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Table 5-22. Conservation Measure Monitoring Actions and Metrics

<i>Monitoring Action</i>	<i>Monitoring Metrics</i>
Landscape-Level Conservation Measures	
<i>CM 1: Protect Natural Communities</i>	
Monitoring actions for this conservation measure are the same as monitoring actions for applicable natural community-level and species-objectives described in Table 5-16.	Monitoring metrics for this conservation measure are the same as for applicable natural community-level and species-objectives described in Table 5-16.
<i>CM2: Develop and Implement an Invasive Species Control Program</i>	
Conduct surveys to establish baseline conditions for covered and other native species, and nonnative species Post-action surveys to assess change in ecological conditions	Change in the abundance and distribution of targeted nonnative species on treated protect lands Change in the abundance and distribution of covered and other native species Change in nesting success Effectiveness of implemented control methods (reduction on abundance on nonnative or invasive species)
<i>CM3: Improve Urban Stormwater Water Quality</i>	
Establish baseline contaminant loads and concentrations in stormwater discharges Monitor contaminant loads and concentrations in treated stormwater	Change in contaminant loads and concentrations in treated stormwater discharges
Natural Community-Level Conservation Measures	
<i>CM4 : Restore Riparian Habitat</i>	
Remote sensing - update GIS layers annually showing protected and restored riparian habitat patches within each CAZ Baseline condition evaluations Floral and faunistic monitoring of habitat characteristics	Extent and location of restored riparian habitat patches Stand characteristics (species composition, tree height and diameter distribution, tree density, canopy closure, number of snags, ground cover, etc). Number and abundance of covered species Connectivity of restored habitat patches
<i>CM5: Restore Vernal Pool Complex</i>	
Delineate and map restored vernal pool complexes, update gis database Monitor hydroperiod and seasonality of inundation Monitor covered species presence and species composition Monitor invasive species presence and abundance Monitor management actions and system response (to grazing, burning, disturbance)	Extent and location of restored vernal pool habitat complex Hydrographic characteristics (inundation period, inundation depth, frequency of inundation) Covered species presence, abundance and population growth Presence and abundance of invasive plants, nonnative competitors or predators Individual species and propagule performance (reproduction, survival) in response to management actions

Table 5-22. Conservation Measure Monitoring Actions and Metrics (continued)

Monitoring Action	Monitoring Metrics
<i>CM6: Restore/Create Emergent Wetland</i>	
<p>Delineate and map created/restored emergent wetlands from remote sensing data, update gis database Monitor hydroperiod and seasonality of inundation Monitor covered species presence and species composition Monitor giant garter snake presence and density Monitor tri-colored blackbird abundance and reproductive success (see also cm2: invasive species control) Monitor invasive species presence and abundance Monitor management actions and system response to grazing, burning, disturbance, dewatering, etc</p>	<p>Extent and location of created/restored emergent wetlands, acreage of total and total preserved, enhanced or restored rice and non-rice, suitable wetland habitat for giant garter snake. Hydrographic characteristics (inundation period, inundation depth, frequency of inundation) Covered species presence, abundance and population growth Giant garter snake presence, abundance, and density (index) Tri-colored blackbird distribution, abundance and reproductive performance Vegetative characteristics (species composition, cover, edge characteristics) Presence and abundance of invasive plants, nonnative competitors or predators</p>
<i>CM7: Create Managed Wetland</i>	
<p>Delineate and map created managed wetlands, update gis database Monitor hydroperiod and seasonality of inundation Monitor covered species presence and species composition Monitor distribution and population size of wintering sandhill cranes in the plan area and on protected and created managed wetlands Monitor invasive species presence and abundance Monitor management actions and system response (to grazing, burning, disturbance)</p>	<p>Extent and location of created managed wetland habitat Hydrographic characteristics (inundation period, inundation depth, frequency of inundation, development of hydric soil characteristics, etc) Presence, abundance and population growth of covered species Presence and abundance of invasive plants, nonnative competitors or predators Density and nutritional quality of primary crane forage plants (green and seed-bearing) Presence, abundance and distribution of foraging and roosting sandhill cranes during autumn and winter</p>
<i>CM8: Enhance and Manage Protected Natural Communities</i>	
<p>Delineate and map annually protected lands, enhanced, created or restored habitats, infrastructure, hazards, easements and changes in landownership. Monitor existing conditions, land use and management practices on protected lands Monitor enhancement activities and covered species responses Monitor agricultural practices, including harvesting and irrigation, vegetation management</p>	<p>Vegetation characteristics and key ecological correlates of covered species life history functions (e.g., snags for nesting, rodent burrows for aestivation sites, in-stream woody debris as cover for covered fish species or basking logs for western pond turtles, etc.) Before and after abundance and performance of covered species Abundance and extent of invasive plants or nonnative predators/competitors Application and frequency of use of herbicides, rodent control, riparian grazing and other management techniques. Prey and forage availability for covered species in response to management activities</p>
Species-Level Conservation Measures	
<i>CM9: Create and Maintain Greater Sandhill Crane Winter Roost Sites</i>	

Table 5-22. Conservation Measure Monitoring Actions and Metrics (continued)

<i>Monitoring Action</i>	<i>Monitoring Metrics</i>
Map and annually update winter roost area boundaries of sandhill cranes the basin caz Monitor vegetation, foraging plant species abundance and composition Monitor monthly distribution of cranes among roosts and foraging areas	Size, location and features of winter roost areas Number of berms used by cranes for roosting Water level on roost sites, Disturbance of cranes
<i>CM10: Maintain and Enhance Covered Species Habitat on Existing Protected Lands</i>	
To come.	To come.
<i>CM11: Remove Riprap from Channel Banks Along Streams that Support Habitat for Covered Fish Species</i>	
Delineate and map lands along the feather river that support site conditions suitable for restoration of covered fish species spawning and rearing habitat Monitor habitat conditions for covered fish species Monitor restoration and maintenance activities Monitor use and passage of covered fish species of modified channel sections	Amount of riprap (miles of channel bank) removed Evidence of stream meandering (erosion and deposition) Diversity of channel margin an instream habitat Flow and substrate conditions Seasonal inundation and hydroperiod of the associated floodplain Covered fish species seasonal presence, abundance, evidence of spawning Age and size distribution of fish using modified channel habitat
<i>CM12: Replenish Spawning Gravels</i>	
Pre- and post-acquisition baseline surveys of covered fish species spawning and rearing habitat. Monitor augmented spawning gravels annually for 5 years to determine possible sediment covering gravels in rock creek, mud creek, big chico creek, lindo channel, little chico creek, butte creek, little dry creek, and/or feather river. Survey for spawning evidence (redds)	Amount (cubic yards) of salmonid spawning gravels supplied Extent of salmonid spawning habit Occurrence of spawning (salmonids, green sturgeon)
<i>CM13: Improve Fish Passage</i>	
Identify and map locations where passage of covered fish species is physically impeded on pine creek, rock creek, mud creek, big chico creek, lindo channel, little chico creek, butte creek, little dry creek, and feather river Monitor fish passage upon modification of stream channels	Before-and-after modification of stream channel: number of fish passing through the modified stream channel section
<i>CM14: Reduce Entrainment Loss of Covered Fish Species</i>	
To come.	To come.
<i>CM15-18[Butte County meadowfoam conservation measures]</i>	
To come.	To come.
<i>CM19: Conduct Surveys to Locate New Occurrences of Butte County Checkerbloom</i>	
Remote sensing, annual updates of GIS coverages for natural communities Conduct baseline monitoring (pre-acquisition surveys) Reconnaissance surveys to locate new occurrences during the appropriate time of year north of butte creek	Locations of new occurrences, population size and extent, land status, habitat conditions (soils, community characteristics, management)
<i>CM20: Reestablish Occurrences of Conservancy Fairy Shrimp, Hoover’s Spurge, Ahart’s Dwarf Rush, Hairy Orcutt Grass, Slender Orcutt Grass, and Greene’s Tuctoria</i>	
To come.	To come.

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