**

3 Full implementation of the BRCP covered activities could result in permanent removal of up to
4 ■ acres of modeled bald eagle nesting/roosting and ■ acres of foraging habitat.

5 **5.5.10.3 Conservation Approach and Expected Outcomes**

6 Full implementation of the BRCP will protect an additional 7,565 acres of bald eagle nesting
7 habitat and 29,400 acres of seasonal foraging habitat, resulting in protection of over 60% and
8 32% of these habitat types, respectively, in the Plan Area (see Table 5.7). Protection of riparian
9 and woodland habitats will ensure the availability of bald eagle nest sites to accommodate the
10 potential future expansion of the nesting population and protection and management of a large
11 proportion of its foraging habitat, in concert with maintaining and enhancing biological diversity
12 across the landscape, is expected to provide for potential increases in bald eagle fish and
13 waterfowl abundance and thereby maintain or increase reproduction and survival rates. Riparian
14 and instream habitat restoration actions, such as creating low flow channels, lowering floodplain
15 surfaces to increase the frequency and duration of floodplain inundation, improving the quality of
16 river edge/channel margins, and creating backwaters will provide spawning habitat for salmonids
17 and other native fish species and hence provide additional foraging opportunities for bald eagles.
18 Consequently, the conservation actions for the bald eagle is expected maintain and provide for
19 potential future increases in distribution and abundance of bald eagle in the Plan Area. This will
20 sustain the species within the Plan Area and

21 **5.5.11 White-tailed Kite**

22 Observations of white-tailed kites in Butte County occur predominantly along the Sacramento
23 River, Feather River, Butte Creek, Big Chico Creek, and at Gray Lodge Wildlife Area, and
24 various other locales throughout most of Butte County, from the Sierra Nevada foothills to the
25 Sacramento River. While the area likely supports more nesting pairs than were present prior to
26 the 1960s, it is still considered uncommon and is expected to occur in low densities throughout
27 much of the Plan Area. The white-tailed kite inhabits low elevation, open grasslands, savannah-
28 like habitats, agricultural areas, wetlands, and oak woodlands. They nest in trees, usually with a
29 dense canopy, usually in areas of high prey abundance and availability.

30 Urbanization, including residential and commercial development and infrastructure development
31 (roads and oil, water, gas, and electrical conveyance facilities), is one of the principal causes of
32 continuing habitat loss for white-tailed kite and is a continuing threat to remaining populations,
33 particularly in rapidly urbanizing areas in the Sacramento Valley. Kites are largely intolerant of
34 noise and human activities and will abandon nesting areas when disturbed. Kites are also sensitive to
35 habitat fragmentation. Because white-tailed kite populations are closely associated with rodent
36 abundance and accessibility, conversion to crop patterns that do not support sufficient rodent prey

1 or that restrict accessibility to prey can result in the abandonment of traditionally active territories.

2 **5.5.11.1 Applicable Goals, Objectives and Conservation Measures**

3 *Applicable Goals and Objectives from Section 3.3*

4
5 **Goal LAND1:** Protect large landscapes within the range of physical and biological attributes
6 (e.g., slope, soils, hydrology, climate, plant associations) in the Plan Area to sustain covered
7 species abundance and habitat and preserve native biodiversity.

8
9 **Objective LAND1.1:** Establish a system of protected lands in the Plan Area that protects
10 the quantities and patch sizes of each natural community indicated in Table 5.9.

11
12 **Goal NACO1:** Protect oak woodland and savannah, grassland, riparian, wetland, aquatic natural
13 communities that represent a range of ecological gradients and that support or have the potential
14 to support high functioning habitat for covered and other native species.

15
16 **Objective NACO1.1:** Protect 3,665 acres of existing unprotected blue oak savanna of
17 minimum patch size of 300 acres in combination with other oak habitats that are
18 distributed within the Plan Area as indicated in Table 5.1.

19
20 **Objective NACO1.3:** Protect 51,020 acres of unprotected grassland (including grassland
21 with swale complexes and vernal pools) within the Plan Area as indicated in Table 5.1.

22
23 **Objective NACO1.4:** Protect 6,370 acres of existing unprotected cottonwood-willow
24 riparian forest and valley oak riparian forest in minimum patch sizes of 25 acres along
25 rivers and streams distributed within the Plan Area as indicated in Table 5.1.

26
27 **Objective NACO1.5:** Protect at least 25 small stands (under 25 acres) of riparian trees
28 dominated by native tree species that could support nesting Swainson's hawk and other
29 raptors.

30
31 **Objective NACO1.6:** Protect at least acres of existing unprotected grassland swale
32 complexes that are within vernal pool species recovery core areas distributed within the
33 Plan Area as indicated in Table 5.1.

34
35 **Objective NACO1.9:** Maintain 2,530-35,920 acres of existing managed wetlands that
36 support covered species habitat as wetlands distributed within the Plan Area as indicated
37 in Table 5.1.

38
39 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
40 grassland-, swale, riparian, wetland, and aquatic natural communities.

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

1 **Objective NACO2.2:** Enhance the habitat functions of up to 7,640 acres of BRCP
2 protected grassland that do not support vernal pools.

3 **Objective NACO2.3:** Enhance the habitat functions of up to 1,595 acres of BRCP
4 protected cottonwood-willow riparian and valley oak riparian forest for covered and other
5 native species.

6 **Objective NACO2.4:** Enhance the habitat functions of up to 8,980 acres of BRCP
7 protected emergent wetlands for covered and other native species.

8 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
9 communities.

10
11 **Objective NACO3.3:** Restore █ acres of cottonwood-willow riparian forest along
12 rivers and streams distributed within the Plan Area as indicated in Table 5.10.

13
14 **Objective NACO3.4:** Restore █ acres of valley oak riparian forest along rivers and
15 streams distributed within the Plan Area as indicated in Table 5.10.

16
17 **Objective NACO3.5:** Restore █ acres of willow scrub along rivers and streams
18 distributed within the Plan Area as indicated in Table 5.10.

19
20 **Objective NACO3.7:** Restore █ acres of seasonal or managed wetland, depending on
21 the amount of rice land maintained under objective NACO4.1, distributed within the Plan
22 Area as indicated in Table 5.10.

23
24 **Goal NACO4:** Maintain and enhance agricultural land cover types and agricultural land use
25 mosaics that support habitat for covered and other native wildlife species.

26 **Objective NACO4.1:** Annually maintain 0- 78,140 acres of land in rice production,
27 depending on the amount of giant garter snake and greater sandhill crane habitat under
28 objectives NACO1.7 and NACO1.9 distributed within the Plan Area as indicated in Table
29 5.1.

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

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

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

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

1 5.2.

2 *Applicable Conservation Measures from Section 3.4*

- 3 • CM 1: Protect Natural Communities
- 4 • CM4: Restore riparian habitat
- 5 • CM5: Restore vernal pool complex
- 6 • CM7: Create Managed Wetlands
- 7 • CM9: Enhance and Manage Protected Natural Communities

8 **5.5.11.2 Summary of Permanent Effects**

9 Full implementation of the BRCP covered activities could result in permanent removal and
10 degradation of habitat functions on up to █ acres and █ acres of modeled white-tailed kite
11 nesting habitat and on up to █ acres and █ acres of modeled white-tailed kite foraging habitat,
12 respectively.

13 **5.5.11.3 Conservation Approach and Expected Outcomes**

14 Full implementation of the BRCP will protect an additional 9,075 acres of modeled white-tailed
15 kite nesting and 97,675 acres foraging habitat, resulting in protection of over 55% and 52% of
16 white-tailed kite nesting and foraging habitat, respectively, in the Plan Area (see Table 5.7).
17 Restoration of █ acres of riparian habitat (see Table 5-10) will also increase the extent of white-
18 tailed kite nesting habitat in the Plan Area. The distribution of protected habitats reflects the
19 relative abundance of modeled habitat in the CAZs and the importance of riparian habitats on the
20 valley floor.

21 White-tailed kite often nests in isolated or small groves of trees present in agricultural-dominated
22 landscapes that support its foraging habitat. To protect these important nesting areas, white-
23 tailed kite conservation actions include protecting small patches of trees that support nesting
24 habitat. Conservation measures to protect nesting and foraging habitats include actions to
25 enhance habitat function for white-tailed kite and other covered species that use the natural
26 communities that support its foraging and nesting habitats. Implementation of these
27 conservation actions are expected to be sufficient to sustain the existing and provide
28 opportunities for increasing the abundance and distribution of white-tailed kite in the Plan Area.

29 **5.5.12 Giant Garter Snake**

30 The giant garter snake is endemic to wetlands in the Sacramento and San Joaquin valleys with a
31 current distribution that extends from near Chico, Butte County, to Fresno County. Due to the direct
32 loss of natural habitat, the giant garter snake relies heavily on rice fields in the Sacramento Valley but
33 also uses managed marsh areas in National Wildlife Refuges and State Wildlife Areas. In the Plan

1 Area, the species distribution is restricted to the rice lands and wetlands within the Basin and
2 Sacramento River CAZs, although it is occasionally found in water conveyance channels associated
3 with other agricultural land uses. All reported occurrences are west of State Route 99 and the
4 majority are associated with the Butte Basin habitats in the southwest corner of the Plan Area.
5 Others are scattered in the rice lands within the Basin CAZ and the Llano Seco area.

6 The giant garter snake resides in marshes, ponds, sloughs, small lakes, low gradient streams, and
7 other waterways, and in agricultural wetlands, including irrigation and drainage canals, rice fields,
8 and the adjacent uplands (USFWS 1993). Habitat requirements include 1) adequate water during the
9 snake's active season (early-spring through mid-fall) to provide food and cover; 2) emergent,
10 herbaceous wetland vegetation, such as cattails and bulrushes, for escape cover and foraging habitat
11 during the active season; 3) basking habitat of grassy banks and openings in waterside vegetation;
12 and 4) higher elevation uplands for cover and refuge from flood waters during the snake's
13 dormant season in the winter (USFWS 2006b). The giant garter snake resides in small mammal
14 burrows and soil crevices located above prevailing flood elevations throughout its winter
15 dormancy period (USFWS 2006b).

16 Habitat loss and fragmentation, flood control activities, changes in agricultural and land
17 management practices, predation from introduced species, parasites, and water pollution are the
18 main causes for the decline of this species.

19 **5.5.12.1 Applicable Goals , Objectives and Conservation Measures**

20 *Applicable Goals and Objectives from Section 3.3*

21
22 **Goal LAND1:** Protect large landscapes within the range of physical and biological attributes
23 (e.g., slope, soils, hydrology, climate, plant associations) in the Plan Area to sustain covered
24 species abundance and habitat and preserve native biodiversity.

25
26 **Objective LAND1.1:** Establish a system of protected lands in the Plan Area that protects
27 the quantities and patch sizes of each natural community indicated in Table 5.9.

28
29 **Goal LAND2:** Preserve continuous corridors of habitat along the east-west elevation gradient
30 extending from the eastern boundary of the Plan Area to the major stream corridors in the valley
31 bottom and along a north-south corridor within the valley basin habitats.

32
33 **Objective LAND2.2:** In the Plan Area south of the City of Chico and north of the City
34 of Oroville, protect a habitat corridor comprised of oak woodland and savanna, grassland,
35 riparian, wetland, and rice land that is at least 1.2 miles wide¹ along the east-west
36 elevation gradient between the foothills at the eastern boundary of the Plan Area and
37 Butte Creek at the western boundary of the Plan Area (across the Cascade Foothills and
38 Basin CAZs; Figure 5.4).

39
40 **Objective LAND2.4:** Protect a habitat corridor suitable for giant garter snake movement

1 comprised of riparian, wetland, aquatic, and agricultural natural communities separating
2 patches of these communities that is at least 1.2 miles wide¹ wide along the north-south
3 gradient between the Llano Seco Unit of the Upper Butte Basin Wildlife Area (in the
4 Sacramento River CAZ), across the Basin CAZ, to the Little Dry Creek Unit of the Upper
5 Butte Basin Wildlife Area, and to Gray Lodge Wildlife Area (Figure 5.4).

6
7 **Goal LAND3:** Maintain and improve connectivity among protected lands to provide for the
8 movement of covered and other native species among habitat areas and to facilitate genetic
9 exchange among populations.

10
11 **Objective LAND3.1:** Protect corridors of habitat that provide linkages among protected
12 habitat areas within and adjacent to the Plan Area.

13
14 **Objective LAND3.2:** Improve habitat corridors that allow covered and other native
15 species to move into protected habitats from adjacent lands and among habitat areas
16 within preserved lands.

17
18 **Goal NACO1:** Protect oak woodland and savannah, grassland, riparian, wetland, aquatic natural
19 communities that represent a range of ecological gradients and that support or have the potential
20 to support high functioning habitat for covered and other native species.

21
22 **Objective NACO1.7:** Protect 495-8,310 acres of existing unprotected emergent
23 wetlands distributed within the Plan Area as indicated in Table 5.1.

24
25 **Objective NACO1.9:** Maintain 2,530-35,920 acres of existing managed wetlands that
26 support covered species habitat as wetlands distributed within the Plan Area as indicated
27 in Table 5.1.

28
29 **Objective NACO1.11:** Protect at least 15 linear miles of existing unprotected reaches of
30 Pine Creek, Rock Creek, Mud Creek, Big Chico Creek, Lindo Channel, Little Chico
31 Creek, Butte Creek, Little Dry Creek, and Feather River (one or both banks of streams
32 channels may be protected under this objective).

33
34 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
35 grassland-, swale, riparian, wetland, and aquatic natural communities.

36 **Objective NACO2.4:** Enhance the habitat functions of up to 8,980 acres of BRCP
37 protected emergent wetlands for covered and other native species.

38 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
39 communities.

40
41 **Objective NACO3.6:** Restore ■-■ acres of emergent wetland, depending on the
42 amount of rice land maintained under objective NACO4.1, distributed within the Plan
43 Area as indicated in Table 5.10.

1 **Objective NACO3.7:** Restore █ acres of seasonal or managed wetland, depending on
2 the amount of rice land maintained under objective NACO4.1, distributed within the Plan
3 Area as indicated in Table 5.10.

4
5 **Goal NACO4:** Maintain and enhance agricultural land cover types and agricultural land use
6 mosaics that support habitat for covered and other native wildlife species.

7 **Objective NACO4.1:** Annually maintain 0- 78,140 acres of land in rice production,
8 depending on the amount of giant garter snake and greater sandhill crane habitat under
9 objectives NACO1.7 and NACO1.9 distributed within the Plan Area as indicated in Table
10 5.1.

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

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

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

17 **Objective SPEC1.1:** Protect and, where covered species will benefit, enhance covered
18 species habitats in the quantities and locations indicated for each covered species in Table
19 5.2.

20 *Applicable Conservation Measures from Section 3.4*

- 21 • CM 1: Protect Natural Communities
- 22 • CM6: Restore/Create Emergent Wetland
- 23 • CM7: Create Managed Wetlands
- 24 • CM9: Enhance and Manage Protected Natural Communities
- 25 • CM10: Enter into conservation easements with water and irrigation districts to protect
26 and enhance wetland habitats along canals

27 **5.5.12.2 Summary of Permanent Effects**

28 Full implementation of the BRCP covered activities could result in permanent removal and
29 degradation of habitat functions on up to █ acres and █ acres of modeled giant garter snake
30 habitat, respectively.

31 **5.5.12.3 Conservation Approach and Expected Outcomes**

32 Full implementation of the BRCP will protect up to an additional 80,215 acres of giant garter

1 snake breeding and movement habitat, resulting in protection of over 65% of habitat in the Plan
2 Area, including over 35% of the linear extent of connected waterways that provide for movement
3 and dispersal of giant garter snake among habitat areas (see Table 5.7). A lesser amount of
4 habitat may be protected, depending on the extent of emergent wetland that may be restored that
5 would provide higher habitat value than existing agricultural lands that support habitat (see
6 *CMI: Protect Conservation Lands* in Section 5.4, *Conservation Measures*). The conservation
7 strategy for giant garter snake is designed to protect and sustain the existing giant garter snake
8 population in the Plan Area by focusing on protection of suitable wetlands and rice agriculture in
9 the Basin and Sacramento River CAZs.

10 In addition, BRCP goals of maintaining and enhancing biological diversity, restoring/creating
11 additional wetland habitat, restoring and enhancing riparian and other channel corridors, and
12 maintaining and restoring connectivity across the BRCP Plan Area is expected to increase food
13 abundance, contribute to higher reproduction and survival rates, provide for dispersal and genetic
14 exchange of giant garter snakes. Protecting and enhancing connected corridors facilitates
15 movement of animals and expansion of the population into currently unoccupied areas. Together,
16 these measures will sustain the species within the Plan Area and provide the opportunity for
17 increases in the species' distribution and abundance.

18 **5.5.13 California Horned Lizard**

19 California horned lizard occurs primarily in the south Coast Ranges. Although within the
20 species' range, occurrences of California horned lizard are rare in the Central Valley and in
21 northern California. There is only one recently reported record of this species from Butte
22 County, north of Oroville, on North Table Mountain, just east of Coal Canyon.

23 The California horned lizard can occur in many habitat types, including grassland, oak
24 woodland, and riparian habitats. The species is typically found in an exposed gravelly-sandy
25 substrate such as clearings in riparian woodlands, or annual grassland with scattered perennial
26 species.

27 Historically, this taxon was identified as most abundant in relict lake sand dunes and old alluvial
28 fans bordering the San Joaquin Valley (CDFG 2006). The conversion of alluvial fans and relict
29 lake sand dunes to agriculture has resulted in the disappearance of this lizard in many areas.
30 Primary threats to the species include the ongoing fragmentation and loss of habitat. Additional
31 threats to the species include increased human presence in rural areas (which results in a direct
32 loss of habitat), as well as the occurrence of domestic cats and other non-native predators,
33 increased use of pesticides which reduces available food supply, and introduction of Argentine
34 Ants that replace the native ant food base (SDNHM 2007; Jennings and Hayes 1994).

35

1 **5.5.13.1 Applicable Goals , Objectives and Conservation Measures**

2 *Applicable Goals and Objectives from Section 3.3*

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

6
7 **Objective LAND1.1:** Establish a system of protected lands in the Plan Area that protects
8 the quantities and patch sizes of each natural community indicated in Table 5.9.

9
10 **Goal LAND2:** Preserve continuous corridors of habitat along the east-west elevation gradient
11 extending from the eastern boundary of the Plan Area to the major stream corridors in the valley
12 bottom and along a north-south corridor within the valley basin habitats.

13
14 **Objective LAND2.2:** In the Plan Area south of the City of Chico and north of the City
15 of Oroville, protect a habitat corridor comprised of oak woodland and savanna, grassland,
16 riparian, wetland, and rice land that is at least 1.2 miles wide¹ along the east-west
17 elevation gradient between the foothills at the eastern boundary of the Plan Area and
18 Butte Creek at the western boundary of the Plan Area (across the Cascade Foothills and
19 Basin CAZs; Figure 5.4).

20
21 **Goal LAND3:** Maintain and improve connectivity among protected lands to provide for the
22 movement of covered and other native species among habitat areas and to facilitate genetic
23 exchange among populations.

24
25 **Objective LAND3.1:** Protect corridors of habitat that provide linkages among protected
26 habitat areas within and adjacent to the Plan Area.

27
28 **Objective LAND3.2:** Improve habitat corridors that allow covered and other native
29 species to move into protected habitats from adjacent lands and among habitat areas
30 within preserved lands.

31
32 **Goal NACO1:** Protect oak woodland and savanna, grassland, riparian, wetland, aquatic natural
33 communities that represent a range of ecological gradients and that support or have the potential
34 to support high functioning habitat for covered and other native species.

35
36 **Objective NACO1.1:** Protect 3,665 acres of existing unprotected blue oak savanna of
37 minimum patch size of 300 acres in combination with other oak habitats that are
38 distributed within the Plan Area as indicated in Table 5.1.

39
40 **Objective NACO1.2:** Protect 3,565 acres of existing unprotected interior live oak and
41 mixed oak woodlands of minimum patch size of 300 acres distributed within the Plan
42 Area as indicated in Table 5.1.

43

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

3
4 **Objective NACO1.4:** Protect 6,370 acres of existing unprotected cottonwood-willow
5 riparian forest and valley oak riparian forest in minimum patch sizes of 25 acres along
6 rivers and streams distributed within the Plan Area as indicated in Table 5.1.

7
8 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
9 grassland-, swale, riparian, wetland, and aquatic natural communities.

10 **Objective NACO2.2:** Enhance the habitat functions of up to 7,640 acres of BRCP
11 protected grassland that do not support vernal pools.

12 **Objective NACO2.3:** Enhance the habitat functions of up to 1,595 acres of BRCP
13 protected cottonwood-willow riparian and valley oak riparian forest for covered and other
14 native species.

15 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
16 communities.

17
18 **Objective NACO3.1:** Restore █ acres of grassland swale complex that function as
19 habitat for covered and other native species distributed within the Plan Area as indicated
20 in Table 5.10.

21
22 **Objective NACO3.2:** Restore █ acres of vernal pools that function as habitat for
23 covered and other native species distributed within the Plan Area as indicated in Table
24 5.10.

25
26 **Objective NACO3.3:** Restore █ acres of cottonwood-willow riparian forest along
27 rivers and streams distributed within the Plan Area as indicated in Table 5.10.

28
29 **Objective NACO3.4:** Restore █ acres of valley oak riparian forest along rivers and
30 streams distributed within the Plan Area as indicated in Table 5.10.

31
32 **Objective NACO3.5:** Restore █ acres of willow scrub along rivers and streams
33 distributed within the Plan Area as indicated in Table 5.10.

34
35 **Goal SPEC1:** Protect and enhance covered species' habitats to maintain and enhance the
36 abundance and distribution of covered species in the Plan Area.

37 **Objective SPEC1.1:** Protect and, where covered species will benefit, enhance covered
38 species habitats in the quantities and locations indicated for each covered species in Table
39 5.2.

40 **Objective SPEC1.6:** Protect 400 acres of any combination of existing unprotected

1 grassland, oak woodland and savanna, and riparian habitats in minimum patch sizes of 40
2 acres that support California horned lizard habitat.

3
4 *Applicable Conservation Measures from Section 3.4*

- 5 • CM 1: Protect Natural Communities
- 6 • CM4: Restore riparian habitat
- 7 • CM7: Create Managed Wetlands
- 8 • CM9: Enhance and Manage Protected Natural Communities

9 **5.5.13.2 Summary of Permanent Effects**

10 Covered activities will not impact the only known occurrence of California horned lizard within
11 the Plan Area located on Table Mountain. Implementation of covered activities, however, could
12 result in loss of habitat and injury or mortality of lizards in currently unknown occupied habitat
13 areas. Preconstruction surveys will be conducted to delineate California horned lizard habitat
14 and determine habitat occupancy within activity footprints where habitat may potentially be
15 present.

16 **5.5.13.3 Conservation Approach and Expected Outcomes**

17 The conservation approach for the California horned lizard involves protecting at least 400 acres
18 of suitable California horned lizard habitat that through achieving conservation land protection
19 targets for natural communities that support patches of this species' habitat along the eastern side
20 of the Plan Area, where it most likely to occur. Protection and enhancement of grasslands, oak
21 woodland and savanna, and riparian natural communities is expected to provide the opportunity
22 for the future expansion of California horned lizard to the Plan Area. It is anticipated that BRCP
23 biological surveys may locate additional unknown occurrences and such information will be used
24 to direct subsequent acquisitions of conservation lands to protect occupied habitat areas.

25 **5.5.14 Western Pond Turtle**

26 The northwestern pond turtle has been reported from several locations in the Plan Area.
27 However, the species is likely underreported, and probably occurs throughout the Plan Area in
28 suitable aquatic and adjacent upland habitats. Reported occurrences included drainages and
29 ponds along the eastern side of the Plan Area, Big Chico Creek, and the Upper Butte Wildlife
30 Area. The species likely occurs in most perennial streams in the Plan Area and in large ponds
31 and other water bodies.

32 The northwestern pond turtle is primarily aquatic and leaves the water only to reproduce, aestivate,
33 and to overwinter (Jennings and Hayes 1994). It prefers lentic (standing) or lotic (slow-moving)
34 water conditions, because it is a poor swimmer. Habitat quality may be dependent on the

1 availability of basking sites, such as locations along the bank or logs and rocks in shallow water
2 where the turtles can bask in the sun. Cover is an important aspect of basking sites, as are
3 underwater refugia (rocks, root masses, undercut banks etc). Hatchlings and vey young turtles
4 forage in shallow water areas with dense submergent or short emergent vegetation, where small
5 aquatic organisms are likely to be in abundance. The species requires upland habitat adjacent to the
6 aquatic habitat for nesting. Pond turtles hibernate underwater, in the muddy bottom of a pool and
7 may aestivate during summer droughts by burying in soft bottom mud. Overwinter sites in upland
8 habitat include burrows in leaf litter or duff or under shrubs.

9 The main factors contributing to the decline of the northwestern pond turtle population include loss
10 of aquatic and nesting habitat from urban development and conversion of native habitats to
11 agricultural lands; the increase of introduced non-native predators (i.e., African clawed frogs, bull
12 frogs, non-native rats and wading birds); predation on young, especially by raccoon. In addition,
13 there is concern over competition for food and basking sites and disease transmission from liberated
14 pet turtles and non-native turtle species (predominantly red-eared sliders and painted turtles).

15 **5.5.14.1 Applicable Goals , Objectives and Conservation Measures**

16 *Applicable Goals and Objectives from Section 3.3*

17
18 **Goal LAND1:** Protect large landscapes within the range of physical and biological attributes
19 (e.g., slope, soils, hydrology, climate, plant associations) in the Plan Area to sustain covered
20 species abundance and habitat and preserve native biodiversity.

21
22 **Objective LAND1.1:** Establish a system of protected lands in the Plan Area that protects
23 the quantities and patch sizes of each natural community indicated in Table 5.9.

24
25 **Goal LAND2:** Preserve continuous corridors of habitat along the east-west elevation gradient
26 extending from the eastern boundary of the Plan Area to the major stream corridors in the valley
27 bottom and along a north-south corridor within the valley basin habitats.

28
29 **Objective LAND2.2:** In the Plan Area south of the City of Chico and north of the City
30 of Oroville, protect a habitat corridor comprised of oak woodland and savanna, grassland,
31 riparian, wetland, and rice land that is at least 1.2 miles wide¹ along the east-west
32 elevation gradient between the foothills at the eastern boundary of the Plan Area and
33 Butte Creek at the western boundary of the Plan Area (across the Cascade Foothills and
34 Basin CAZs; Figure 5.4).

35
36 **Objective LAND2.3:** In the Plan Area south of the City of Oroville, protect a habitat
37 corridor comprised of oak woodland and savanna, grassland, riparian, and wetland, and
38 and agricultural land that is at least 1.2 miles wide¹ wide along the east-west elevation
39 gradient between the foothills at the eastern boundary of the Plan Area and the Feather
40 River (across the Sierra Foothills and Southern Orchard CAZs; Figure 5.4).

41

1 **Objective LAND2.4:** Protect a habitat corridor suitable for giant garter snake movement
2 comprised of riparian, wetland, aquatic, and agricultural natural communities separating
3 patches of these communities that is at least 1.2 miles wide¹ wide along the north-south
4 gradient between the Llano Seco Unit of the Upper Butte Basin Wildlife Area (in the
5 Sacramento River CAZ), across the Basin CAZ, to the Little Dry Creek Unit of the Upper
6 Butte Basin Wildlife Area, and to Gray Lodge Wildlife Area (Figure 5.4).

7
8 **Goal LAND3:** Maintain and improve connectivity among protected lands to provide for the
9 movement of covered and other native species among habitat areas and to facilitate genetic
10 exchange among populations.

11
12 **Objective LAND3.1:** Protect corridors of habitat that provide linkages among protected
13 habitat areas within and adjacent to the Plan Area.

14
15 **Objective LAND3.2:** Improve habitat corridors that allow covered and other native
16 species to move into protected habitats from adjacent lands and among habitat areas
17 within preserved lands.

18
19 **Goal LAND4:** Maintain and rehabilitate ecosystem processes that support covered species and
20 their habitats.

21
22 **Objective LAND4.3:** Restore floodplain erosional and depositional processes on BRCP
23 protected river and stream channels.

24
25 **Goal NACO1:** Protect oak woodland and savannah, grassland, riparian, wetland, aquatic natural
26 communities that represent a range of ecological gradients and that support or have the potential
27 to support high functioning habitat for covered and other native species.

28
29 **Objective NACO1.1:** Protect 3,665 acres of existing unprotected blue oak savanna of
30 minimum patch size of 300 acres in combination with other oak habitats that are
31 distributed within the Plan Area as indicated in Table 5.1.

32
33 **Objective NACO1.2:** Protect 3,565 acres of existing unprotected interior live oak and
34 mixed oak woodlands of minimum patch size of 300 acres distributed within the Plan
35 Area as indicated in Table 5.1.

36
37 **Objective NACO1.3:** Protect 51,020 acres of unprotected grassland (including grassland
38 with swale complexes and vernal pools) within the Plan Area as indicated in Table 5.1.

39
40 **Objective NACO1.4:** Protect 6,370 acres of existing unprotected cottonwood-willow
41 riparian forest and valley oak riparian forest in minimum patch sizes of 25 acres along
42 rivers and streams distributed within the Plan Area as indicated in Table 5.1.

43
44 **Objective NACO1.6:** Protect at least ■ acres of existing unprotected grassland swale
45 complexes that are within vernal pool species recovery core areas distributed within the

1 Plan Area as indicated in Table 5.1.

2
3 **Objective NACO1.7:** Protect 495-8,310 acres of existing unprotected emergent
4 wetlands distributed within the Plan Area as indicated in Table 5.1.

5
6 **Objective NACO1.9:** Maintain 2,530-35,920 acres of existing managed wetlands that
7 support covered species habitat as wetlands distributed within the Plan Area as indicated
8 in Table 5.1.

9
10 **Objective NACO1.10:** Protect up to 25 ponds that support western pond turtle and
11 western spadefoot toad habitat, including adjacent upland habitat extending at least 200
12 feet from ponds, within BRCP protected grassland, oak savanna and woodland, and
13 wetland natural communities.

14
15 **Objective NACO1.11:** Protect at least 15 linear miles of existing unprotected reaches of
16 Pine Creek, Rock Creek, Mud Creek, Big Chico Creek, Lindo Channel, Little Chico
17 Creek, Butte Creek, Little Dry Creek, and Feather River (one or both banks of streams
18 channels may be protected under this objective).

19
20 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
21 grassland-, swale, riparian, wetland, and aquatic natural communities.

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

24 **Objective NACO2.2:** Enhance the habitat functions of up to 7,640 acres of BRCP
25 protected grassland that do not support vernal pools.

26 **Objective NACO2.3:** Enhance the habitat functions of up to 1,595 acres of BRCP
27 protected cottonwood-willow riparian and valley oak riparian forest for covered and other
28 native species.

29 **Objective NACO2.4:** Enhance the habitat functions of up to 8,980 acres of BRCP
30 protected emergent wetlands for covered and other native species.

31 **Objective NACO2.6:** Enhance the habitat functions of up to 7 BRCP protected ponds
32 for covered and other native species.

33 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
34 communities.

35
36 **Objective NACO3.3:** Restore ■ acres of cottonwood-willow riparian forest along
37 rivers and streams distributed within the Plan Area as indicated in Table 5.10.

38
39 **Objective NACO3.4:** Restore ■ acres of valley oak riparian forest along rivers and
40 streams distributed within the Plan Area as indicated in Table 5.10.

1 **Objective NACO3.5:** Restore █ acres of willow scrub along rivers and streams
2 distributed within the Plan Area as indicated in Table 5.10.

3
4 **Objective NACO3.6:** Restore █-█ acres of emergent wetland, depending on the
5 amount of rice land maintained under objective NACO4.1, distributed within the Plan
6 Area as indicated in Table 5.10.

7
8 **Objective NACO3.7:** Restore █ acres of seasonal or managed wetland, depending on
9 the amount of rice land maintained under objective NACO4.1, distributed within the Plan
10 Area as indicated in Table 5.10.

11
12 **Goal SPEC1:** Protect and enhance covered species' habitats to maintain and enhance the
13 abundance and distribution of covered species in the Plan Area.

14 **Objective SPEC1.1:** Protect and, where covered species will benefit, enhance covered
15 species habitats in the quantities and locations indicated for each covered species in Table
16 5.2.

17 *Applicable Conservation Measures from Section 3.4*

- 18 • CM 1: Protect Natural Communities
- 19 • CM4: Restore riparian habitat
- 20 • CM6: Restore/Create Emergent Wetland
- 21 • CM7: Create Managed Wetlands
- 22 • CM9: Enhance and Manage Protected Natural Communities

23 **5.5.14.2 Summary of Permanent Effects**

24 Full implementation of the BRCP covered activities could result in the permanent removal and
25 degradation of up to █ acres and █ acres of modeled western pond turtle aquatic habitat,
26 aquatic nesting and movement model and upland nesting/movement habitat, respectively.

27 **5.5.14.3 Conservation Approach and Expected Outcomes**

28 Full implementation of the BRCP will protect an additional 1,135 acres of modeled western pond
29 turtle aquatic and 18,420 acres of upland nesting and movement habitat, resulting in protection of
30 over 78% and 52% of these habitat types in the Plan Area (see Table 5.7). The approach to
31 conservation of western pond turtle focuses on protecting and enhancing watercourses and
32 adjacent uncultivated upland habitats throughout the Plan Area and protection and enhancement
33 of ponds that support habitat. Ponds selected for protection and restoration will include adjacent
34 upland habitat extending at least 200 feet from ponds within BRCP protected grassland, oak
35 savanna and woodland, and wetland natural communities.

1 Protected riparian habitats will be managed to maintain and enhance habitat functions for
2 western pond turtle such as excluding livestock from riparian habitats; placing woody debris in
3 stream channels to create pools, underwater refugia, and basking structures; and planting native
4 species to improve food availability especially for young turtles feeding within the emergent
5 vegetation. Removing riprap along channel banks and altering stream channel geomorphology
6 will also render this habitat more suitable for pond turtles by making the water-upland boundary
7 more permeable. Enhancement and management of agricultural habitats will include
8 maintaining water in canals and ditches to facilitate movement and dispersion of turtles and
9 providing effective genetic linkages among populations. Non-native predators, including
10 bullfrogs and nonnative turtles, will also be controlled if they are found to negatively affect
11 western pond turtle. Implementation of these conservation actions is expected to be sufficient to
12 sustain the existing and provide for future increases in the abundance and distribution of western
13 pond turtle in the Plan Area.

14 **5.5.15 Foothill Yellow-Legged Frog**

15 Foothill yellow-legged frogs within the Plan Area have been observed in Big Chico Creek along the
16 upper reaches of Upper Bidwell Park, and in Mud Creek and Rock Creek. At least one occurrence
17 has been detected along Butte Creek. California Department of Fish and Game snorkel surveys have
18 also identified juvenile, larval and breeding adults in Big Chico Creek, Butte Creek, and Feather
19 River in almost every year of survey report from 2001 to 2006.

20 Foothill yellow-legged frogs are found in or near clear, cool rocky streams in a variety of habitats,
21 including valley-foothill hardwood, valley-foothill hardwood-conifer, valley-foothill riparian,
22 ponderosa pine, mixed conifer, coastal scrub, mixed chaparral, and wet meadow types. They can
23 occur in a range of waterways from small intermittent creeks to large river systems. Foothill yellow-
24 legged frogs favor shallow, flowing water in small to moderate-sized streams with at least some
25 cobble-sized substrate and prefer sunny and partly-shaded banks for basking.

26 The primary factor in the decline of foothill yellow-legged frog in the Sierra Nevada is the
27 introduction of non-native predators. Competition and predation by introduced bullfrogs and
28 fish have greatly contributed to the decline of the species. Non-native centrarchid fishes readily
29 eat ranid eggs, and, where introduced into foothill streams, could also contribute to the
30 elimination of the species. Stock-ponds and other human-made ponds are harmful as they
31 promote bullfrog populations. Habitat loss and degradation, particularly in the Sierra Nevada
32 foothills, have also been major factors in declining foothill yellow-legged frog populations.
33 Habitat alterations have occurred as a result of dam and canal construction, agriculture,
34 urbanization, mining, and grazing practices. Besides eliminating habitat, these alterations have
35 resulted in reduced riparian habitat, decreases in suitable stream substrates, habitat
36 fragmentation, elimination of travel corridors, and detrimental flow regimes. Low flows, in
37 combination with loss of riparian habitat, tend to warm the water and foster non-native predators.
38 Prolonged droughts may have also impacted populations of these frogs.

1 **5.5.15.1 Applicable Goals , Objectives and Conservation Measures**

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

5
6 **Objective LAND1.1:** Establish a system of protected lands in the Plan Area that protects
7 the quantities and patch sizes of each natural community indicated in Table 5.9.

8
9 **Goal LAND2:** Preserve continuous corridors of habitat along the east-west elevation gradient
10 extending from the eastern boundary of the Plan Area to the major stream corridors in the valley
11 bottom and along a north-south corridor within the valley basin habitats.

12
13 **Objective LAND2.1:** In the Plan Area north of the City of Chico, protect a habitat
14 corridor comprised of oak woodland and savanna, grassland, riparian, wetland, and
15 aquatic natural communities that is at least 1.2 miles wide¹ along the northeast-southwest
16 elevation gradient between the foothills at the eastern boundary of the Plan Area and the
17 Sacramento River at the western boundary of the Plan Area (across the Cascade Foothills
18 and Northern Orchards CAZs; Figure 5.4).

19
20 **Objective LAND2.2:** In the Plan Area south of the City of Chico and north of the City
21 of Oroville, protect a habitat corridor comprised of oak woodland and savanna, grassland,
22 riparian, wetland, and rice land that is at least 1.2 miles wide¹ along the east-west
23 elevation gradient between the foothills at the eastern boundary of the Plan Area and
24 Butte Creek at the western boundary of the Plan Area (across the Cascade Foothills and
25 Basin CAZs; Figure 5.4).

26
27 **Objective LAND2.3:** In the Plan Area south of the City of Oroville, protect a habitat
28 corridor comprised of oak woodland and savanna, grassland, riparian, and wetland, and
29 and agricultural land that is at least 1.2 miles wide¹ wide along the east-west elevation
30 gradient between the foothills at the eastern boundary of the Plan Area and the Feather
31 River (across the Sierra Foothills and Southern Orchard CAZs; Figure 5.4).

32
33 **Objective LAND2.4:** Protect a habitat corridor suitable for giant garter snake movement
34 comprised of riparian, wetland, aquatic, and agricultural natural communities separating
35 patches of these communities that is at least 1.2 miles wide¹ wide along the north-south
36 gradient between the Llano Seco Unit of the Upper Butte Basin Wildlife Area (in the
37 Sacramento River CAZ), across the Basin CAZ, to the Little Dry Creek Unit of the Upper
38 Butte Basin Wildlife Area, and to Gray Lodge Wildlife Area (Figure 5.4).

39
40 **Goal LAND3:** Maintain and improve connectivity among protected lands to provide for the
41 movement of covered and other native species among habitat areas and to facilitate genetic

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).

1 exchange among populations.
2

3 **Objective LAND3.1:** Protect corridors of habitat that provide linkages among protected
4 habitat areas within and adjacent to the Plan Area.
5

6 **Objective LAND3.2:** Improve habitat corridors that allow covered and other native
7 species to move into protected habitats from adjacent lands and among habitat areas
8 within preserved lands.
9

10 **Goal LAND4:** Maintain and rehabilitate ecosystem processes that support covered species and
11 their habitats.
12

13 **Objective LAND4.2:** Reduce the loads of toxic contaminants into waters that support
14 covered plants, amphibians, and fish, and aquatic foodweb processes.
15

16 **Objective LAND4.3:** Restore floodplain erosional and depositional processes on BRCP
17 protected river and stream channels.
18

19 **Goal NACO1:** Protect oak woodland and savannah, grassland, riparian, wetland, aquatic natural
20 communities that represent a range of ecological gradients and that support or have the potential
21 to support high functioning habitat for covered and other native species.
22

23 **Objective NACO1.4:** Protect 6,370 acres of existing unprotected cottonwood-willow
24 riparian forest and valley oak riparian forest in minimum patch sizes of 25 acres along
25 rivers and streams distributed within the Plan Area as indicated in Table 5.1.
26

27 **Objective NACO1.11:** Protect at least 15 linear miles of existing unprotected reaches of
28 Pine Creek, Rock Creek, Mud Creek, Big Chico Creek, Lindo Channel, Little Chico
29 Creek, Butte Creek, Little Dry Creek, and Feather River (one or both banks of streams
30 channels may be protected under this objective).
31

32 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
33 grassland-, swale, riparian, wetland, and aquatic natural communities.

34 **Objective NACO2.3:** Enhance the habitat functions of up to 1,595 acres of BRCP protected
35 cottonwood-willow riparian and valley oak riparian forest for covered and other native species.

36 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
37 communities.
38

39 **Objective NACO3.3:** Restore ■ acres of cottonwood-willow riparian forest along
40 rivers and streams distributed within the Plan Area as indicated in Table 5.10.
41

42 **Objective NACO3.5:** Restore ■ acres of willow scrub along rivers and streams
43 distributed within the Plan Area as indicated in Table 5.10.

1
2 **Goal SPEC1:** Protect and enhance covered species' habitats to maintain and enhance the
3 abundance and distribution of covered species in the Plan Area.

4 **Objective SPEC1.1:** Protect and, where covered species will benefit, enhance covered
5 species habitats in the quantities and locations indicated for each covered species in Table
6 5.2.

7 *Applicable Conservation Measures from Section 3.4*

- 8 • CM 1: Protect Natural Communities
- 9 • CM4: Restore riparian habitat
- 10 • CM9: Enhance and Manage Protected Natural Communities

11 **5.5.15.2 Summary of Permanent Effects**

12 Full implementation of the BRCP covered activities could result in the permanent removal of up
13 up to ■ acres of modeled foothill yellow-legged frog habitat and permanent degradation of
14 habitat functions of up to ■ acres of modeled foothill yellow-legged frog habitat.

15 **5.5.15.2 Conservation Approach and Expected Outcomes**

16 Full implementation of the BRCP will protect an additional 1,125 acres of perennial stream and
17 1,280 acres of intermittent stream resulting in protection of approximately 61% and 22% of these
18 foothill yellow-legged frog habitat types in the Plan Area, respectively (see Table 5.7). The
19 approach to conservation of foothill yellow-legged frog focuses on protecting and enhancing
20 perennial and intermittent streams within the Cascade and Sierra CAZs. Perennial habitats were
21 considered to have a higher likelihood of occupancy and provide more optimal habitat conditions
22 compared with intermittent streams. There is also substantially fewer perennial streams than
23 potentially occupied intermittent streams within the Plan Area. Thus, conservation within the
24 Cascade and Sierra CAZs emphasizes perennial streams by recommending a larger proportion of
25 conserved habitat relative to intermittent streams. The habitat protection and enhancement
26 actions are expected to be sufficient to maintain the current Plan Area population and provide
27 opportunities for its future expansion.

28 **5.5.16 Western Spadefoot Toad**

29 *[Text to come following completion of conservation measures for the covered vernal pool*
30 *species.]*

31

1 **5.5.17 Valley Longhorn Beetle**

2 Valley elderberry longhorn beetle has been recorded from several locations within the Plan Area.
3 Most occurrences are along the Sacramento River with a few along Big Chico Creek, Butte Creek,
4 and the Feather River. Occurrences, however, do not sufficiently represent the distribution of the
5 species due to its life history and infrequent emergence of adults. Its host plant, the elderberry shrub,
6 is a common species in riparian habitats throughout much of the Plan Area, and so the species may
7 be more widespread.

8 Habitat at occupied sites consists of riparian woodland with elderberry dominant or present within
9 cottonwoods and willows; valley oak riparian surrounded by fallow fields; and savanna-like areas
10 with herbs, grasses, and massive clusters of elderberry scattered throughout. Adult beetles have been
11 observed, along with numerous accounts of old and new exit holes from the stems of elderberry.
12 Valley elderberry longhorn beetle is endemic to moist valley oak riparian corridors in the lower
13 Sacramento and lower San Joaquin Valleys. The species is closely associated with a few species of
14 elderberry (*Sambucus* spp.), primarily blue elderberry (*S. mexicana*) and red elderberry (*S.*
15 *racemosa*), which both occur within the Plan Area. These plants are an obligate host plant for larvae
16 and are necessary for the completion of the life cycle. The existing remnants of riparian woodlands
17 and forests within the distribution of valley elderberry longhorn beetle are a collection of various
18 canopy layers and dominant species. Ideally, the riparian ecosystem consists of several canopy
19 layers with dense understory. Fremont cottonwood (*Populus fremontii*), California sycamore
20 (*Platanus racemosa*), willow (*Salix* spp.), and valley oak (*Quercus lobata*) commonly compose the
21 upper canopy of the woodland, while the intermediate canopy includes box elder (*Acer negundo* var.
22 *californicum*), Oregon ash (*Fraxinus latifolia*), elderberries, and several willows. The understory can
23 be widely diverse and includes many non-native species. In some areas, the margins of riparian
24 woodlands and forests are lined with elderberry savanna with *S. mexicana* as the dominant species.

25 Valley elderberry longhorn beetle is in long-term decline caused by human activities that have
26 resulted in widespread alteration and fragmentation of riparian habitats, and, to a lesser extent, upland
27 habitats, which support the beetle. The primary threats to survival of the beetle include: loss and
28 alteration of habitat by agricultural conversion; inappropriate grazing; levee construction; stream and
29 river channelization; removal of riparian vegetation; rip-rapping of shorelines; non-native animals
30 such as the Argentine ant, a predator of the early phases of the beetle; and recreational, industrial, and
31 urban development. The beetle's distribution may be limited by the use of insecticide and herbicide
32 in agricultural areas and along roadways. Declining quality and maturity of elderberry shrubs/trees
33 as individuals and stands may be another cause of the beetle's limited distribution.

34 **5.5.17.1 Applicable Goals , Objectives and Conservation Measures**

35 *Applicable Goals and Objectives from Section 3.3*

36

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

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

4
5 **Goal LAND3:** Maintain and improve connectivity among protected lands to provide for the
6 movement of covered and other native species among habitat areas and to facilitate genetic
7 exchange among populations.

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

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

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

16 **Goal NACO2:** Enhance habitat functions of BRCP protected oak woodland and savannah,
17 grassland-, swale, riparian, wetland, and aquatic natural communities.

18 **Objective NACO2.3:** Enhance the habitat functions of up to 1,595 acres of BRCP protected
19 cottonwood-willow riparian and valley oak riparian forest for covered and other native species.

20 **Goal NACO3:** Restore oak woodland and savannah, grassland, riparian, and wetland natural
21 communities.

22
23 **Objective NACO3.3:** Restore █ acres of cottonwood-willow riparian forest along
24 rivers and streams distributed within the Plan Area as indicated in Table 5.10.

25 **Objective NACO3.4:** Restore █ acres of valley oak riparian forest along rivers and
26 streams distributed within the Plan Area as indicated in Table 5.10.

27 **Objective NACO3.5:** Restore █ acres of willow scrub along rivers and streams
28 distributed within the Plan Area as indicated in Table 5.10.

29 *Applicable Conservation Measures from Section 3.4*

- 30 • CM 1: Protect Natural Communities
31 • CM4: Restore riparian habitat
32 • CM9: Enhance and Manage Protected Natural Communities

33

1 **5.5.17.2 Summary of Permanent Effects**

2 Full implementation of the BRCP covered activities could result in the permanent removal of up
3 to █ acres of modeled valley elderberry longhorn beetle habitat and permanent degradation of
4 █ acres of habitat.

5 **5.5.17.3 Conservation Approach and Expected Outcomes**

6 The approach to conservation of valley elderberry longhorn beetle focuses on protecting,
7 enhancing, and restoring riparian habitat throughout the Plan Area. Full implementation of the
8 BRCP will protect an additional 15,315 acres of riparian and adjacent grassland habitat, resulting
9 in protection of approximately 62% of modeled valley elderberry longhorn beetle habitat in the
10 Plan Area (see Table 5.7). Restored riparian habitat areas will also be designed to incorporate
11 plantings of elderberry, the valley elderberry longhorn beetle's host plant.

DRAFT