Table 5-4. Natural community-level goals, objectives, and conservation and monitoring actions.

Covered Species Expected to Benefit from Vernal Pool Grassland Complex and Grassland Biological Goals and Objectives		
Vernal Pool Species Vernal pool fairy shrimp Vernal pool tadpole shrimp Conservancy fairy shrimp Western spadefoot Bogg's Lake hedge-hyssop Dwarf downingia Legenere Ahart's dwarf rush Red Bluff dwarf rush		Grassland Species Swainson's hawk American peregrine falcon Western burrowing owl Loggerhead shrike Northern harrier Ferruginous hawk Grasshopper sparrow Tricolored blackbird Western spadefoot
Vernal Pool Grassland Complex and Grassland Biological Goals and Objectives	**Conservation Measures**	**Monitoring Actions**
Goal 4. Protect, restore, and enhance functional grasslands, vernal pool complexes, and the hydrological process that support them to benefit covered species and promote native biodiversity.		
Objective 4.1. Acquire at least as much vernal pool grassland complex and annual grassland as is taken and protect as part of the Reserve System.	Implement project-specific mitigation measures described in Chapter 6. Seek out public funding for acquisition separate from mitigation.	Compliance monitoring and annual reports. Assess quality of habitat of acquired land and prioritize for management. Map the distribution of wetland features to establish a baseline dataset.
Objective 4.2. Acquire a minimum of 15,000 acres of vernal pool grassland complex and protect as part of the Reserve System. The hydrological and ecosystem function of vernal pools will be protected by protecting contiguous tracts of grasslands and other upland habitats surrounding vernal pool complexes.	Acquire lands for the Reserve System according to the reserve design and assembly principles described in Chapter 5, Section 5.2.3, Reserve System) and the criteria for acquisition of vernal pool grassland complex described in Section 5.3.3, Grassland and Vernal Pool Complex Conservation and Management.	

Objective 4.3. Restore vernal pool wetted area and other wetland to ensure no net loss of vernal pool wetted area and other wetlands and protect as part of the Reserve System. (Up to 40% of the compensatory mitigation for take of vernal pool wetted area can be used to restore other types of wetted area land-cover [e.g., fresh emergent wetland])	Restore vernal pool topography (e.g., reconstruct the characteristic depth from the overlying soil surface to the impermeable layer beneath) using techniques such as mechanical recontouring, excavating, grading, and compacting soils.	Compliance monitoring to ensure no net loss of wetlands. Assess the suitability of sites for restoration of vernal pools.
		Monitor and evaluate success of restoration by comparing restored sites to reference sites, success criteria, and ecological indicators.
		Conduct targeted studies to resolve critical uncertainties about restoration issues (e.g., directed studies to determine the minimum amount of surrounding upland per area of vernal pool), to improve restoration techniques (i.e., pilot projects), and to develop and refine protocol to monitor the status and trends of success criteria, ecological indicators, and covered species (i.e., methods testing).
	Restore isolation of vernal pools by diverting water from permanent water sources or sources that provide water outside of the wetted season (to restore seasonal hydrological characteristics).	Monitor vernal pool hydroperiod to assess efficacy of efforts to restore isolation
	Re-introduce vernal pool invertebrates and plants, where necessary.	Monitor response of targeted covered species to re-introduction.
	Restore water quality by diverting polluted runoff away from vernal pools and managing grazing intensity, timing and duration.	Monitor indicators of water quality in targeted watersheds and compare to baseline values to assess efficacy of management actions.

	Use grazing, controlled burning in combination with grazing (where feasible, and if studies indicate beneficial application), and mowing to control non-native, invasive vegetation	Monitor the effects of grazing, burning, and mowing on reducing cover of nonnative, invasive plants and increasing the diversity and biomass of covered plants and diversity of other native plants. Conduct directed study to evaluate the effects of controlled burns on the cover and species diversity of native and nonnative species and hydroperiod in vernal pools.
	Use grazing, controlled burning (where feasible, and if studies indicate beneficial application), physical manipulation (e.g., recontouring, where necessary), and other methods to manage hydroperiod suitable for covered species.	Monitor vernal pool hydroperiod to assess efficacy of efforts to manage hydroperiod for covered species Conduct directed study to evaluate the effects of controlled burns on the cover and species diversity of native and nonnative species and hydroperiod in vernal pools.
Objective 4.4. Enhance all vernal pools, vernal pool grassland complexes, and surrounding uplands (e.g., primarily grassland) by promoting regeneration and recruitment of representative native species, controlling invasive, non-native species, and promoting hydrological and other natural processes to support native biodiversity and populations of covered species.	Enhance and restore vernal pool topography to restore the characteristic depth from the overlying soil surface to the impermeable layer beneath using techniques such as mechanical recontouring, excavating, grading, compacting vernal pool soils, and repairing damage from past agriculture and recreation.	Monitor indicators of success of actions to enhance vernal pool topography and hydrology (e.g., hydroperiod, depth and size of pools, water quality).
	Use grazing, controlled burning in combination with grazing (where feasible, and if studies indicate beneficial application), and mowing to control non-native, invasive vegetation.	Monitor the effects of grazing, burning, and mowing on reducing cover of nonnative, invasive plants and increasing the diversity and biomass of covered plants and diversity of other native plants. Conduct directed study to evaluate the effects of controlled burns on the cover and species diversity of native and nonnative species and hydroperiod in vernal pools.

	Enhance remnant populations of native grasses and enhance native forb diversity by controlling invasive vegetation (see Conservation Action above) and seeding with appropriate native species.	Monitor the success of seeding efforts in promoting native grasses and forbs. Examples of indicators include indices of species diversity and relative cover of native species. Monitor response of target species (especially covered species) to seeding.
	Minimize rodent control measures to enhance populations of ground squirrels.	Monitor population-level response of ground squirrels to removal or minimization of control measures.

Covered Species Expected to Benefit from Oak Woodland Biological Goals and Objectives

Note: Habitats in parentheses indicate the use of limited oak woodland land-cover types or ecological function for habitat (e.g., movement). See Tables 3-3 and 3-4 for habitat/land-cover associations for covered species.

Swainson's hawk (valley oak woodland)	Western spadefoot (upland and movement habitat)
Cooper's hawk	California red-legged frog (upland and movement habitat)
Yellow warbler	Northwestern pond turtle
Modesto song sparrow (valley oak woodland)	

Oak Woodland Biological Goals and Objectives	Conservation Measures	Monitoring Actions
Goal 5. Protect and enhance functional oak woodland communities that benefit covered species and promote native biodiversity.		
Goal 6. Valley Oak Woodland. Protect, enhance, and restore valley oak woodland communities that benefit covered species and promote native biodiversity.		
Objective 5.1. Acquire at least as much oak woodland as is taken and protect a diversity of oak woodland community types as part of the Reserve System. **Objective 5.2.** Acquire a minimum of 4,000 acres of oak woodland and protect as part of the Reserve System. **Objective 5.3.** Acquire up to three times as much valley oak woodland as is taken and protect as part of the Reserve System.	Implement project-specific mitigation measures described in Chapter 6. Seek out public funding for acquisition separate from mitigation. Acquire lands for the Reserve System according to the reserve design and assembly principles described in Chapter 5, Section 5.2.3, Reserve System) and the criteria for acquisition of oak woodland described in Section 5.3.4, Oak Woodland Conservation and Management.	Compliance monitoring and annual reports. Assess quality of habitat of acquired land and prioritize for management.

Objective 5.4. Restore valley oak woodland. (Two-thirds of mitigation can be in the form of restoration of valley oak woodland, with the remaining third as preservation.)	Plant saplings and seeds and protect seedlings and saplings from browsing with shelters or other protective devices.	Monitor the survivorship of planted saplings and seeds, the relative effectiveness of plant and seedling protective measures, and the effectiveness other measures to enhance establishment (e.g., control of nonnative competitors). Monitor and evaluate success of restoration by comparing restored sites to reference sites, success criteria, and ecological indicators.
	Apply prescribed burns, where appropriate and feasible.	Monitor vegetation before and after prescribed burn to assess effects of prescribed burn on community attributes and covered species.
	Manage invasive plants using grazing, disking, mowing, mulching, and judicious application of herbicides to enhance establishment of seedlings.	Monitor the effects of grazing, disking, mowing, mulching, and herbicides on reducing cover of nonnative, invasive plants and improving regeneration of oaks and other native plants.
	Control feral animals (e.g., feral pigs) that limit oak regeneration.	Monitor the effectiveness of control methods and response of oak regeneration to control efforts.
Objective 5.5. Enhance within-stand and stand-edge regeneration, especially for stands of valley oaks and blue oaks.	Plant saplings and seeds and protect seedlings and saplings from browsing with shelters or other protective devices.	Monitor the survivorship of planted saplings and seeds and relative effectiveness of plant and seedling protective measures.
	Apply prescribed burns, where appropriate and feasible.	Monitor vegetation before and after prescribed burn to assess effects of prescribed burn on community attributes and covered species.
	Control feral animals (e.g., feral pigs) that limit oak regeneration.	Monitor the effectiveness of control methods and response of oak regeneration to control efforts.
	Manage invasive plants using grazing, disking, mowing, mulching, and judicious application of herbicides to enhance establishment of seedlings.	Monitor the effects of grazing, disking, mowing, mulching, and herbicides on reducing cover of nonnative, invasive plants and improving regeneration of oaks and other native plants.

Objective 5.6. Manage invasive plants in the understory of oak woodlands.	Manage invasive plants using grazing, disking, mowing, mulching, and judicious application of herbicides.	Monitor the effects of grazing, disking, mowing, mulching, and herbicides on reducing cover of nonnative, invasive plants and improving regeneration of oaks and other native plants.
Objective 5.7. Manage fuel loads to reduce the chance of catastrophic wild fire.	Apply prescribed burns, where appropriate and feasible.	Monitor vegetation before and after prescribed burn to assess effects of prescribed burn on community attributes and covered species.
	Use prescribed grazing to manage fuel load.	Monitor vegetation before and after prescribed grazing to assess the effects of prescribed grazing on community attributes, covered species, and fuel load.
	Reduce fuel load using mechanical and hand techniques such as thinning of small diameter trees.	Monitor vegetation before and after using mechanical/hand methods to assess the effects of mechanical/hand removal on community attributes, covered species, and fuel load.

Covered Species Expected to Benefit from Riverine and Riparian Biological Goals and Objectives	
Riverine	Riparian
Bald eagle	Bald eagle
Bank swallow	Swainson's hawk
Western spadefoot (secondary breeding habitat)	Bank swallow
Giant garter snake	Cooper's hawk
Central Valley steelhead	Loggerhead shrike
Central Valley fall/late-fall run Chinook salmon	Yellow warbler
Foothill yellow-legged frog	Yellow-breasted chat
California red-legged frog	Modesto song sparrow
Northwestern pond turtle	Tricolored blackbird
	Valley elderberry longhorn beetle
	Western spadefoot
	Central Valley steelhead
	Central Valley fall/late-fall run Chinook salmon
	Foothill yellow-legged frog
	California red-legged frog
	Northwestern pond turtle

Riverine and Riparian Biological Goals and Objectives	Conservation Actions	Monitoring Actions
Goal 7. Improve the ecological health of riverine systems by protecting, enhancing, and restoring hydrologic, geomorphic, and botanical processes to maintain functional aquatic and riparian communities that benefit covered species and promote native biodiversity.		
Objective 7.1. Protect stream reaches within the Plan area to promote habitat function (i.e., water temperature and shade conditions suitable for covered fish), and movement of animals and plants (i.e., dispersal of seeds of riparian species) along riverine and riparian corridors that traverse the Plan area.	Implement project-specific mitigation measures described in Chapter 6. Seek out public funding for acquisition separate from mitigation.	Compliance monitoring and annual reports. Assess quality of habitat of acquired land and prioritize for management.
	Acquire lands for the Reserve System according to the reserve design and assembly principles described in Chapter 5, Section 5.2.3, Reserve System) and the criteria for acquisition of vernal pool grassland complex described in Section 5.3.5, Riverine and Riparian Conservation and Management. Acquisition and protection of riparian habitat will necessarily protect riverine habitat.	
Objective 7.2. Restore and enhance stream reaches to maintain and improve habitats for covered species, ecosystem functions, connectivity between habitats, and water quality.	Remove channelization features such as rip-rap, dikes, and levees.	Conduct pre- and post-treatment monitoring of community function (performance of ecological processes); habitat composition, structure and pattern; and connectivity as part of a targeted study.
	Install large woody debris and other in-stream structural elements such as rocks and boulders to increase channel complexity.	Conduct pre- and post-treatment monitoring of community function (performance of ecological processes); habitat composition, structure and pattern, and use of habitat features by covered and other species.
	Clean and replenish gravel beds that have been degraded by accumulation of fine sediment and/or displacement of spawning gravel, when feasible and necessary.	Conduct pre- and post-treatment monitoring of sediment levels and use of treated area by covered fish.
	Modify (e.g., by screening intakes) and/or remove diversion facilities to reduce juvenile salmonid entrainment	Periodically monitor and clean intake screens.

	Remove or modify barriers to passage by all life stages of salmonids.	Monitor passage of salmonids across modified barriers to evaluate efficacy of modifications.
	Exclude or limit livestock access to target stream and riparian sections using exclusion fencing, off-channel water sources, and limited grazing intensity and duration.	Monitor the effectiveness of livestock exclusion methods and conduct pre- and post-exclusion monitoring to document the effects of livestock exclusion on native riparian vegetation.
	Reduce suspension of sediment by hardening stream crossings for livestock.	Monitor use of crossings by livestock to ensure livestock are crossing over intended areas.
	Remove and control invasive, non-native animals (e.g., bullfrog, carp, feral cats) using methods such as trapping and electrofishing.	Monitor populations of targeted invasive animals before and after control efforts; monitor response of covered species and other native species to removal/control efforts.
	Conduct outreach and small grants program to assist private landowners in the management of riparian and riverine habitats	Compliance monitoring and annual reporting.
Objective 7.4. Acquire at least as much valley foothill riparian habitat as is taken to promote habitat function within riparian and riverine habitats, wildlife movement across the Plan area landscape and protect as part of the Reserve System.	Implement project-specific mitigation measures described in Chapter 6. Seek out public funding for acquisition separate from mitigation. Acquire lands for the Reserve System according to the reserve design and assembly principles described in Chapter 5, Section 5.2.3, Reserve System) and the criteria for acquisition of vernal pool grassland complex described in Section 5.3.5, Riverine and Riparian Conservation and Management.	Compliance monitoring and annual reports. Assess quality of habitat of acquired land and prioritize for management.
Objective 7.5. Restore valley foothill riparian habitat within the Reserve System to: connect fragmented riparian corridors and restore habitat for covered species; slow the movement of flood waters; allow the deposition of sediment to improve channel and bank formation processes; reduce sediment loading in river and stream systems; and improve habitat for covered	Restore riparian vegetation by planting and/or seeding understory and overstory riparian vegetation in the riparian zone to reduce erosion, create structural diversity, provide cover, moderate water temperature, and re-connect riparian corridors.	Monitor the survivorship of plantings and relative effectiveness of planting and seedling methods and protective measures. Monitor and evaluate success of restoration by comparing restored sites to reference sites, success criteria, and ecological indicators.

species, including the creation of complex rearing habitat for covered fish species. **Objective 7.6.** Enhance functional valley foothill riparian communities of a variety of vegetation types that benefit covered species and promote native biodiversity.	Remove and control the cover, biomass, and distribution of invasive plants using methods such as hand removal, limited grazing, mowing, mechanical removal, spot-burning, tarping, and selective use of herbicides.	Monitor the effectiveness of invasive species control methods, and the response of native species (e.g., native species diversity) to removal of invasive species.
	Exclude or limit livestock access to target stream and riparian sections using exclusion fencing, off-channel water sources, and limited grazing intensity and duration.	Monitor the effectiveness of livestock exclusion methods and conduct pre- and post-exclusion monitoring to assess the effects of livestock exclusion on native riparian vegetation.
	Conduct outreach and small grants program to assist private landowners in the management of riparian and riverine habitats.	Compliance monitoring and annual reporting.

Covered Species Expected to Benefit from Wetland and Pond Biological Goals and Objectives	
Bald Eagle Swainson's hawk American peregrine falcon California black rail Bank swallow Cooper's hawk Northern harrier Modesto song sparrow Tricolored blackbird	Western spadefoot toad Giant garter snake California red-legged frog Northwestern pond turtle Bogg's Lake hedge-hyssop Legenere Ahart's dwarf rush Red Bluff dwarf rush

Wetland and Pond Biological Goals and Objectives	**Conservation Actions**	**Monitoring Actions**
Goal 8. Protect, maintain, enhance, restore and create fresh emergent wetlands, vernal pools and other seasonal wetlands, springs and seeps, and the hydrologic processes that support them to benefit covered species and promote native biodiversity. There should be no net loss of wetland area over the term of the permit.		
Goal 9. Protect, maintain, and enhance pond habitats and the hydrological processes that support them to benefit covered species and promote native biodiversity.		

Objective 8.1. Acquire at least as much fresh emergent wetland and spring and seep as is taken and protect as part of the Reserve System. Note: in the Foothills, fresh emergent wetlands will be acquired in the Foothills to protect habitat for California black rail (see section 6.12.5, Species Condition 5, California Black Rail). **Objective 8.2.** As part of the wetland complex protected and restored in the Reserve System, acquire and restore at least one large fresh emergent wetland system in the Valley. **Objective 8.3.** Acquire at least as much pond as is taken and protect as part of the Reserve System. **Objective 8.4.** Acquire contiguous tracts of natural and semi-natural upland habitats between wetlands and ponds to allow native species to move between aquatic and upland habitats (e.g., overwintering sites, movement corridors) and protect as part of the Reserve System.	Implement project-specific mitigation measures described in Chapter 6. Seek out public funding for acquisition separate from mitigation. Acquire lands for the Reserve System according to the reserve design and assembly principles described in Chapter 5, Section 5.2.3, Reserve System) and the criteria for acquisition of wetlands and ponds described in Section 5.3.6, Wetland and Pond Conservation and Management.	Compliance monitoring and annual reports. Assess quality of habitat of acquired land and prioritize for management.
Objective 8.5. Restore fresh emergent wetlands and ponds to ensure no net loss of fresh emergent wetland and protect as part of the Reserve System. Note: fresh emergent wetlands will be acquired in the Foothills to restore habitat for California black rail (see section 6.12.5, Species Condition 5, California Black Rail).	Restore fresh emergent wetlands and ponds within the Reserve System in suitable sites that are likely to support covered species.	Compliance monitoring and annual reports. Monitor and evaluate success of restoration by comparing restored sites to reference sites, success criteria, and ecological indicators.
Objective 8.6. Enhance fresh emergent wetlands and ponds to provide habitat for the target covered species and site-specific conditions by increasing native vegetative cover, biomass, and structural diversity in suitable areas of wetlands and ponds. Note:	Plant and/or seed native vegetation appropriate to the site.	Monitor the survivorship of plantings and relative effectiveness of plant and seedling methods and protective measures.
	Install fencing, where ecologically appropriate, to reduce grazing pressure and exclude feral pigs	Monitor the effectiveness of exclusion methods and conduct pre- and post-

fresh emergent wetlands will be managed in the Foothills to protect and restore habitat for California black rail. See section 5.5.3, Benefits of Conservation Actions for Covered Species – California Black Rail, for detailed discussion of management of wetlands for California black rail.	on portions of wetlands and ponds.	exclusion monitoring to assess the effects of livestock and feral pig exclusion on community function and covered species.
	Install woody debris around the perimeter and in submerged banks of ponds and wetlands to create basking habitat and cover for native juvenile amphibians and reptiles.	Survey wetlands and ponds to identify areas where addition of woody debris and other structural features will potentially enhance habitat. Monitor the use of installed structures by covered species and other wildlife.
	Remove vegetation to provide open water habitat for northwestern pond turtle, California red-legged frog, and waterfowl using methods that minimize negative impacts to covered and other native species. Techniques may include limited grazing, hand, and mechanical removal.	Monitor the effectiveness of vegetation removal methods, and the response of covered and other native species (e.g., native species diversity) to removal of invasive species.
	Remove invasive non-native vegetation using methods that minimize negative impacts to covered and other native species. Techniques may include limited grazing, hand, and mechanical removal.	Monitor the effectiveness of invasive species control methods, and the response of covered species and other native species (e.g., native species diversity and cover of native vegetation) to removal of invasive species.
	Manage water levels in target wetlands to provide aquatic habitat for giant garter snake during their active season (e.g., flooded from early spring – mid fall), for overwintering waterfowl and shorebirds (fall – spring), and for California black rail. (Note: different wetlands will be managed for different groups of species. For example, wetlands in the foothills will be managed to provide habitat for Californian black rail, whereas wetlands and in the Valley will be managed to provide habitat for giant garter snake).	Monitor water levels to ensure that suitable water depths are available in ricelands and target wetlands for giant garter snake and other target species at the appropriate time of year.
	Re-vegetate adjacent upland habitat adjacent to wetlands with grassy banks (using native vegetation appropriate to the site) and maintain openings to waterside vegetation for basking for giant garter snake at sites managed to provide habitat for giant garter snake.	Monitor the establishment of restored/enhanced vegetation on adjacent uplands and the “openness” of basking sites.
Objective 8.7. Enhance fresh emergent	Eradicate or reduce non-native predators (e.g.,	Monitor the effectiveness of invasive

wetlands and ponds within the Reserve System by eradicating or reducing the density of invasive, non-native animals that are detrimental to covered species and native biodiversity**.**	bullfrogs, invasive fish, feral cats) within the Reserve System by manipulating habitat (e.g., periodic draining of ponds), trapping, hand capturing, electroshocking, or other control methods.	animal control methods, and the response of covered and other native species (e.g., native species diversity) to removal of invasive species.
Objective 8.8. Enhance water quality in fresh emergent wetlands and ponds to improve aquatic habitat for covered species	Periodically remove sediment, as necessary, using methods that minimize negative impacts on covered and other native species.	Monitor the response of covered species and other native biodiversity to removal of sediment. Monitor indicators of success criteria to evaluate success of sediment removal in improving community function and habitat for covered species.
	Remove or reduce point and non-point sources of pollution on the Reserve System and divert point and non-point sources of pollution away from wetlands and ponds. Examples of techniques include using filter and buffer strips and following wellhead protection procedures.	Monitor indicators of success criteria to evaluate success of pollution reduction projects in improving water quality, community function, and habitat for covered species.
	Install fencing, where ecologically appropriate, to reduce grazing pressure and exclude feral pigs on portions of wetlands and ponds.	Monitor the effectiveness of exclusion methods and conduct pre- and post-exclusion monitoring to assess the effects of livestock and feral pig exclusion on community function and covered species.

Covered Species Expected to Benefit for Agricultural Land Biological Goals and Objectives

Bald eagle	Modesto song sparrow
Swainson's hawk	Grasshopper sparrow
American peregrine falcon	Tricolored blackbird
Western burrowing owl	Western spadefoot toad
Loggerhead shrike	Giant garter snake
Cooper's hawk	California red-legged frog
Northern harrier	Northwestern pond turtle
Ferruginous hawk	

Agricultural Land Biological Goals and Objectives	Conservation Actions	Monitoring Actions
Goal 10. Preserve agricultural land-uses on Reserves that support habitat for covered species and other wildlife (e.g., migratory waterfowl and shorebirds, raptors) and promote agricultural practices and land management that maximizes biodiversity, benefits covered species and natural communities, and enhances connectivity between natural communities.		

Objective 10.1. Protect agriculture land and maintain in production with wildlife-compatible crops such as rice, alfalfa, row crops, and pasture and protect as part of the Reserve System. The PCA will avoid obtaining easements on vineyards and orchards unless restoration to native habitat is a critical component of such acquisition.	Implement project-specific mitigation measures described in Chapter 6. Seek out public funding for acquisition separate from mitigation. Acquire lands for the Reserve System according to the reserve design and assembly principles described in Chapter 5, Section 5.2.3, Reserve System) and the criteria for acquisition of agricultural land described in Section 5.3.7, Agricultural Land Conservation and Management.	Compliance monitoring and annual reports. Assess quality of habitat of acquired land and prioritize for management.
Objective 10.2. Enhance habitat conditions for covered species and wildlife, enhance connectivity between natural communities, and improve water quality on agriculture lands managed within the Reserve System, within the limitations of economically viable agricultural operations.	Prepare agricultural management plans for reserves that will include agricultural uses to allow specified agricultural practices to continue along with specified enhancements to protect covered and other native species.	Compliance monitoring and annual reports.
	Preserve and restore patches of natural vegetation, including native trees and shrubs.	Monitor the ecological conditions of remnant patches of habitat and compare with indicators of ecological health.
	Delay the harvesting of hay and grain crops until as late as possible to increase the reproductive success of ground nesting birds that nest in agricultural fields.	Monitor the use of hay and grain crops by tricolored blackbird and other native species to determine appropriate time to begin harvest to minimizing impacts to birds nesting in agricultural fields.
	Establish vegetated buffer zones around aquatic habitats to reduce runoff and disturbance to aquatic habitats and to provide habitat for covered species (e.g., Modesto song sparrow) and native wildlife.	Monitor the establishment of vegetation in buffer zones.
	Plant winter cover crops, where appropriate, to provide food and cover for native birds.	Monitor the use of winter cover crops by wildlife.
	Manage water levels in ricelands to provide aquatic habitat for giant garter snake during their active season (e.g., flooded from early spring – mid fall) and for overwintering waterfowl and shorebirds (fall – spring).	Monitor water levels to ensure that suitable water depths are available for giant garter snake and other target species at the appropriate time of year.
	Plant and/or seed native vegetation appropriate to the site along the margins of rice fields (e.g.,	Monitor the survivorship of plantings and relative effectiveness of plant and

	Typha spp. and *Scirpus* spp.) to increase vegetation cover for giant garter snake and other target species in wetland habitats.	seedling methods and protective measures.
	Re-vegetate adjacent upland habitat adjacent to ricelands with grassy banks (using native vegetation appropriate to the site) and maintain openings to waterside vegetation for basking for giant garter snake.	Monitor the establishment of restored/enhanced vegetation on adjacent uplands and the "openness" of basking sites.
	When flooding fields in winter, vary water depth across fields to provide a diversity of flooded habitats for wildlife and maintain flood waters through winter/early spring, if feasible.	Monitor the use of flooded fields by wildlife to assess the effects of flooding depth, timing, and agricultural land-use on habitat quality for target species.
	Plant cover strips, hedgerows, and shelterbeds along field margins, ditches, canals, and roads to encourage use by beneficial insects and wildlife.	Monitor the establishment of planted/seeded vegetation for cover strips, hedgerows, and shelterbeds.
	Install nest and bat boxes to encourage use by birds that control pest insect and rodent populations.	Monitor the use of nest and bat boxes by birds and bats to maximize their use by targeted wildlife and to identify any threats to birds and bats using the boxes from agricultural practices on the Reserve.
	Apply herbicides, pesticides, and chemical fertilizers minimally and cautiously.	Monitor for adverse effects of herbicide, pesticide, and chemical fertilizers on covered species.
Objective 10.3. Promote agricultural practices and land use management that supports and enhances habitat for covered species and biodiversity on privately owned agricultural lands.	Provide outreach, education, and assistance to private farmers interested in enhancing their agricultural land to benefit covered species, wildlife, and ecosystem function.	Compliance monitoring and annual reports.