Appendix D
Glossary of Terms

The terms in this glossary are defined as they specifically apply to their usage in the Yolo Habitat Conservation Plan/Natural Community Conservation Plan (HCP/NCCP).

Adaptive management. The U.S. Fish and Wildlife Service (USFWS) Five-Point Policy broadly defines adaptive management "…as a method for examining alternative strategies for meeting measurable biological goals and objectives, and then if necessary, adjusting future conservation management actions according to what is learned" [1] and the Natural Community Conservation Planning Act (NCCPA) defines adaptive management as "…to use the results of new information gathered through the monitoring program of the plan and from other sources to adjust management strategies and practices to assist in providing for the conservation of covered species." [2]

Alkali prairie natural community. The alkali prairie natural community is characterized by soils composed of saline-alkaline clay with salts that include sodium, magnesium, and boron. Table 2-1, *Natural Communities and Other Land Cover Types*, lists the land cover types that make up this natural community. It often includes seasonally flooded areas or seasonally saturated soils. Vegetation of the alkali prairie natural community is generally dominated by saltgrass. Some areas also include flat-face downingia, curly dock, gumplant, alkali coyote thistle, and alkali heath. Very small patches of alkali-adapted species are present in the natural community and include pickleweed, bush seepweed, alkali heath, common spikeweed, annual hairgrass, and special status species such as alkali milk-vetch, brittlescale, San Joaquin spearscale, Heckard's peppergrass, and Ferris' milk-vetch.

Antedecent streams. Streams that during and for a time after a disturbance of their drainage area maintain the courses they had taken before the disturbance.

Anthropogenic. Caused or produced through human agency.

Attribute. An ecological variable measured when conducting HCP/NCCP effectiveness monitoring actions (Section 6.2, *Monitoring Program*). Atkinson et al. (2004)[3] defines an attribute as "…any component or condition of the system that can be quantifiably measured, for example, forest cover, precipitation or arthropod species diversity".

Avoidance and minimization measures. Measures that when implemented are designed to eliminate or reduce the potential adverse effects of covered activities on natural communities and covered species addressed by the HCP/NCCP.

Baseline protected lands. See *Category 1 Baseline Public and Easement Lands.*

Baseline public and easement lands. Lands throughout the Plan Area with varying levels of conservation prior to HCP/NCCP permit issuance. See *Category 1 baseline public and easement lands, Category 2 baseline public and easement lands,* and *Category 3 baseline pubic and easement lands.* These categories are used for the gap analysis to assess the baseline level of natural community and covered species habitat conservation in the Plan Area, and are factored into the amount of additional conservation needed through the HCP/NCCP.

[1] 65 FR 106.

[2] California Fish and Game Code sections 2800-2835.

[3] Atkinson, A. J., P. C. Trenham, R. N. Fisher, S. A. Hathaway, B. S. Johnson, S. G. Torres, and Y. C. Moore. 2004. Designing monitoring programs in an adaptive management context for regional multiple species conservation plans. U.S. Geological Survey Technical Report. USGS Western Ecological Research Center, Sacramento, CA.

Biodiversity. Within a given area, the variety of ecosystems and organisms considered at all levels, from genetic variants of a single species through arrays of species to arrays of genera, families, and higher taxonomic levels.

Biological goal. The USFWS and NMFS Five-Point Policy for Habitat Conservation Plans (HCPs) defines biological goals as: "In the context of HCPs, biological goals are the broad, guiding principles for the operating conservation program of the HCP… Multiple species HCPs may categorize goals by species or by habitat, depending on the structure of the operating conservation program."[4] The HCP/NCCP biological goals represent the broad principles used to guide development of the conservation strategy to meet the statutory criteria of the NCCPA and sections 7 and 10 of the Endangered Species Act (ESA).

Biological objective. The USFWS and NMFS Five-Point Policy for Habitat Conservation Plans defines biological goals as "…the different components needed to achieve the biological goal such as preserving sufficient habitat, managing the habitat to meet certain criteria, or ensuring the persistence of a specific minimum number of individuals… Biological objectives should include the following: species or habitat indicator, location, action, quantity/state, and timeframe needed to meet the objective".[5]

Biological opinion (BO or BiOp). The document stating the opinion of USFWS or NMFS as to whether or not a federal action is likely to jeopardize the continued existence of listed species or result in the destruction or adverse modification of critical habitat.[6] A BO is one of the decision documents of a consultation under section 7 of the ESA.

Blue oak woodland natural community. The blue oak woodland natural community generally consists of lands with an overstory of scattered trees dominated by blue oaks, although the canopy can be nearly closed on some sites. Associated shrub species include poison oak, California coffeeberry, buckbrush, and common manzanita. The ground cover is composed mainly of species such as brome grass, wild oats, needlegrass, filaree, and fiddleneck. Table 2-1, *Natural Communities and Other Land Cover Types,* list the land cover types that make up this natural community.

California salamander breeding pools. Stock ponds or other ponds or pools hold water seasonally, for a sufficient depth and duration to support the California tiger salamander breeding cycle, and are surrounded by suitable uplands.

Candidate species. Defined under the California Endangered Species Act (CESA) as "a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list."[7] Defined under the ESA section 4(b)(3) as a species under consideration for official listing as threatened or endangered.

Category 1 baseline public and easement lands. Land for which the primary management goal is related to ecological protection. The land predominantly consists of suitable habitat and is covered by an irrevocable conservation mandate that precludes changes in land use that could result in degradation or loss of ecological functions. The irrevocable conservation mandate is a perpetual

[4] 65 FR No. 106 at 35242, June 1, 2000.
[5] 65 FR No. 106 at 35242.
[6] 50 CFR §402.02.
[7] California Fish and Game Code §2068.

conservation easement or, in the case of Yolo Bypass Wildlife Area, a state mandate. This category is also referred to as *baseline protected lands*.

Category 2 baseline public easement and lands. Land without an irrevocable conservation mandate, but with a management goal and/or acquisition purpose related to ecological protection. The land is predominantly natural habitat or in a use that supports covered species habitat. This category includes public lands held in fee title and private lands in cases where a conservation entity (e.g., land trust) holds fee title without permanent easements in place. While Category 2 Public and Easement Lands were used to inform the development of the HCP/NCCP conservation commitments, these lands are not considered to meet the definition of "protected" under the Yolo HCP/NCCP conservation strategy.

Category 3 baseline public and easement lands. Land that consists of public open space, but its primary goal is not related to ecological protection and it has no irrevocable conservation mandate. The land includes natural habitat or use that supports covered species habitat. This category includes public land without a conservation mandate or private lands held in fee title by a conservation organization (i.e., agricultural land trust) without permanent conservation easements in place.

Chamise natural community. The chamise natural community consists of shrubs dominated by chamise, either in nearly pure stands or in mixed stands of chamise and other scrub species. Some of the species commonly found in these natural communities after a fire include California yerba santa, pitcher sage, and deerweed. Table 2-1, *Natural Communities and Other Land Cover Types*, lists the land cover types that make up this natural community.

Changed circumstances. USFWS regulations define changed circumstances as "changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the [USFWS] and that can be planned for…" [8] and the NCCPA defines changed circumstances as "…reasonably foreseeable circumstances that could affect a covered species or geographic area covered by the plan."[9].

Certificate of Inclusion (COI). The authorization by the holder of a section 10(a)(1)(a) incidental take permit (Permittee) for another entity to use the permit as a long as the activities of that entity meet all of the requirements of the HCP/NCCP, in this case the HCP/NCCP. For example, a land developer, whose project meets all HCP/NCCP requirements and has applied to a city (e.g., West Sacramento) for use of the city's permit, may receive a certificate of inclusion from the city to allow incidental take during project construction.

Channel. The natural or artificial area within which water flows on a regular basis, typically on an annual basis.

Climate change/Global climate change. A long-term change in the statistical distribution of weather patterns over periods of time that range from decades to millions of years.

Closed-cone pine-cypress natural community. The closed-cone pine-cypress natural community is composed of the knobcone pine alliance and MacNab cypress alliance vegetation types. This natural community is commonly found on serpentine soils; in Yolo County, it often includes leather

[8] 50 CFR §17.3.

[9] Fish and Game Code §2805(c).

oak and foothill pine. Table 2-1, *Natural Communities and Other Land Cover Types*, lists the land cover types that make up closed-cone pine-cypress natural community.

Compliance monitoring. Monitoring that will be undertaken by the Implementing Entity to demonstrate its compliance with the terms and conditions of HCP/NCCP ESA section 10 and NCCPA permits.

Connectivity. The measure of how connected or spatially continuous parts of the biological features of a landscape are to each other. Connectivity is defined here to encompass habitat and ecological connectivity. Habitat connectivity is species-specific and relates to the ease of movement (or the lack of barriers to movement) of individuals of a species from one patch of habitat to another. The level of connectivity is dependent on the species means of movement. Movement by wildlife may be by walking, swimming, or flying and for plants by dispersal of seed, pollen or vegetative propagules via animals, wind, water, gravity or other movement mechanism. Land corridors containing specific conditions are necessary for connectivity of wildlife and plants that move along the ground surface while birds and bats have different factors that affect connectivity of their habitat patches that depend on the distances the species are willing to fly and the type and extent of land cover the species is willing to fly over. Ecological connectivity includes and is broader than habitat connectivity. Ecological connectivity encompasses ecological processes across the landscape such as flow of water in watersheds and streams and encompasses habitat connectivity for any number of species. Ecological connectivity relates to the level of disruption to the continuity of ecological processes.

Conserve/conserving/conservation. The ESA (section 3(3)) defines the terms *conserve*, *conserving*, and *conservation* as the methods and procedures necessary to bring any endangered or threatened species to the point at which the measures provided under the Act are no longer necessary. Such methods and procedures include, but are not limited to, activities associated with resource management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transportation. The NCCPA (Section 2085(c)) defines *conserve*, *conserving*, and *conservation* as the use of methods and procedures within the plan area that are necessary to bring any covered species to the point at which the measures provided pursuant to [the California Endangered Species Act] are not necessary, and for covered species that are not listed pursuant to [the California Endangered Species Act], to maintain or enhance the condition of a species so that listing pursuant to [the California Endangered Species Act] will not become necessary.

Conservation easement. As used in the HCP/NCCP, conservation easements are voluntary, legally binding agreements between a landowner and an easement holder (typically the Conservancy) that restrict certain uses of the land to protect certain wildlife, fish, and plant species and natural communities while allowing the continued use of the land by the landowner. Under the HCP/NCCP, the conditions of conservation easements must provide sufficient protection of a sufficient amount of land to achieve the HCP/NCCP biological goals and objectives.

Conservation lands. Lands that the Conservancy will protect above and beyond the *mitigation land* commitments, to meet conservation requirements of the NCCP Act. These include *newly protected* lands, *restored/created* lands, and *pre-permit reserve lands*.

Conservation measure. Specified actions identified in HCPs and Natural Community Conservation Plans (NCCPs) that are designed to collectively achieve the HCP and NCCP biological goals and objectives and to satisfy federal and state regulatory requirements. The USFWS/NMFS Five-Point

Policy for Habitat Conservation Plans (65 FR No. 106) indicates that "Conservation measures identified in an HCP, its accompanying incidental take permit, and/or [Implementing Agreement], if used, provide the means for achieving the biological goals and objectives".

Conservation strategy. The operating elements of a HCP/NCCP. The HCP/NCCP Conservation Strategy encompasses the biological goals and objectives, conservation measures, conservation land assembly principles, monitoring program, and adaptive management plan. The HCP/NCCP Conservation Strategy serves as part of a conservation plan defined in Section 10(a)(2)(A) of the ESA as a planning document that is a mandatory component of an incidental take permit application, also known as a Habitat Conservation Plan or HCP.

Conservation Reserve Area (CRA). An area within which the Conservancy will prioritize conservation actions for HCP/NCCP covered species.

Constituent elements (of designated critical habitat). Defined in the ESA and ESA regulations as the physical and biological features of designated or proposed critical habitat essential to the conservation of the species, including, but not limited to: 1) space for individual and population growth, and for normal behavior; 2) food, water, air, light, minerals, or other nutritional or physiological requirements; 3) cover or shelter; 4) sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and 5) habitats that are protected from disturbance or are representative of the historic geographic and ecological distributions of a species (ESA §3(5)(A)(i), 50 CFR §424.12(b)).

Construction monitoring. Monitoring by biologists of project construction sites implementing covered activities to ensure that the applicable HCP/NCCP avoidance and minimization measures (Section 5.4.4, *Avoidance and Minimization Measures*) are implemented in accordance with HCP/NCCP requirements.

Cover (e.g., canopy cover, areal cover). The area of ground covered by vegetation of particular species or vegetation type, generally expressed as a percentage.

Covered activities. The range of activities for which ESA section 10 and NCCPA permit coverage are being sought under a HCP/NCCP. HCP/NCCP covered activities are described in Chapter 3, *Covered Activities*.

Covered species. Species identified in a HCP/NCCP for which the permit applicants are seeking authorization for take under the ESA and Section 2835 of the NCCPA. The HCP/NCCP covered species are identified in Chapter 1, *Introduction*.

Creation. The undertaking of actions that establish habitat for a species or a natural community in a location that historically did not support the habitat or natural community.

Critical habitat/designated critical habitat. The specific areas designated by USFWS and NMFS within the geographical area occupied by a threatened or endangered species at the time it is listed on which are found those physical or biological features essential (constituent elements) to the conservation of the species and which may require special management considerations or protection. Critical habitat also includes specific areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of the species.[10] Designated critical habitats for listed species are described in 50 CFR §17 and §226.

[10] 16 U.S.C. § 1532(5)(A).

Cultivated land seminatural community. The cultivated land seminatural community consists of nonrangeland agricultural crops that provide habitat for covered species. Table 2-1, *Natural Communities and Other Land Cover Types,* lists the crop types that make up this seminatural community. Crop types that do not provide habitat for covered species are not included in the cultivated land seminatural community. The cultivated land natural community type also does not include rangelands, which typically include grassland, oak woodlands, and other natural communities that are not cultivated.

Cumulative effects. Cumulative effects result from the incremental impact of the covered activities when viewed together with past, present, and reasonably foreseeable future actions. The ESA regulations define cumulative effects as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." [11] In the case of the HCP/NCCP, the "federal action" is the issuance of incidental take permits by USFWS, and the federal "action area" is the HCP/NCCP Plan Area, as no impacts of covered activities are anticipated to extend beyond the Plan Area boundary. This definition only applies to ESA Section 7 analyses and differs from the broader definition under National Environmental Policy Act of 1969 (NEPA) and California Environmental Quality Act of 1970 (CEQA). Habitat Conservation Plans (HCPs) are not required to discuss cumulative effects, however, as stated in the Habitat Conservation Planning Handbook, "the applicant should help ensure that those considerations required of the [USFWS and NFMS] by Section 7 have been addressed in the HCP" (USFWS and NMFS 1996). Accordingly, the HCP/NCCP addresses the cumulative effects that could result from state, local, and private activities (Section 4.6, *Cumulative Effects*). Cumulative effects of all projects with a federal nexus are analyzed in the HCP/NCCP EIR/EIS and are not addressed in the HCP/NCCP.

Delist/delisting. Defined in the USFWS/NMFS Habitat Conservation Planning Handbook (USFWS and NMFS 1996)[12] as to "remove from the Federal list of endangered and threatened species (50 CFR 17.11 and 17.12) because such species no longer meets any of the five listing factors provided under section 4(a)(1) of the ESA and under which the species was originally listed (i.e., because the species has become extinct or is recovered)."

Direct effects. Immediate effects of a covered activity on a species or its habitat that occur at the same time and place as the covered activity.

Dominance. The extent to which a given species predominates in a community by virtue of its size, abundance, or relative cover. A "dominant species" is one that comprises the greatest or shares in comprising the greatest volume, number, or cover in a geographic area.

Ecologically improved. The site functions ecologically better than the functions present on the site prior to ground disturbance.

Ecosystem. A community of organisms and their physical environment interacting as an ecological unit.

Ecosystem function. Processes operating at the ecosystem level, such as the cycling of matter, energy, and nutrients.

[11] 50 CFR §402.02.

[12] USFWS (United States Fish and Wildlife Service) and NMFS (National Marine Fisheries Service). 1996. *Habitat Conservation Planning and Incidental Take Permit Processing Handbook*. November 4, 1996.

Ecosystem/Ecological processes. Physical, chemical, and biological events and conditions that connect organisms with their environment, such as energy capture, production, nutrient cycling, hydrology, and natural disturbance.

Effect mechanism. As used in the HCP/NCCP, actions or results of actions to implement a covered activity that result in an adverse effect on natural communities and covered species.

Effectiveness monitoring. HCP/NCCP monitoring actions that will be conducted to 1) to assess *in* the effectiveness of habitat restoration, enhancement, and management techniques in achieving the desired habitat conditions for covered and other native species (i.e., are the hypotheses supporting the actions validated), 2) to assess covered species responses to the implementation of conservation measures, and 3) to document progress made toward achieving the HCP/NCCP biological goals and objectives. Results of effectiveness monitoring provides the information necessary to adjust HCP/NCCP implementation through adaptive management to improve the effectiveness of the conservation measures better ensure that the biological goals and objectives achieved. HCP/NCCP effectiveness monitoring requirements are described in Section 6.3, *Monitoring Program*.

Endangered species. Defined in the ESA as "...any species [including subspecies or qualifying distinct population segment] which is in danger of extinction throughout all or a significant portion of its range." (Section 3(6) of ESA). The California Endangered Species Act (CESA) defines an endangered species as "…a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease. Any species determined by the commission as 'endangered' on or before January 1, 1985 is an 'endangered species.'" (California Fish and Game Code 2062).

Enhance/enhancement. The improvement of an existing degraded natural community or habitat. Enhancement involves improving the function of specific constituent elements of a species habitat that have been degraded or lost, typically due to human actions.

Environmental gradient. A change in physical and ecological parameters in geographic space, as characterized by transition zones between land cover types and natural communities or topographic gradients.

Extinct species. A species no longer in existence.

Extirpated species. A species no longer surviving in regions that were once part of its range.

Floristic-based vegetation types. Establishment of HCP/NCCP vegetation classification system based on plant species associations.

Fossorial. Adapted for digging or burrowing into the ground.

Fresh emergent wetland natural community. The fresh emergent wetland natural community includes aquatic and semiaquatic vegetation types listed in Table 2-1, *Natural Communities and Other Land Cover Types*. The fresh emergent wetland natural community is most commonly found on level to gently rolling landscapes along rivers, lakes, and creeks but can be found anywhere the topography allows perennial or seasonal soil saturation or flooding by fresh water. Perennially flooded areas are typically dominated by cattails, tule, and California bulrush that can reach up to 12 feet in height. Seasonally saturated or inundated areas contain much shorter vegetation and are more variable in the composition of their plant species. Dominant species in many lower elevation seasonal wetlands include swamp timothy, Baltic rush, iris-leaved rush, and spikerushes.

Fully protected species. Species designated in California Fish and Game Code sections 3511, 4700, 5050, and 5515 for which take, as defined under the California Endangered Species Act (see definition of "take"), is prohibited and may not be authorized by the Department of Fish and Game except for scientific purposes.

Geographic Information System (GIS). Computer-based mapping technology that manipulates geographic data in digital layers and enables one to conduct a wide array of environmental analyses.

Grassland Natural Community. The grassland natural community is composed of five vegetation types that support grasses and associated annual and perennial forbs: California grasslands alliance, *Lotus scoparius* alliance, sparse bush lupine/annual grasses/rock outcrop alliance, upland grasslands and forbs formation, and urban ruderal. In many cases, grassland is dominated by native and exotic forbs in certain seasons or during different periods within a season (D'Antonio et al. 2007). Table 2-1, *Natural Communities and Other Land Cover Types*, lists the land cover types that make up this natural community.

Habitat. The environmental conditions that support occupancy of a given organism in a specified area (Hall et al. 1997[13]). In scientific and lay publications, habitat is defined in many different ways and for many different purposes. For the purpose of the HCP/NCCP, habitat is defined as the specific places where the environmental conditions (i.e., physical and biological conditions) required to support occupancy by individuals or populations of a given species are present. Habitat may be occupied (individuals or population of the species are, or have recently been, present) or unoccupied (individuals or populations of species are not present, but conditions are such that it is expected they could occupy the site at a future time). Also see "species habitat models."

Habitat function. The ability of the environment to provide conditions that support the persistence of individuals and populations, corresponding to Hall et al. definition of "habitat quality" (1997). The precise meaning of function varies by species and depends on the subject species' specific needs in the context of a particular area. High functioning habitat for some species comprises only foraging and resting elements; for others it comprises foraging, resting, and nesting elements; for still others it may encompass all elements needed for the species to complete its lifecycle. Low functioning habitat would include only the minimal elements that support occurrence of the species. High functioning habitat tends to support larger numbers of species than lower functioning habitat.

Habitat fragmentation. Discontinuity in the spatial distribution of resources and conditions present in an area that support a particular species relative to a historical condition that affects occupancy, reproduction, or survival of the species. Examples of anthropogenic mechanisms that may result in fragmentation of habitat include conversion of natural landscapes to urban and agricultural uses and construction of infrastructure (e.g., roads, canals).

Harass. Harass is a form of take identified in the ESA (ESA §3(19)) and is further defined by USFWS to include "…actions that create the likelihood of injury to listed species to such an

extent as to significantly disrupt normal behavior patterns which include, but are not limited

to, breeding, feeding or sheltering (50 CFR §17.3).

[13] Hall, L. S., P. R. Krausman, and M. L. Morrison. 1997. The habitat concept and a plea for standard terminology. *Wildlife Society Bulletin* 25(1): 173-182.

Harm. Harm is a form of take identified in the ESA (ESA §3(19)) and is further defined by USFWS to include "…significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering (50 CFR §17.3).

Hydrology. The movement of surface and subsurface water flows in a given area. The hydrology of an area is intimately connected with its precipitation, soils, and topography.

Implementing agreement. An agreement that legally binds HCP/NCCP Permittees to the requirements of the HCP/NCCP and ESA section 10 and NCCPA permits. The HCP/NCCP Implementing Agreement is provided in Appendix E. *Implementing Agreement*.

Implementing Entity. Individual or group of individuals tasked with ensuring that HCP/NCCP actions are undertaken for the life of the HCP/NCCP. The structure of the HCP/NCCP Implementing Entity is described in Chapter 7, *Plan Implementation*.

Incidental take. Take of listed fish or wildlife species that results from, but is not the purpose of, carrying out an otherwise lawful activity conducted by a Federal agency or applicant (50 CFR §402.02).

Indirect effects. Reasonably foreseeable effects that are caused by covered activities but occur at a different time or place

Independent science review. Scientists and recognized specialists assembled for the purpose of conducting independent reviews of and formulating recommendations for inclusion in the conservation elements a HCP/NCCP. Independent science review is discretionary for HCPs and is required under NCCPA Section 2810(b)(5) for NCCPs.

Lacustrine. Open water associated with lakes and ponds.

Lacustrine and riverine natural community. The lacustrine and riverine natural community includes a variety of lakes, reservoirs, and ponds (lacustrine); and rivers and streams (riverine). The lacustrine and riverine natural community is designated as open water in the land cover database (Table 2-1, *Natural Communities and Other Land Cover Types*). The natural community mapping for the Yolo HCP/NCCP does not differentiate lacustrine from riverine. See also definitions for *lacustrine* and *riverine.*

Land acquisition. As used in the HCP/NCCP, the placement of conservation easements on or the fee title purchase of land parcels to protect natural communities and covered species habitat under the HCP/NCCP.

Land cover type. The dominant feature of the land surface discernible from aerial photographs and defined by vegetation, water, or human uses. Also refers to habitat and vegetation types specified in the HCP/NCCP vegetation classification system.

Landscape-level. Related to the overall condition of hydrological, physical, chemical, and biological processes in the Plan Area, across a variety of natural communities and covered species habitats.

Landscape-level monitoring. Monitoring, including gathering and review of new information developed by others, that is conducted to assess the overall status, distribution, and trends related to selected populations of covered species and the status and distribution of natural communities over the term of the HCP/NCCP. Landscape-level monitoring collects information necessary to

better inform implementation of the HCP/NCCP in light of new information and changes in environmental conditions.

Land trust. A private, nonprofit organization, that actively works to, conserve land by undertaking or assisting in land or conservation easement acquisition, or by its stewardship of such land or easements.

Land use authority. As used in the HCP/NCCP, an entity that reviews land use applications and holds the decision-making power for approval of such land use applications. For example, Yolo County, Woodland, West Sacramento, Davis, and Winters all have land use authority within their jurisdictional boundaries.

Land use designation. The designation, by parcel, in an adopted city or county general plan of the allowable uses for that parcel.

Listed species. A species that is listed as threatened or endangered under the ESA or CESA.

Maintain (habitat functions). Actions taken to ensure that the existing function of a habitat is not reduced over time or by some human activities. In the context of natural habitat areas, maintaining the baseline habitat functions of the habitat areas, which require periodic management activities to provide the baseline level of habitat function (e.g., period control of nonnative species) (see definition of "manage/management" below). In the context of created habitats (e.g., croplands, managed wetlands), maintaining the intended habitat functions of croplands and managed wetlands protected in the HCP/NCCP conservation lands system, which annually requires seasonal management activities to ensure that the intended habitat functions for the target covered species are maintained (e.g., providing for the planting of high wildlife habitat value crop types on agricultural lands, irrigation of managed wetlands, maintaining dams/berms to maintain water in impoundments).

Manage/management. In the context of HCP/NCCP conservation lands, actions implemented to maintain the existing ecological functions of the land particularly for covered species occurrences and habitat, including infrastructure (e.g., maintenance of fences), over time.

Matrix. The background or surrounding area of a landscape with a high degree of connectivity to a protected area.

Metapopulation. A group of partially isolated populations belonging to the same species that are connected by pathways of immigration and emigration. Exchange of individuals occurs between such populations, enabling recolonization of sites from which the species has recently become extirpated.

Mitigation. In the context of the HCP/NCCP, the protection or restoration of natural communities and covered species habitat necessary replace the ecological functions of natural communities and species habitats affected by implementation of the covered activities. Also the protection of existing unprotected species occurrences or the establishment of new species occurrences to offset impacts of covered activities on species occurrences.

Mitigation banks. USFWS, CDFW, Environmetnal Protection Agency, Regional Water Quality Control Board, and/or USACE approved commercial enterprises that sell mitigation credits to satisfy mitigation requirements.

Mitigation lands. Lands the Conservancy will protect to mitigate the impacts of take consistent with Section 10(a)(1)(B) of the Endangered Species Act. These include *newly protected* mitigation lands and *restored/created* mitigation lands.

Mitigation Receiving Site. A mitigation receiving site is a property that is encumbered by a conservation easement for the purpose of providing mitigation credits to offset the impacts of future development

Mixed chaparral natural community. The mixed chaparral natural community consists of dense stands of drought-adapted *sclerophyllous* (hard-leaved) shrubs. Nine vegetation types make up the mixed chaparral natural community. The most common vegetation type in mixed chaparral is an association of scrub oak, toyon, common manzanita, and birch-leaf mountain mahogany. Other dominant nonserpentine mixed chaparral plant species include California bay and buckbrush. In serpentine soils, the vegetation is dominated by California bay and leather oak on more mesic sites and by whiteleaf manzanita on drier sites. Table 2-1, *Natural Communities and Other Land Cover Types*, lists the land cover types that make up this natural community.

Modeled habitat. See "species habitat models."

Montane hardwood natural community. The montane hardwood natural community typically consists of a dominant hardwood tree component with a poorly developed shrub understory and little herbaceous vegetation. Tree spacing ranges from 10 to more than 30 feet apart. The montane hardwood natural community is composed of black oak alliance, canyon live oak alliance, and mixed oak alliance. Some areas that have been mapped as montane hardwood natural community in the Plan Area might be better characterized as live oak-foothill pine. Soil depth may be shallow or deep. Table 2-1, *Natural Communities and Other Land Cover Types*, lists the land cover types that make up this natural community.

Natural community. A collection of species that co-occur in the same or overlapping physical space and interact through trophic and spatial relationships. Communities are typically characterized by reference to one or more dominant species. Refers to the natural communities addressed under the HCP/NCCP.

Natural disturbance. Partial or complete removal of physical habitat (e.g., vegetation, leaf litter, soil) in an area as a result of a natural event such as fire, wind throw, land slide, and flood scour. Natural disturbance regimes are defined by the frequency and intensity of disturbance events (e.g., fire return time and flood frequency). Disturbance mechanisms may be artificially created to re-introduce a natural disturbance regime that has been altered by human actions, e.g., controlled fire instead of wild fire.

Newly protected lands. Lands that were not previously protected through a conservation easement or other mechanism, and that the Conservancy places under a permanent conservation easement and enrolls in the reserve system. These include lands protected for mitigation and conservation lands to meet NCCPA requirements. Category 2 baseline public and easement lands (Section 6.2.2.2, *Baseline Public and Easement Lands*) will only count toward newly protected lands upon wildlife agency approval, and if placed in a perpetual conservation easement.

Nonnative species. A species that is not native to the ecosystem or region under consideration.

No Surprises assurances. Assurances to permit holders that if unforeseen circumstances arise, the USFWS will not require more land, water, or money or additional restrictions on the use of land,

water, or other natural resources beyond the level stated in the HCP without the consent of the Permittee (63 *Federal Register* 35, February 23, 1998). Also see "unforeseen circumstances."

Oak-foothill pine natural community. The oak-foothill pine natural community includes large areas dominated by interior live oak and foothill pine. Tree density can range from open savanna with scattered trees to a closed-canopy forest. Other associated tree species include interior live oak, California buckeye, and valley oak. The understory consists primarily of annual grasses and forbs, sometimes with a shrub component. The shrub understory may include buckbrush, redberry, poison oak, silver bush lupine, and blue elderberry. The oak-foothill pine natural community is represented by three vegetation types: interior live oak-blue oak (foothill pine) association, interior live oak alliance, and foothill pine alliance. Table 2-1, *Natural Communities and Other Land Cover Types*, lists the land cover types that make up this natural community.

Occurrence (covered species). The HCP/NCCP defines a "known occurrence" as the specific collection of individuals of a species uniquely identified in Appendix A, *Covered Species Accounts* and a "new occurrence" as a continuous patch of habitat supporting one or more individuals or multiple patches of habitat supporting one or more individuals found within 0.25 mile of each other and not separated by significant habitat discontinuities.

Patch. The basic unit of the landscape that changes and fluctuates in a process called *patch dynamics*. Patches have a definite shape and spatial configuration, and can be described compositionally by internal variables such as number of trees, number of tree species, height of trees, or other similar measurements.

Permanent effect/. In the context of the HCP/NCCP, impacts of HCP/NCCP covered activities that result in 1) the injury or mortality of a covered wildlife species, 2) removal of a covered plant species, 3) irreversible permanent removal, degradation, or alteration of a land cover type supporting habitat for covered and other native species, or 3) adverse affects on the functions of a land cover type as habitat for covered species for more than one year following implementation of the activity.

Permit Applicants/Permittees. Those entities requesting a section 10(a)(1)(B) incidental take permit from the U.S. Fish and Wildlife Service and a section 2835 take permit under the Natural Community Conservation Planning Act from the California Department of Fish and Wildlife for the species and activities covered in the HCP/NCCP. The HCP/NCCP Permit Applicants/Permittees are identified in Chapter 1, *Introduction*.

Plan Area. The geographical extent of land covered under the HCP/NCCP. The USFWS/NMFS HCP handbook (USFWS and NMFS 1996) defines a conservation plan area as the lands and other areas encompassed by specific boundaries which are affected by the conservation plan and incidental take permit. The Plan Area for the HCP/NCCP is identified in Chapter 1, *Introduction.*

Planning surveys. In the context of HCP/NCCP, surveys conducted by project proponents to qualify for coverage under HCP/NCCP permits and used in the project-planning process to identify constraints, determine which HCP/NCCP avoidance and minimization measures are applicable to their projects, and calculate impact fees.

Planning unit. Large sections of the Plan Area each dominated by different large-scale ecological, geomorphic, and/or land use conditions. Each planning unit supports its own predominant ecological, topographical, landscape, and other natural community conditions that differentiate it from other planning units, excepting planning units 19-22 for which encompass the cities of

Woodland, Davis, West Sacramento, and Winters. While planning unit were generally identified for major natural geomorphic and ecological features, the specific planning Unit boundaries were delineated using clearly recognizable features, such as roads and parcel boundaries, rather than vegetation, soil type, or geologic feature edges, to allow for easy identification of those boundaries for planning and implementation of the HCP/NCCP. The primary purpose of Planning Units is to describe the specific areas in which conservation actions (such as land acquisition and habitat restoration) will occur without necessarily identifying individual parcels for the actions. The HCP/NCCP planning unit boundaries are defined in Chapter 5, *Conservation Strategy*.

Population. A group of individuals of the same species inhabiting a given geographic area, among which mature individuals reproduce or are likely to reproduce. Ecological interactions and genetic exchange are more likely among individuals within a population than among individuals of separate populations of the same species.

Practicable. USFWS must make a finding for issuance of ESA section 10 incidental take permits that the "applicant will, to the maximum extent practicable, minimized and mitigate the impacts" of any take of endangered and threatened wildlife and fish species (ESA Section 10(a)(2)(B)(ii)). No definition of "practicable" is provided in ESA or its implementing regulations. Under the Clean Water Act, practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purpose (45 *Federal Register* 85344, December 24, 1980: U.S. Environmental Protection Agency, Part 40 Code of Federal Regulations 230.3, Definitions). This Clean Water Act definition is used for the HCP/NCCP.

Preconstruction surveys. In the context of HCP/NCCP, surveys conducted by project proponents for certain biological resources immediately prior to construction to ensure that species and habitat avoidance and minimization measures can be effectively implemented during construction.

Pre-permit reserve lands. Categories 1 and 2 baseline public and easement lands (Table 6-1(a)) that are enrolled into the *Reserve System*. Category 2 baseline public and easement lands that are counted as newly protected lands (defined above) are not also counted as pre-permit reserve lands.

Proposed species. Defined in ESA regulations as any species of fish, wildlife or plant that is proposed in the Federal Register to be listed as threatened or endangered under section 4 of the Act. (50 CFR §402.02).

Protect/Protection. Changing the status of a property that supports a natural community, covered species occurrence, or covered species habitat from unprotected status (under which the land use could change and these resources degraded or lost) to a protected status in which these resources cannot be degraded or lost (i.e., changing the status of lands with no status or Category 2 baseline public and easement land status to Category 1 baseline public and easement land status). The change in land status to "protected" is achieved through a permanent conservation easement on lands owned by a local agency (including the HCP/NCCP Implementing Entity) or private entity (or comparable federal or state designation on federal and state lands) to maintain the existing extent of species habitat and natural communities. Minimum conservation easement requirements to meet the protection standard under the HCP/NCCP are described in Section 7.9, *Conservation Easement Requirements*. In the HCP/NCCP, the Implementing Entity's acquisition of land by fee title always implies a permanent conservation easement is placed on the property at the time of or immediately following the acquisition.

Protected lands. Plan Area lands supporting natural communities, covered species occurrences, or covered species habitat that are existing Category 1 baseline public and easement land or will be elevated to Category 1 public and easement lands with implementation of the HCP/NCCP (i.e., HCP/NCCP conservation lands).

Range. The geographic area a species is known or believed to occupy.

Recovery. Defined in ESA regulations as improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a)(1) of the Act (50 CFR §402.02). The process by which the decline of an endangered or threatened species is arrested or reversed or threats to its survival neutralized so that its long-term survival in nature can be ensured. Recovery entails actions to achieve the conservation and survival of a species, including actions to prevent any further erosion of a population's viability and genetic integrity, as well as actions to restore or establish environmental conditions that enable a species to persist (i.e., the long-term occurrence of a species through the full range of environmental variation) (USFWS and NMFS 1998)

Recovery Plan. A document published by the U.S. Fish and Wildlife Service or National Marine Fisheries Service that lists the status of a listed species and the actions necessary to remove the species from the endangered species list.

Remnant habitat/natural community. Small fragmented patches of habitat or natural communities that continue to persist within a highly altered landscape (e.g., small stands of valley oak that persist within the largely agricultural landscape of lowland portions of the Plan Area).

Reserve System. The assemblage of all lands in the Plan Area managed under the provisions of Conservation Measure 1 for conservation of natural communities or covered species.

Restore/restoration. In the context of natural communities and habitat, the establishment of a natural community or species habitat in an area that historically supported it, but no longer supports it because of the loss of one or more required ecological factors. Restoration may involve altering the substrate or other physical features to improve site's ability to support the historical natural community or species habitat.

Restored/created lands. Lands that the Conservancy places under a permanent conservation easement, or that are already protected through a conservation easement, and the Conservancy restores or creates as a wetland natural community type. (Also see *Restored/restoration* and *Create/creation*.)

Riparian habitat/vegetation. Vegetation associated with river, stream, or lake banks and floodplains. Also defined by U.S. Fish and Wildlife Service (1997[14]) as plant communities contiguous to and affected by surface and subsurface hydrologic features of perennial or intermittent lotic and lentic water bodies (i.e., rivers, streams, lakes, or drainage ways). Riparian areas have one or both of the following characteristics: 1) distinctively different vegetation than adjacent areas, and 2) species similar to adjacent areas but exhibiting more vigorous or robust growth forms due to the greater availability of surface and subsurface water.

Riverine. Open water associated with rivers and streams.

Ruderal. A species or plant community that typically occurs on highly disturbed sites.

[14] USFWS (United States Fish and Wildlife Service). 1997. A system for mapping riparian areas in the western United States. December 1997.

Section 7 of the ESA. Defined in the Section 7 Consultation Handbook (USFWS and NMFS 1998)[15] as "the section of the Endangered Species Act of 1973, as amended, outlining procedures for interagency cooperation to conserve Federally listed species and designated critical habitats. Section 7(a)(1) requires Federal agencies to use their authorities to further the conservation of listed species. Section 7(a)(2) requires Federal agencies to consult with the Services to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Other paragraphs of this section establish the requirement to conduct conferences on proposed species; allow applicants to initiate early consultation; require FWS and NMFS to prepare biological opinions and issue incidental take statements. Section 7 also establishes procedures for seeking exemptions from the requirements of section 7(a)(2) from the Endangered Species Committee. [ESA §7]"

Section 9 of the ESA. Defined in the Section 7 Consultation Handbook (USFWS and NMFS 1998) as "the section of the Endangered Species Act of 1973, as amended, that prohibits the taking of endangered species of fish and wildlife. Additional prohibitions include: 1) import or export of endangered species or products made from endangered species; 2) interstate or foreign commerce in listed species or their products; and 3) possession of unlawfully taken endangered species. [ESA §9]"

Section 10 of the ESA. Defined in the Section 7 Consultation Handbook (USFWS and NMFS 1998) as "the section of the Endangered Species Act of 1973, as amended, that provides exceptions to section 9 prohibitions. The exceptions most relevant to section 7 consultations are takings allowed by two kinds of permits issued by the Services: 1) scientific take permits and 2) incidental take permits. The Services can issue permits to take listed species for scientific purposes, or to enhance the propagation or survival of listed species. The Services can also issue permits to take listed species incidental to otherwise legal activity. [ESA §10]"

Signature (in remote sensing of resources). Characteristic value, color, or texture on an aerial or satellite imagery that correlates to a particular land cover type. Distinguishable signatures were used in the mapping of land cover types from remote imagery in the HCP/NCCP Geographic Information System (GIS) Land Cover database.

Special participating entity. A public entity or private individual that may conduct projects or undertake other activities in the plan area that are covered activities in the Yolo HCP/NCCP and that may affect covered species and require take authorization from USFWS or CDFW, but are not subject to the jurisdiction of one or more Permittees. These entities or individuals may pursue coverage under the Permits and the Yolo HCP/NCCP through the special participating entity process defined in Chapter 4 (Section 4.2.1.3) and also described in Chapter 7 (Section 7.2.5).

Species habitat models. HCP/NCCP-specific models developed to spatially define the extent of potential covered species habitat (sometimes divided into habitat subtypes such as separating foraging and nesting habitats) in the Plan Area for the purpose of preparing the Conservation Strategy and conducting the covered activities impact assessment. The models are based on various combinations of parameters of vegetation, soils, water features, geology, and topography used to circumscribe potential habitat for each of the species and species-specific requirements and behaviors (e.g., maximum typical distance between patches of nesting and foraging habitats that a

[15] USFWS (United States Fish and Wildlife Service) and NMFS (National Marine Fisheries Service). 1998. Endangered Species Act Consultation Handbook. Procedures for Conducting Section 7 Consultations and Conferences. Final Draft. Washington, D.C. March.

species will travel) that can be spatially modeled using available and specifically developed GIS databases. The structure, underlying assumptions, and GIS-data layers comprising the habitat models are described for each species in Appendix A, *Covered Species Accounts*.

Stream, perennial. A stream that flows throughout the year that is supplied by both rainfall runoff and groundwater including substantial dry season inputs.

Stream, intermittent. A stream that flows only at parts of the year (mainly winter and spring) and which ceases to flow occasionally or seasonally because bed seepage and evaporation exceed the available water supply.

Stream, ephemeral. A stream that flows only briefly in direct response to precipitation in the immediate vicinity, and that does not receive groundwater input.

Succession. The change in the composition and structure of a biological community over time. Successional patterns often shift dramatically following a major disturbance (e.g., fire, flood, anthropogenic clearing of land).

Take. ESA defines take as "…to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." (ESA §3(19). Under the California Endangered Species Act, take means to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill (§86 California Fish and Game Code).

Temporary effects. Alteration of land cover for less than one year that allows the disturbed area to recover to pre-project or ecologically improved conditions within one year (e.g., prescribed burning, construction staging areas) of completing covered activities. See *ecologicall improved,* abo ve. Also termed *temporary loss.*

Threatened species. Defined in the ESA as "...any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range" (Section 3(19)). The California Endangered Species Act (CESA) (California Fish and Game Code 2062) defines a threatened species as "…a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as "rare" on or before January 1, 1985, is a "threatened species."

Unforeseen circumstances. The USFWS defines unforeseen circumstances as those "changes in circumstances affecting a species or geographic area covered by a conservation plan that could not reasonably have been anticipated by the plan developers and the [USFWS and NMFS] at the time of the conservation plan's negotiation and development and that result in a substantial and adverse change in the status of a covered species"[16]. Under ESA regulations, if unforeseen circumstances arise during the term of the HCP/NCCP, USFWS may "not require the commitment of additional land, water, or financial compensation, or additional restrictions on the use of land, water, or other natural resources beyond the level otherwise agreed upon for the species covered by the conservation plan" unless the HCP/NCCP Permittees consent.[17] Similarly, unforeseen circumstances are defined in the NCCPA as "changes affecting one or more species, habitat, natural community, or the geographic area covered by a conservation plan that could not reasonably have been anticipated

[16] 50 CFR §17.3, 50 CFR §222.102.
[17] 50 CFR §17.22(b)(1)(5)(iii); 50 CFR §222.307(g)(3)(iii).

at the time of plan development, and that result in a substantial adverse change in the status of one or more covered species"[18]. The NCCPA further provides that, in the event of unforeseen circumstances, DFW shall not require "additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources…without the consent of the plan participants for a period of time specified in the implementation agreement."

Unoccupied habitat. Habitat that exhibits all the elements necessary for a species, but the species is not currently present.

Urban Planning Units. In the context of HCP/NCCP, refers to planning units 19-22 within which the Cities of Woodland, Davis, West Sacramento, and Winters are located. These planning units are where the local agencies anticipate most urban development will occur under their respective general plans.

Valley foothill riparian natural community. The valley foothill riparian natural community consists of a multilayered woodland plant community with a tree overstory and diverse shrub layer. Canopy species include mature valley oak, Fremont cottonwood, ash, and willows. In a mature riparian forest, canopy heights reach approximately 100 feet, and canopy cover ranges from 20 to 80 percent. Blue elderberry, California rose, poison oak, and California blackberry may form dense thickets in the understory of mature riparian forests. California grape creates a dense network of vines in the canopy. In areas that are disturbed by frequent flooding, fire, or human activity, this natural community often consists of smaller trees, more shrubs, and more invasive nonnative species. The valley foothill riparian natural community is usually associated with streams and creeks with low-velocity flows, floodplains, and low topography. The valley foothill riparian natural community is composed of 13 vegetation types listed in Table 2-1, *Natural Communities and Other Land Cover Types*, reflecting the diversity of riparian conditions.

Valley oak woodland natural community. The valley oak woodland natural community consists of tree stands that are dominated by valley oak located outside of riparian zones. The valley foothill riparian natural community, defined above, can be dominated by valley oak but encompasses streamside communities that have a higher abundance of typical riparian species, such as cottonwoods, ash, and willows. The valley oak woodland natural community is usually located below 5,000 feet and on sites that support deep, well-drained alluvial soils, most often on valley floors. Table 2-1, *Natural Communities and Other Land Cover Types,* lists the land cover types that make up this natural community.

Vegetation/vegetative community. A natural or artificial terrestrial community defined by the dominant vegetation and the vegetation structure.

Vernal pool complex natural community. The vernal pool complex natural community consists of complexes of seasonal pools within a grassland matrix. These seasonal pools form in shallow depressions that hold water due to the slow infiltration rate of the underlying clay alluvium soil. The vernal pools on the clay alluvium soils of the floodplains contain a mixture of two general types in basins between seasonal drainages: smaller vernal pools connected by swales and larger playa-type vernal pools. The vernal pool complex natural community supports a number of characteristic plant species, including downingia, vernal pool goldfields, popcorn flower, and woolly marbles. Local concern plant species that occur in the vernal pool complex natural community include Ferris' milk vetch, alkali milk-vetch, brittlescale, San Joaquin spearscale, Heckard's peppergrass, Colusa grass,

[18] Fish and Game Code §2805(k).

Solano grass, and Baker's navarretia. Table 2-1, *Natural Communities and Other Land Cover Types,* lists the land cover types that make up this natural community.

Wetlands. Areas subject to seasonal or perennial flooding or ponding, or that possess saturated soil conditions and that support predominantly hydrophytic or "water-loving" herbaceous plant species. The term wetland(s) is used to refer to all wetland types. Under USACE and EPA regulations wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."[19] The USFWS and the State of California define wetlands more broadly. Under the HCP/NCCP, wetlands are defined to include all areas meeting the USACE and the State of California's definitions for wetlands.

[19] 33 CFR 328.3(b); 40 CFR 232.2